

**Proponent's Environmental Assessment
Palermo–East Nicolaus 115kV
Transmission Line
Reconstruction Project**

Prepared for:

Pacific Gas and Electric Company
Land Planning and Routing
Technical and Land Services
350 Salem Street
Chico, CA 95928
Contact: Jesus Viscarra
(530) 896-4263

Prepared by:

ICF Jones & Stokes
630 K Street, Suite 400
Sacramento, CA 95814
Contact: Sally Zeff
916/737-3000

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Acronyms and Abbreviations

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
AB	Assembly Bill
AB 939	California Integrated Waste management Act of 1989
AC	Alternating current
AG	California Attorney General
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act
APE	Area of potential effects
APMs	applicant-proposed measures
Arid West Supplement	Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region
ASTM	American Society for Testing and Materials
BAMM	best available mitigation measures
BAT	best available technology
BCAG	Butte County Association of Governments
BCAQMD	Butte County Air Quality Management District
BCFD	Butte County Fire Department
BMPs	best management practices
BO	biological opinion
BP	before present
BWD	Brophy Water District
CAA	U.S. Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAI	California Archaeological Inventory
CAISO	California Independent System Operator
CalARP	California Accidental Release Prevention
CalEPA	California Environmental Protection Agency
Cal-EPA	California Environmental Protection Act
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
Calwater-Oroville	California Water Service Company, Oroville
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	Climate Act Team
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDC	California Department of Conservation
CDF	California Department of Forestry and Fire Protection

CDFG	California Department of Fish and Game
CDMG	California Department of Conservation's Division of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHRIS	California Historical Resources Information System
CID	Cordua Irrigation District
CIWMB	California Integrated Waste Management Board
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNG	compressed natural gas
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
COI	California-Oregon Intertie
Corps	U.S. Army Corps of Engineers
CPRC	Central Pacific Railroad Company
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CUPA	Certified Uniform Program Agency
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water Act
DC	Direct current
Delta	Sacramento–San Joaquin River Delta
DFG	Department of Fish and Game
DLRP	Division of Land Resource Protection
DO	dissolved oxygen
DOGGR	California Department of Oil, Gas, and Geothermal Resources
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	California State Department of Water Resources
EDMS	Emissions and Dispersion Modeling System
EMF	electric and magnetic fields
EP	Environmental Protection Agency
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
ESU	evolutionarily significant unit
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	U.S. Department of Transportation Federal Highway Administration
FIRMs	Flood Insurance Rate Maps
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
FRAQMD	Feather River AQMD

General Construction Permit	General Permit for Discharges of Storm Water Associated with Construction Activity
General Dewatering Permit	General Order for Dewatering and Other Low Threat Discharges to Surface Waters
GHG	greenhouse gasses
GPS	global positioning system
GPTU	Butte County General Plan Technical Update
GWPC	Great Western Power Company
HAPs	hazardous air pollutants
HCP	habitat conservation plan
HSC	California Health and Safety Code
hybrid poles	hybrid tubular steel poles
H _z	Hertz
LCWD	Linda County Water District
L _{dn}	Day-Night Level
L _{eq}	Sound Equivalent Level
LNG	liquefied natural gas
LOAPUD	Lake Oroville Area Public Utility District
LOS	level of service
LSP	lattice steel poles
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
MGD	million gallons a day
MOA	Memorandum of agreement
MRZs	Mineral Resource Zones
MSL	mean sea level
MW	megawatts
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP/HCP	Yuba-Sutter Natural Communities Conservation Plan/Habitat Conservation Plan
NCIC	North Central Information Center
NEIC	Northeast Information Center
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Council
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHRP	National Register of Historic Places
NMFS	National Marine Fisheries Service
NO	nitric oxide
NO ₂	nitrogen dioxide
NOI	notice of intent
NO _x	oxides of nitrogen
NPDES	National Pollution Discharge Elimination System
NPPA	California Native Plant Protection Act of 1977
NRCS	Natural Resources Conservation Service
NSVPA	Northern Sacramento Valley Planning Area

NWPs	Nationwide permits
OES	Governor's Office of Emergency Services
OHWM	ordinary high-water mark
OPR	California Office of Planning and Research
OPUD	Olivehurst Public Utility District
OWID	Oroville-Wyandotte Irrigation District
PG&E	Pacific Gas & Electric Company
PM10	particulate matter less than 10 microns in diameter
PM2.5	PM less than 2.5 microns in aerodynamic diameter
ppm	parts per million
PPMP	pollution prevention and monitoring program
PRC	California Public Resources Code
PRC 4290	Public Resources Code 4290
project	Palermo–East Nicolaus 115kV Transmission Line Reconstruction Project
project, proposed	Pacific Gas & Electric Company's proposed Palermo–East Nicolaus 115 kV
project	Transmission Line Reconstruction Project
RCRA	Resource Conservation and Recovery Act
RD 784	Yuba County Reclamation District 784
RM	River Mile
ROG	reactive organic gases
RWQCB	regional water quality control board
SACOG	Sacramento Area Council of Governments
SARA Title III	Superfund Amendment and Reauthorization Act Title III
SF6	sulfur hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMARA	California Surface Mining and Reclamation Act
SMGB	State Mining and Geology Board
SNRC	Sacramento Northern Railroad Company
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasure
SPCCP	Spill Prevention Control and Countermeasure Plan
SRAs	State Responsibility Areas
SVAB	Sacramento Valley Air Basin
SWANCC	Solid Waste Agency of Northern Cook County
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	California State Water Resources Control Board
SYWD	South Yuba Water District
TAC	Toxic air contaminants
TDS	total dissolved solids
TID	Thermalito Irrigation District
towers	steel lattice towers
TSP	tubular steel poles
USACE	U.S. Army Corps of Engineers
USC	United States Code

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
VELB	valley elderberry longhorn beetle
WDRs	Waste Discharge Requirements
WHR	California Wildlife-Habitat Relationships System
Williamson Act	California Land Conservation Act of 1965
WPRR	Western Pacific Railroad Company
YSDI	Yuba-Sutter Disposal, Inc.

Overview

Pacific Gas & Electric Company (PG&E) owns and operates a 115 kV overhead electric power line system in Butte, Yuba, and Sutter Counties near the cities of Oroville and Marysville (see Figure 3-1). This transmission system is comprised of 230 kV, 115 kV, and 60 kV networks and facilities. The area has experienced record peak electric demand in recent years due to the area's booming development. The 230 kV and 115 kV facilities, crossing the area from north to south, are part of the bulk transmission system and also serve as connections to the surrounding generation facilities, including hydropower generation produced around the Feather River and Lake Oroville. PG&E predicts that it will not be able to sustain reliable electric service in the area if capacity improvements are not made to the system.

The subject transmission line is an existing double circuit tower line that carries two individual 115kV circuits between PG&E's Palermo and East Nicolaus Substations. As part of this project, both circuits of the line will be reconducted with new 1113 all-aluminum cable. In order to accommodate the reconducting, replacement of existing steel lattice towers (towers) is required.

The existing Milliken towers, originally constructed in the early 1900s, are dilapidated structures that will not support the new conductor because of higher tension loads. The towers will be replaced with a combination of hybrid tubular steel poles (hybrid poles), tubular steel poles (TSP), and lattice steel poles (LSP). The capacity increase to the system will result from the replacement of existing copper conductor with the new aluminum conductor on the subject tower line between the Palermo and East Nicolaus Substations (part of the Palermo-Nicolaus-Rio Oso 115kV circuit), and Palermo Substation and Bogue Tap (part of the Palermo-Bogue-Rio Oso 115kV circuit). The new conductor will enable an increase in the existing rating of the lines and would eliminate forecasted line overloads. In addition, a limited number of towers on the adjacent single-circuit line will be replaced for consistency with the spans on the Palermo-East Nicolaus 115kV transmission line.

The proposed project lies within an existing right-of-way. The project modifies existing facilities within an existing utility corridor. It also takes advantage of existing access roads needed to construct and maintain the power line system.

Purpose and Need

The basic objectives of the Palermo-East Nicolaus 115 kV Transmission Line Project include:

- **Ensure transmission system reliability.** The main project objective is to ensure that the Yuba/Sutter/Butte Counties area transmission system will continue to meet planning standards and criteria established by the California Independent System Operator (CAISO) and North American Electric Reliability Council (NERC) to ensure the safety and reliability of the transmission system. These planning criteria must be met by the project.
- **Replacement of aging facilities.** The second objective is to replace aging and dilapidated facilities in a cost effective and environmentally sensitive manner.
- **Implement the CAISO Board of Governor's [May 21, 2008] Resolution.** The third objective is to implement the [May 21, 2008] California CAISO Board of Governors' resolution approving the project for addition to the CAISO-controlled grid.

The Palermo–East Nicolaus 115 kV Transmission Line project is needed to improve reliability and transmission capacity in the Yuba/Sutter/Butte Counties to continue to provide safe and reliable electric service to customers. PG&E's local 115 kV transmission system is at risk of overloading problems should there be a loss of the Pease–Rio Oso 115 kV Line while the Greenleaf I generator is unavailable. Reconductoring the two individual 115 kV circuits between PG&E's Palermo and East Nicolaus Substations will help meet future demand, maintain compliance with applicable grid reliability criteria, and make it easier to maintain the transmission system.

Scope of the PEA and Conclusions

The PEA describes the affected environment and project-related environmental effects for the following resources:

- Aesthetics.
- Agriculture.
- Air Quality.
- Biological Resources.
- Cultural Resources.
- Geology, Soils, and Seismicity.
- Hazards and Hazardous Materials.
- Hydrology and Water Quality.
- Land Use and Planning.

- Mineral Resources.
- Noise.
- Population and Housing.
- Public Services.
- Recreation.
- Transportation and Traffic.
- Public Utilities.
- Growth-Inducing and Cumulative Impacts.

The project was planned and engineered to avoid or minimize environmental impacts. As part of PG&E's standard construction practices, environmental commitments have been incorporated into the project design and will be implemented to avoid or minimize impacts to biological resources. PG&E also has proposed resource-specific measures to ensure that potential impacts are less than significant. These applicant-proposed measures (APMs) are identified in the respective resource section. Chapter 5 contains a list of all environmental commitments and APMs.

With implementation of the environmental commitments and APMs, all potential project-related impacts will be avoided or reduced to a less-than-significant level. Key environmental issues that will require inter-agency coordination are identified in the following section.

There are no known areas of controversy, and no major issues that must be resolved related to the project.

Inter-Agency Coordination

Encroachment permits will be obtained from the California Department of Transportation (Caltrans) and Butte, Yuba, and Sutter Counties for crossing jurisdictional roads, highways, and freeways.

The California Native American Heritage Commission (NAHC) was contacted to request a search of their sacred lands database and a list of Native American representatives for the project area vicinity.

Additional detail concerning agency coordination for the following actions is found in Section 4.4, *Biological Resources*.

- A preliminary delineation of wetlands and other waters of the United States has been submitted to the U.S. Army Corps of Engineers (Corps) (ICF Jones & Stokes 2009). The preliminary delineation will need to be verified by the Sacramento District. In consultation with the Corps, PG&E will develop a wetlands mitigation plan to offset effects to waters of the United States, including wetlands.

- If full avoidance of special-status plants identified in the project area is not possible during construction, PG&E will consult with the California Department of Fish and Game (DFG) regarding the need for and type of compensation to mitigate the impact.
- The Sacramento Office of the U.S. Fish and Wildlife Service (USFWS) was contacted to discuss the potential for federally listed wildlife species to occur in the project area.
- Construction activities potentially impacting suitable habitats for valley elderberry longhorn beetle, vernal pool fairy shrimp, vernal pool tadpole shrimp, and giant garter snake will be approved by USFWS.
- To compensate for temporary and permanent impacts to suitable habitat for federally listed species, PG&E will preserve habitat within a USFWS-approved conservation area. The ratio of compensation and location of the conservation area will be determined through consultation with USFWS.
- To compensate for temporary and permanent impacts to suitable habitat for state listed species, PG&E will preserve habitat within a DFG-approved conservation area. The ratio of compensation and location of the conservation area will be determined through consultation with USFWS and a consistency determination with DFG.
- If surveys indicate that migratory bird or raptor nests occur in areas where construction activities will take place, a no-disturbance buffer will be established around the nest site to avoid disturbance or destruction of the nest site until after the breeding season or until a wildlife biologist determines that the young have fledged. The extent of these buffers will be determined through coordination with DFG.
- If active nests occur under planned helicopter flight paths, especially those near landing areas, coordination with DFG will be required to determine whether modification of the flight path is necessary to avoid disturbance of active nests.

Organization of the PEA

The remainder of the document is organized as follows:

- Chapter 2. Project Purpose and Need
- Chapter 3. Project Description
- Chapter 4. Affected Environment and Environmental Effects
- Chapter 5. Mitigation Measures
- Chapter 6. List of Preparers
- Appendices:

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Chapter 2

Project Purpose and Need

Project Overview

PG&E's electric transmission system serving Butte, Yuba and Sutter counties is comprised of 230 kV, 115 kV and 60 kV networks and facilities. The area has experienced record peak electric demand in recent years due to the area's booming development. The 230 kV and 115 kV facilities, crossing the area from north to south, are part of the bulk transmission system and also serve as connections to the surrounding generation facilities including hydro generation produced around Feather River and Lake Oroville. To meet present and forecasted electric demands of the area, PG&E is proposing several capacity and reliability improvement projects to area transmission facilities; one of the projects is the Palermo–East Nicolaus 115kV Power Line reconstruction between Palermo Substation near Oroville, and East Nicolaus Substation south of Marysville.

The subject power line is an existing double circuit tower line that carries two individual 115kV circuits between PG&E's Palermo and East Nicolaus Substations. Both circuits of the line will be reconducted with new 1113 All Aluminum cable. In order to accommodate the reconducting, replacement of existing lattice steel towers (towers) is required. The existing Milliken towers, originally constructed in the early 1900s, are dilapidated structures that will not support the new conductor because of higher tension loads. The towers will be replaced with a combination of hybrid tubular steel poles (hybrid poles), tubular steel poles (TSP), and lattice steel poles (LSP). The capacity increase to the system will result from the replacement of existing copper conductor with new 1113 All Aluminum conductors for each circuit from the Palermo Substation south to Rio Oso Junction and with either 1113 all- aluminum or 457 steel-supported aluminum cable (SSAC) conductor from Rio Oso Junction to East Nicolaus Substation. The new conductor will enable an increase in the existing rating of the lines and eliminate forecasted line overloads. In addition, a limited number of towers on a single-circuit line that runs parallel to the Palermo–East Nicolaus 115 kV Power Line will be replaced for consistency with the spans on the Palermo–East Nicolaus 115kV transmission line.

For the purposes of this assessment, the *project study area* is defined as land within the 500-foot corridor centered on the two line segments. The project study area is located within unincorporated areas of Butte, Sutter and Yuba Counties

and within the sphere of influence of the City of Marysville. All of the proposed project lies within existing easements.

Project Objectives

The basic objectives of the Palermo–East Nicolaus 115 kV Transmission Line Project include:

- **Ensure transmission system reliability.** The main project objective is to ensure that the Yuba/Sutter/Butte Counties area transmission system will continue to meet planning standards and criteria established by the California Independent System Operator (CAISO) and North American Electric Reliability Council (NERC) to ensure the safety and reliability of the transmission system. These planning criteria must be met by the project.
- **Replacement of aging facilities.** The second objective is to replace aging and dilapidated facilities in a cost effective and environmentally sensitive manner.
- **Implement the CAISO Board of Governor's [May 21, 2008] Resolution.** The third objective is to implement the [May 21, 2008] California CAISO Board of Governors' resolution approving the project for addition to the CAISO-controlled grid.

The Palermo–East Nicolaus 115 kV Transmission Line project is needed to improve reliability and transmission capacity in the Yuba/Sutter/Butte Counties to continue to provide safe and reliable electric service to customers. PG&E's local 115 kV transmission system is at risk of overloading problems should there be a loss of the Pease–Rio Oso 115 kV Line while the Greenleaf I generator is unavailable. Reconductoring the two individual 115 kV circuits between PG&E's Palermo and East Nicolaus Substations will help meet future demand, maintain compliance with applicable grid reliability criteria, and make it easier to maintain the transmission system.

Project Need and Benefits

Three Palermo–Rio Oso 115 kV lines are located in Yuba and Sutter Counties. The transmission line range in length from 46 to 57 miles and are constructed on towers built in the early 1900's. These lines provide power to the Honcut, Pease, East Marysville, Olivehurst, Bogue and East Nicolaus distribution substations, among others.

Table 2-1 describes the characteristics of the three Palermo–Rio Oso 115 kV Lines.

Table 2-1. Palermo–Rio Oso 115 kV Lines

Transmission Line Name	Length (Miles)	Limiting Conductor Type	Summer Normal/Emergency Line Rating (Amps)
Palermo–Nicolaus–Rio Oso			
Palermo–Nicolaus	41.3	3/0 Cu	361/416
Rio Oso–Nicolaus	5.5	3/0 Cu	326/416
Palermo–Pease–Rio Oso			
Palermo–Pease	21.2	397 AAL	440/514
Pease–Rio Oso	27.7	397 AAL	440/514
Palermo–Bogue–Rio Oso			
Palermo–Bogue	35.7	3/0 Cu	361/416
Bogue–Rio Oso	21.4	397 AAL	440/514

In addition to providing 115 kV power to the area electric customers, the Palermo–Rio Oso 115 kV lines also serve as an important transmission path of bulk electricity coming from nearby hydroelectric generating facilities and the California-Oregon Intertie (COI), comprised of several 500 kV power lines that were built by Western Area Power Administration, PG&E, and PacifiCorp in the early 1970s to 1990s, linking power grids in the Southwest with power grids in the Pacific Northwest.

There are several hydroelectric powerhouses in the area, particularly along Feather River between Lake Almanor and Lake Oroville. Most of them are interconnected to the 230 kV systems of the Table Mountain and Rio Oso substations, and to the 115 kV system of the Palermo Substation. The power plants listed below have a total installed capacity of 287 MW.

- Yuba County Water Agency's Deadwood Creek Powerhouse.
- Oroville-Wyandotte Irrigation District's Forbestown.
- Sly Creek Powerhouse.
- Wood Leaf Powerhouse.
- Calpine's Greenleaf I.
- Calpine's Greenleaf II.
- Feather River Energy Center.

Power from these power plants, together with imported power from COI going through the Table Mountain Substation, is transported to load centers in the Sutter and Yuba Counties through the Palermo–Rio Oso 115 kV lines.

Some capacity upgrades to the Palermo–Rio Oso 115 kV circuits were made in the past, including rerating some sections to a higher wind speed assumption and reconfiguring the network to balance the line loadings. However, these upgrades

only provided near-term capacity increase and did not eliminate the forecasted overloads.

Power flow studies indicate that, if an outage were to occur on the Pease–Rio Oso 115 kV Line while the Greenleaf I generator is unavailable during high hydroelectric generation, summer peak periods and COI import power conditions, the 115 kV circuit between the Palermo Substation and the East Nicolaus Substation and the 115 kV circuit between the Palermo Substation and the Bogue Tap sections could exceed their emergency ratings by up to 7% in 2009. As shown in Figure 2-1, the normal and emergency loads are projected to be 430 and 445 amps, respectively, whereas the current capacity of the limiting conductor on these circuits is 361 amps normally and 416 amps under emergency conditions. Projected load growth will exacerbate the problem going forward.

An outage of the Pease–Rio Oso 115 kV Line and the Greenleaf I generator is considered a Category B disturbance under CAISO and NERC/Western Electricity Coordinating Council Planning Standards. These standards require that, during a single element outage, the transmission system must be capable of serving customer demand and keeping line and equipment loading within their emergency ratings. Thus, if the Pease–Rio Oso Line and the Greenleaf I were to fail, especially during peak demand load levels, the existing system will not be able to meet planning criteria for reliability and this outage could prevent PG&E from serving customer demand.

The reconductoring and replacement of the existing dilapidated towers will result in an increase in the existing rating of the transmission lines to 825 amps normally and 975 amps under emergency conditions. As Figure 2.2. indicates, the capacity additions will eliminate forecasted line overloads so that PG&E can reliably serve electric customers in the area and transport the much-needed bulk power to load centers in the Sutter and Yuba Counties.

In terms of megawatts (MW), the existing system has a maximum load-serving capability of about 342 MW with loss of the Pease–Rio Oso 115 kV Line while the Greenleaf I generator is unavailable. The substations in the Sutter and Yuba Counties, and within the sphere of influence of the City of Marysville, recorded a historical total peak load of 347 MW in the summer of 2008, exceeding by 5 MW the system's load-serving capacity without the Pease–Rio Oso 115 kV Line and Greenleaf I generation.

The recent economic downturn and customer conservation efforts resulted in a peak load of 336 MW in 2007. Based on the recorded levels, the 2007 customer demand is only 5 MW less than the maximum load-serving capability of the system.

Even with the 2007 reduction of peak load, the peak demand levels in 2006 and 2008 increased to 355 and 347 MW, respectively. The load increase is due to the area demographics, among other things. The proportion of domestic customers to the total customers in the area is over 80%. To account for this, the distribution facilities have been designed to allow for future growth due to imminent residential housing developments along State Highway 70. In the future, the load

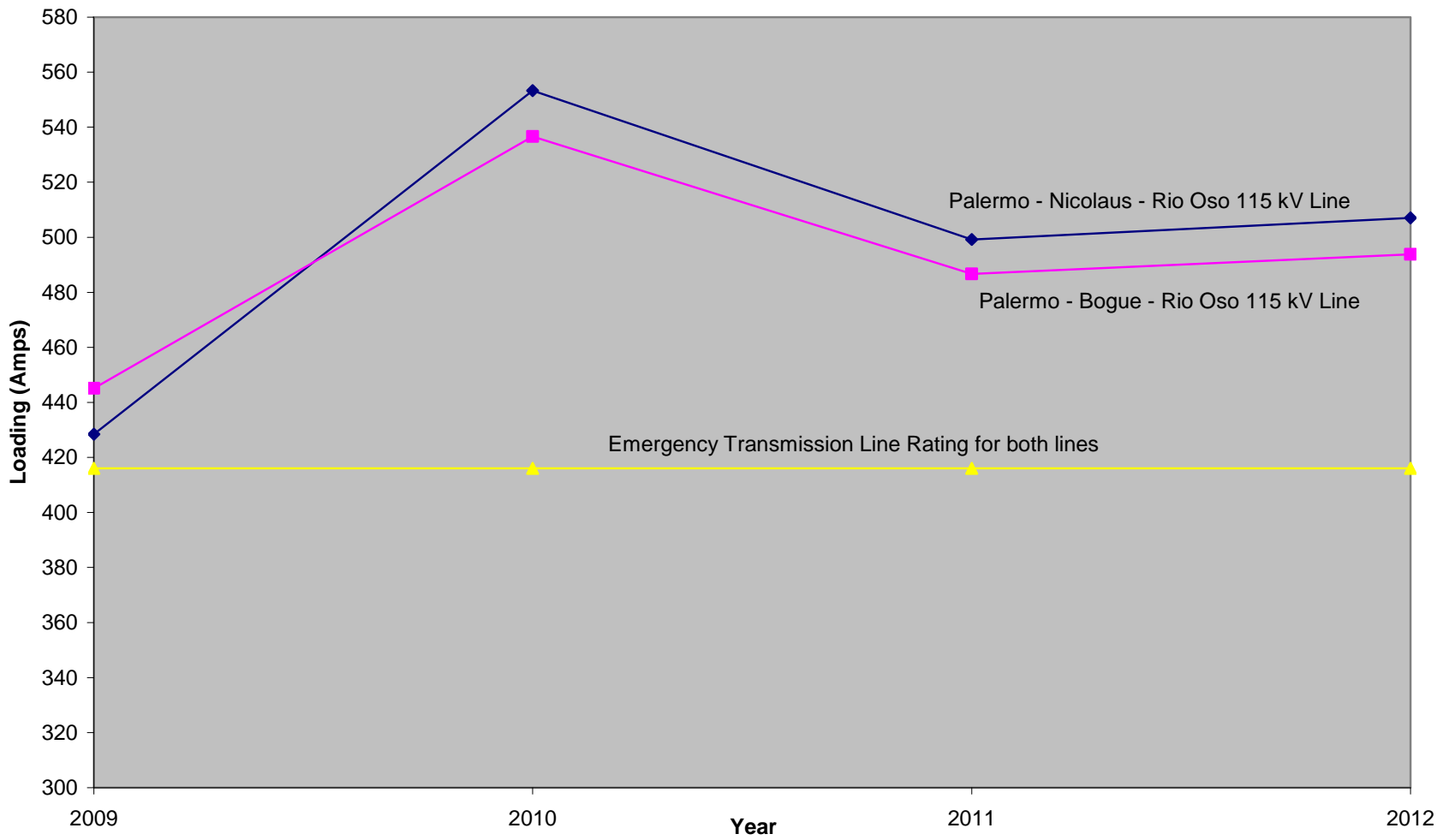


Figure 2-1. Thermal Loadings on the Palermo-Rio Oso 115 kV Lines
 (assuming the Pease-Rio Oso 115 kV Line and the Greenleaf I generator are unavailable)

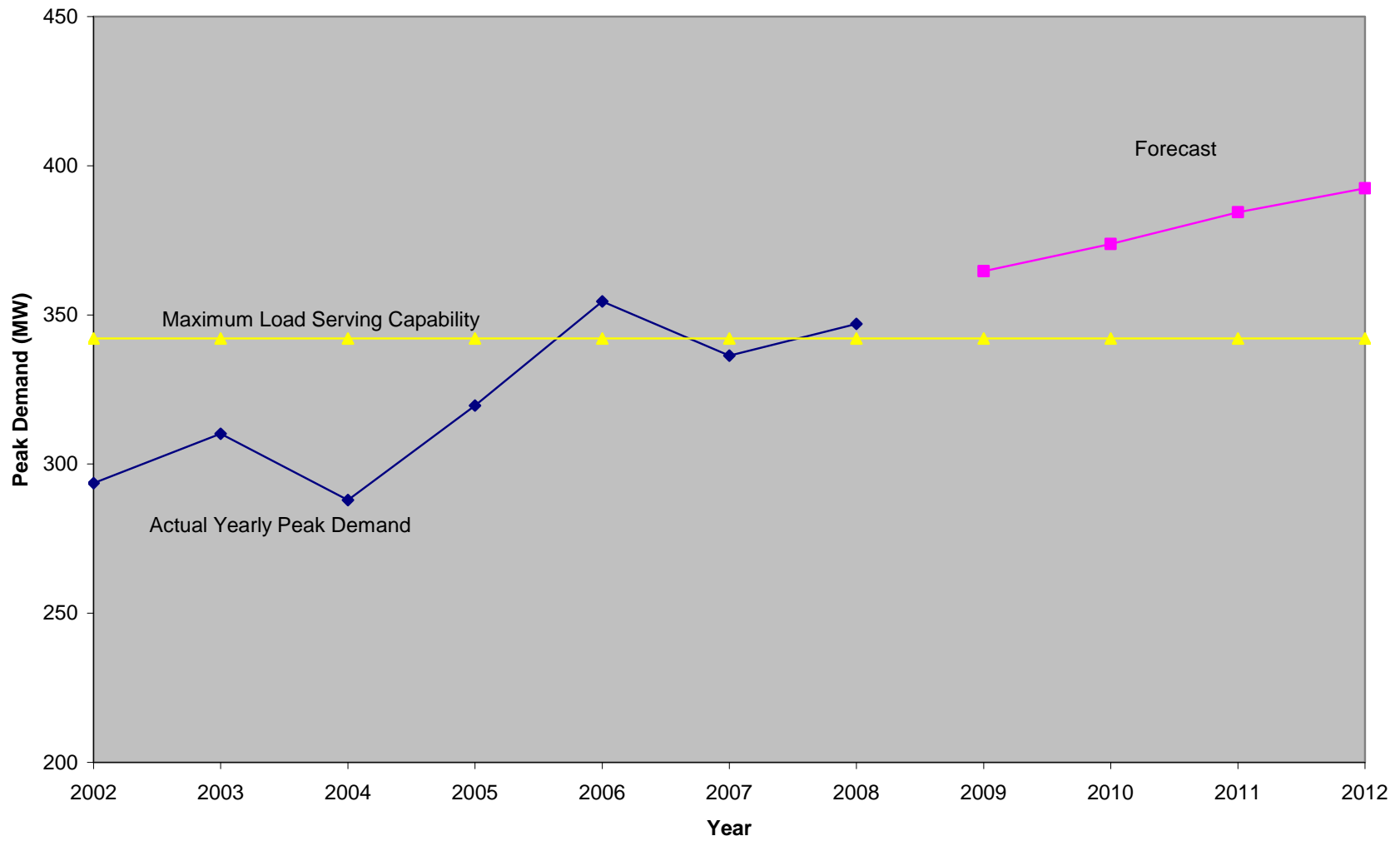


Figure 2-2. Yearly Peak Demand and System Capability

in these two counties is forecasted to grow at a rate of 9 MW or 2.5 percent per year. (1 MW serves approximately 1,000 residential homes.) Figure 2-2 shows the relationship between peak demand and the load-serving capability of the system if the existing Pease–Rio Oso 115 kV Line and the Greenleaf I generator are unavailable.

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Proposed Project Components

Reconstruction work on the Palermo-East Nicolaus project will include the following:

- Replacement of existing steel towers with a combination of new hybrid tubular steel poles, tubular steel poles, and lattice steel poles on the Palermo-East Nicolaus 115kV double-circuit power line
- Replacement of a limited number of existing lattice steel towers on the adjacent single-circuit line with new steel poles for consistency with the spans on the Palermo-East Nicolaus 115kV transmission line.
- Conductor replacement.
- Construction of temporary access roads and limited improvements to permanent access roads.
- Revegetation of disturbed areas following construction.

Construction is expected to take 12 to 18 months. Specific details for each of these activity types are presented in the following sections.

Transmission Line/Conductors

The Palermo–East Nicolaus 115kV power line will be reconducted using new 1113 all-aluminum conductors for each circuit from the Palermo Substation south to Rio Oso Junction and with either 1113 all-aluminum or 457 SSAC conductor from Rio Oso Junction to East Nicolaus Substation. (Figure 3-1).

Poles/Towers

The reconstruction project will require the replacement of a majority of the existing towers and a limited number of towers on the adjacent single-circuit line. Existing towers range in height from 75 feet to 95 feet tall, with the typical being 76 feet in height.

Different new pole designs will be used depending on site conditions. The existing towers will be replaced with a combination of hybrid tubular steel poles (hybrid poles), tubular steel poles (TSPs), and lattice steel poles (LSP). Figure 3-2 depicts the location of proposed reconstruction. Table 3-1a and Table 3-1b identify the type of pole planned for use at each location. New structure design is shown in Figure 3-3.

A typical design of the hybrid poles is shown in Figure 3-4. The hybrid pole is so called because it is a hybrid between conventional tubular steel and spun concrete to form a sectional composite pole design. The pole is direct buried and does not require a poured concrete foundation. It is installed by auguring the hole for the concrete lower portion of the pole, which is approximately 35 feet in length, installing the lower concrete base using a heavy crane, and then fitting the tubular steel pole onto the concrete base. The upper pole will be galvanized, and a dull grey in color. The hybrid poles will be approximately 80–120 feet tall.

TSPs will be used at angle, dead-end, conductor transposition, and equipment (switch) poles where a stronger structure is needed. This structure is a prefabricated steel top that is bolted to a poured-in-place concrete foundation. The pole will also be galvanized, and a dull grey in color. A heavy crane or helicopter is used to install the TSPs. The height of these poles is similar to that of the hybrid poles.

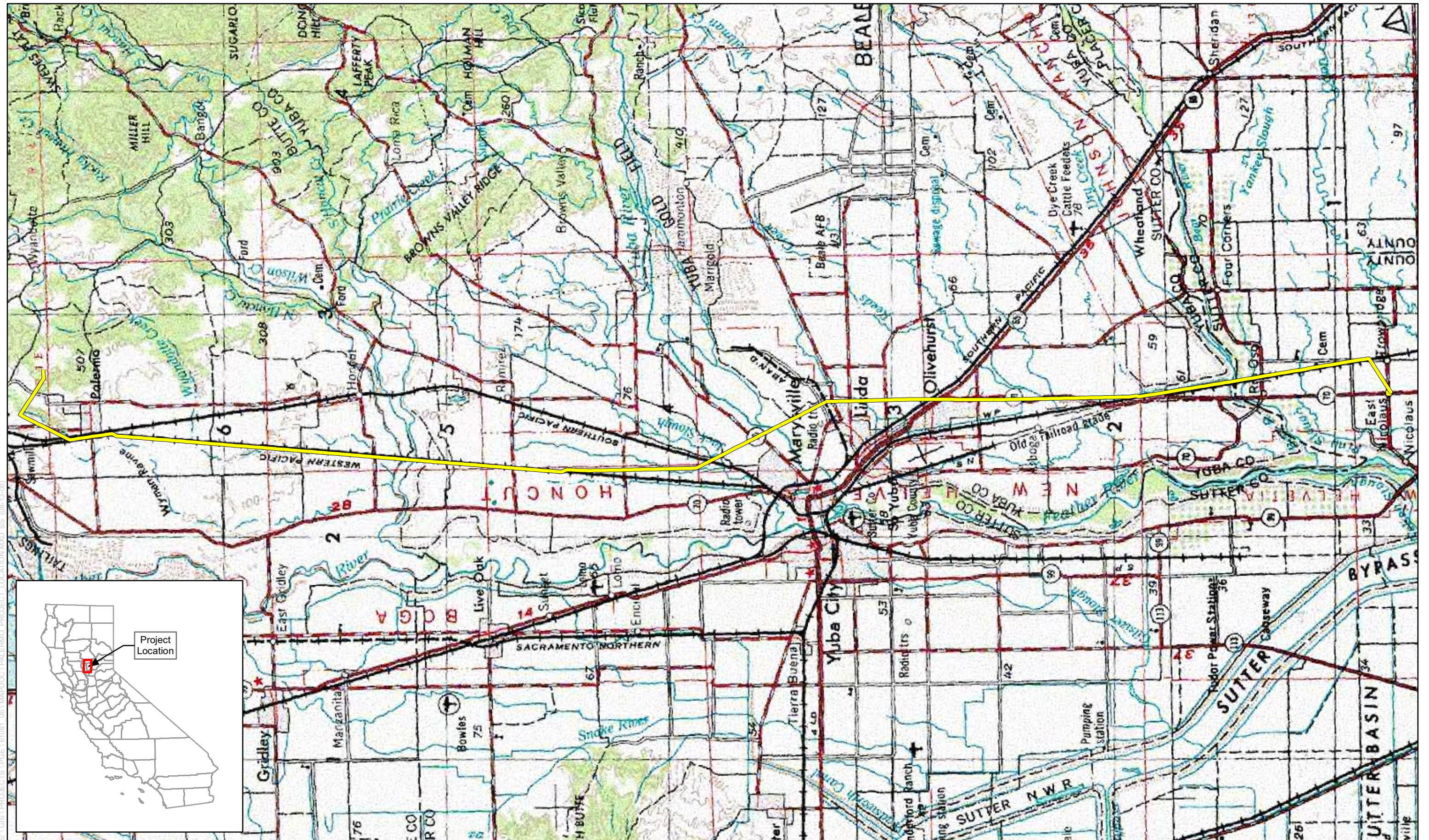
LSPs, which can be installed without a heavy crane, will be used in areas where access is limited. The poles will be approximately 80–110 feet tall. Similar to TSPs, the prefabricated LSPs will be installed by helicopter onto a poured-in-place foundation.

The first ten towers from the Palermo Substation and the last nine towers into the East Nicolaus Substation will not be replaced.

The span lengths will be altered slightly from the existing spans, as new pole placement has been designed to avoid sensitive resources. Of the existing 320 towers, 264 will be replaced with steel poles, and 41 will remain in place. The total number of structures will be reduced by 15. Table 3-1a and Table 3-1b provide information regarding pole types and heights for the Palermo–E. Nicolaus lines and Palermo–Pease lines.

Substations

No major work at the substations will be done as a part of this project. Minor relay replacement or setting changes may be required. All work will be within the existing substation control buildings.



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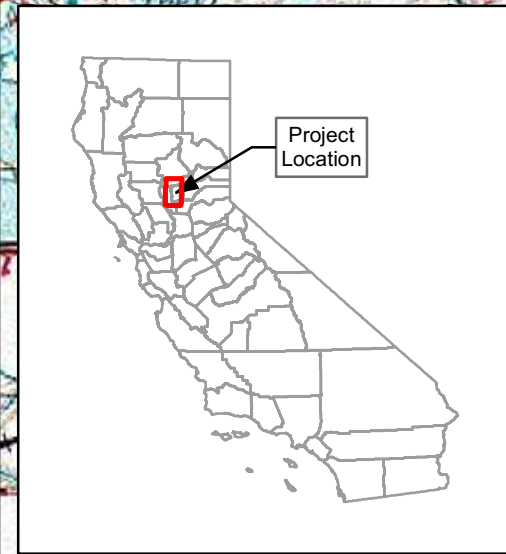


Figure 3-1
Palermo-East Nicholas 115kV
Transmission Line Reconstruction Project PEA

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Project Activities

- New Pole Site
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road

Existing Facilities

- Eliminate Tower
- Existing Tower - No Structure Work
- Tower on Adjacent Line - No Structure Work

- ★ Cities
- Transmission Line
- Existing Access Road
- County Boundary

Sheet: 1

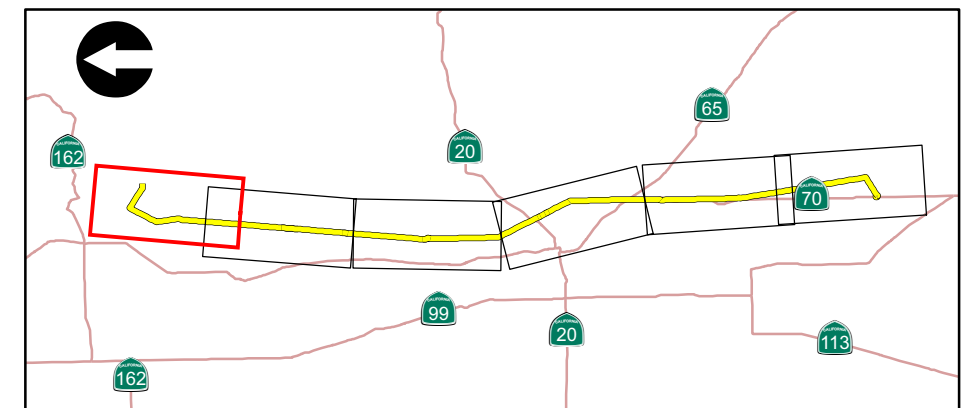
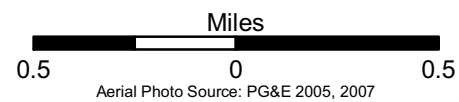
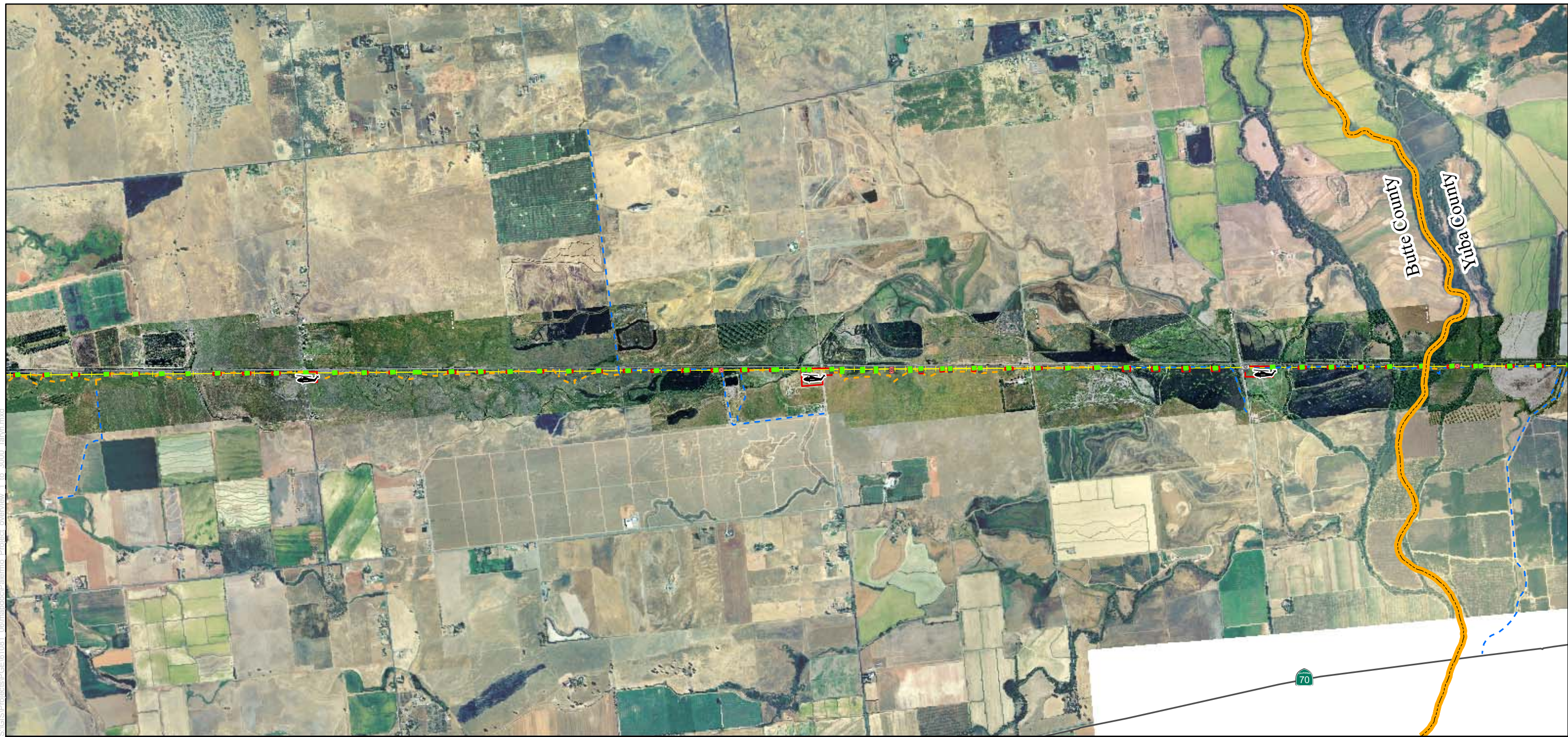


Figure: 3-2 Project Description



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Project Activities

- New Pole Site
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road

Existing Facilities

- ✖ Eliminate Tower
- Existing Tower - No Structure Work
- Tower on Adjacent Line - No Structure Work

- ★ Cities
- Transmission Line
- Existing Access Road
- County Boundary

Sheet: 2

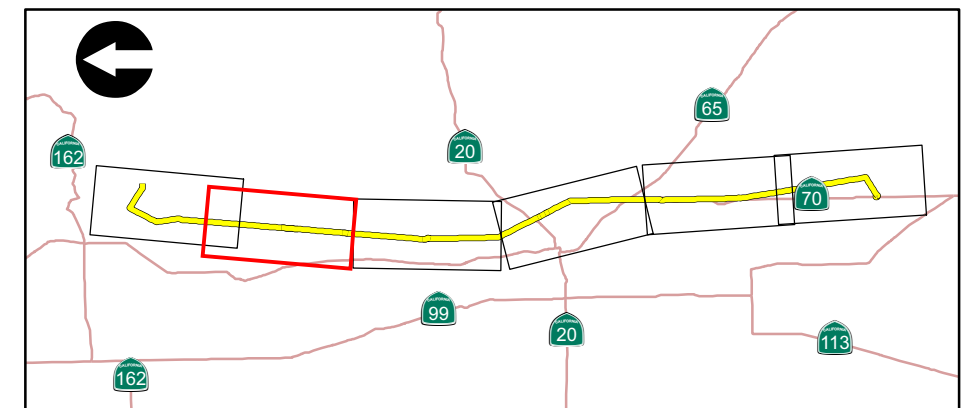
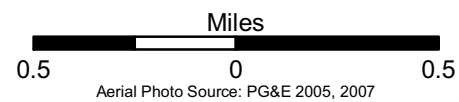


Figure: 3-2 Project Description



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Project Activities

- New Pole Site
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road

Existing Facilities

- ✖ Eliminate Tower
- Existing Tower - No Structure Work
- Tower on Adjacent Line - No Structure Work

- ★ Cities
- Transmission Line
- Existing Access Road
- County Boundary

Sheet: 3

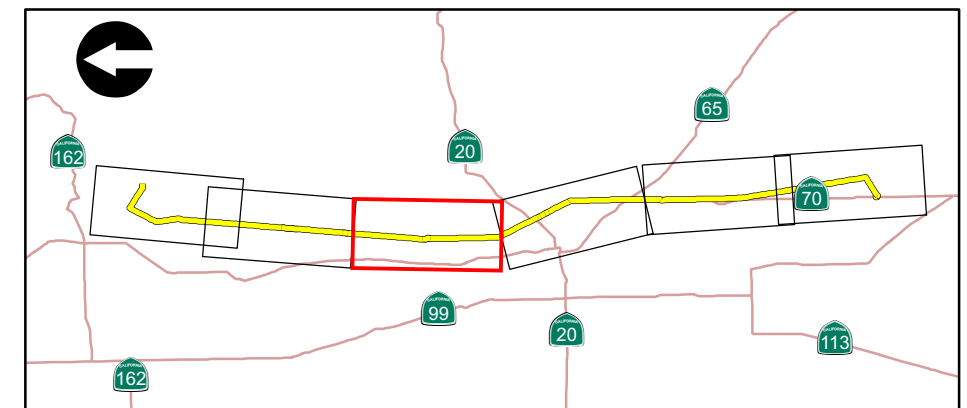
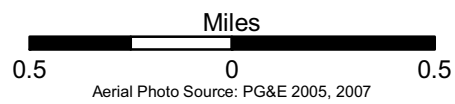


Figure: 3-2 Project Description



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Project Activities

- New Pole Site
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road

Existing Facilities

- ✖ Eliminate Tower
- Existing Tower - No Structure Work
- Tower on Adjacent Line - No Structure Work

- ★ Cities
- Transmission Line
- Existing Access Road
- County Boundary

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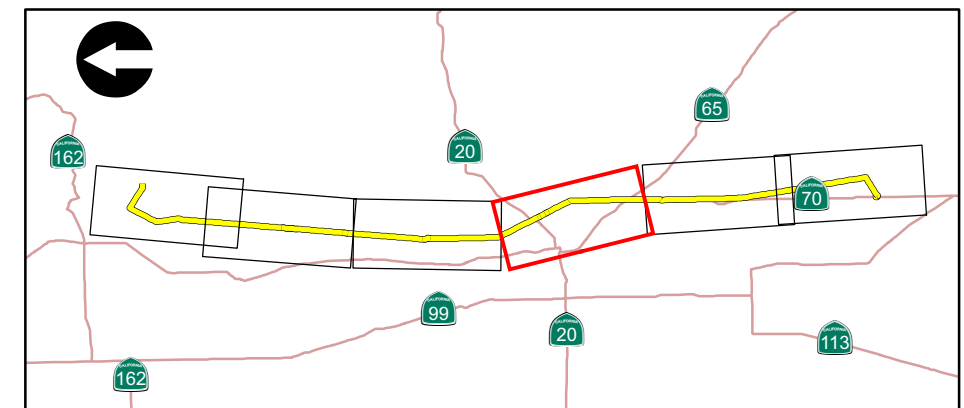
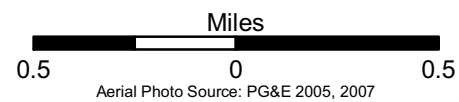


Figure: 3-2 Project Description



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Project Activities

- New Pole Site
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road

Existing Facilities

- Eliminate Tower
- Existing Tower - No Structure Work
- Tower on Adjacent Line - No Structure Work

- ★ Cities
- Transmission Line
- Existing Access Road
- County Boundary

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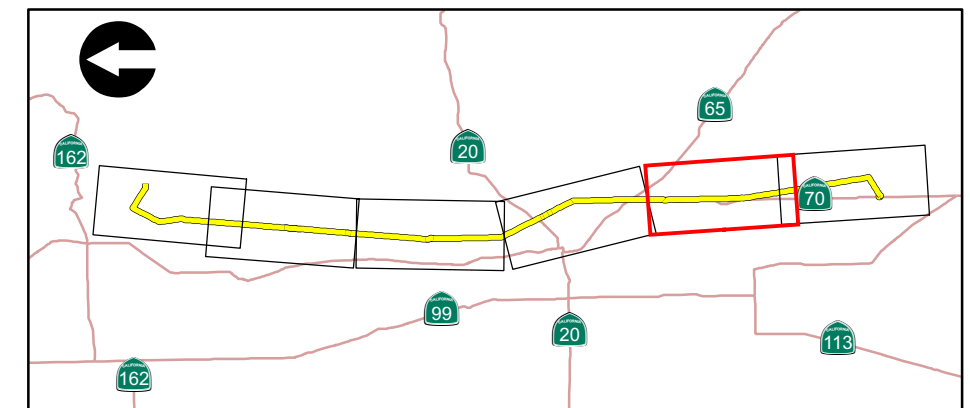
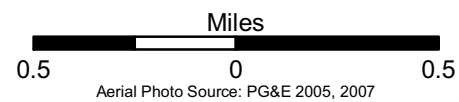


Figure: 3-2 Project Description



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Project Activities

- New Pole Site
- Work Area / Pull Site
- Helicopter Landing Zone
- Temporary Access Road

Existing Facilities

- ✖ Eliminate Tower
- Existing Tower - No Structure Work
- Tower on Adjacent Line - No Structure Work

- ★ Cities
- Transmission Line
- Existing Access Road
- County Boundary

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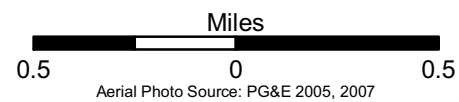
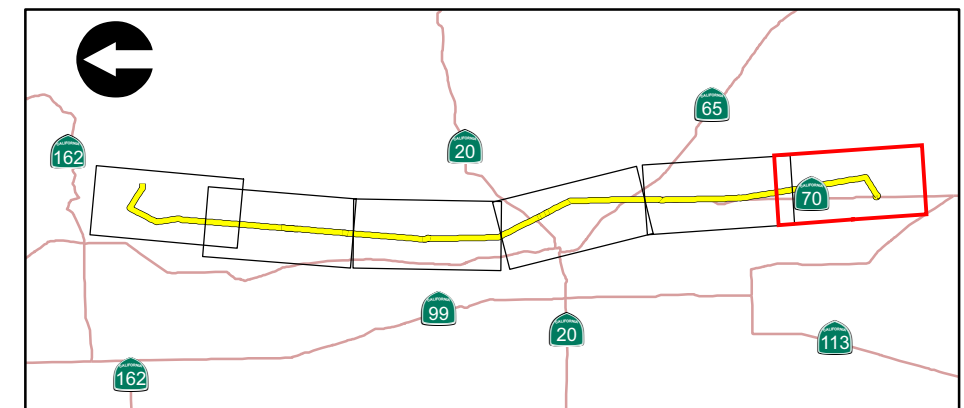


Figure: 3-2 Project Description



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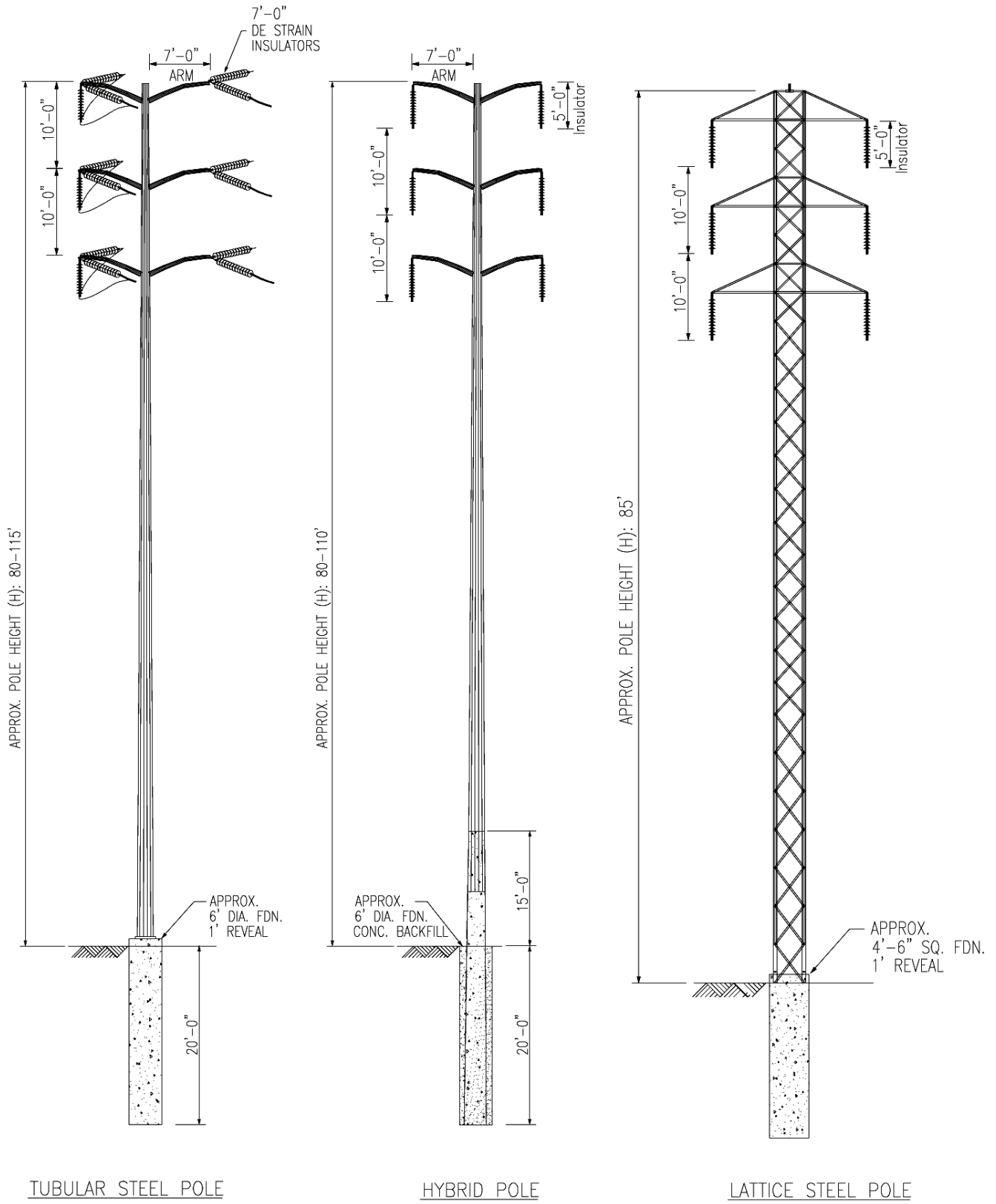


Figure 3-3
Conceptual Structure Drawings

Galvanized Tapered Tubular Steel Upper Section(s)

Standard Slip Splice

Molded Shape Conforming to Steel Pole Shape

Spiral & Longitudinal Reinforcing Steel

Spun Concrete Base Section

Solid Brass Newmark Name Plate



Figure 3-4
Hybrid Pole Typical Design

Table 3-1a. Palermo–E. Nicolaus Line Structure Data

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)
1–10	Existing to remain	N/A
11	TSP, DE	90
12	Hybrid	105
13	TSP, Transp	80
14	Existing to be removed	N/A
15	Hybrid	100
16	Hybrid	105
17	Hybrid	85
18–20	Hybrid	90
21	Hybrid	105
22	Existing to be removed	N/A
23	TSP, DE	90
24–26	Hybrid	90
27	Hybrid	85
28	Hybrid	90
29	Hybrid	95
30, 31	Hybrid	90
32	TSP, DE	85
33	Existing to be removed	N/A
34	TSP, DE	90
35	Hybrid	90
36	Hybrid	95
37	Hybrid	90
38	Hybrid	100
39	TSP, Transp.	80
40	Existing to be removed	N/A
41	Hybrid	100
42–45	Hybrid	90
46, 47	Hybrid	95
48	Hybrid	90
49	Hybrid	85
50	Hybrid	90
51	Hybrid	100
52, 53	Hybrid	95
54, 55	Hybrid	90
56	Hybrid	95
57	Hybrid	90
58	Hybrid	95
59	Hybrid	100
60	Hybrid	90
61	Hybrid	95
62	Hybrid	90
63, 64	Hybrid	95
65	Hybrid	90
66	Hybrid	95

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)
67	Hybrid	100
68	TSP, Transp.	80
69	Existing to be removed	N/A
70	Hybrid	95
71	Hybrid	105
72-74	Hybrid	100
75	Existing to be removed	N/A
76, 77	Hybrid	100
78, 79	Hybrid	105
80	TSP, SW	105
81	Hybrid	100
82	Hybrid	85
83-85	Hybrid	95
86	Hybrid	105
87	Existing to remain	N/A
88	TSP, SW	105
89	Hybrid	95
90	Hybrid	90
91	Hybrid	95
92, 93	Hybrid	100
94	Hybrid	95
95	Existing to be removed	N/A
96-98	Hybrid	100
99	TSP, Transp.	90
100	Hybrid	90
101, 102	Hybrid	95
103	Hybrid	90
104	Hybrid	95
105	Hybrid	90
106, 107	Hybrid	95
108	Hybrid	100
109	Hybrid	90
110, 111	Hybrid	95
112	Hybrid	90
113	Hybrid	95
114	Hybrid	90
115	Hybrid	100
116	Existing to be removed	N/A
117	Hybrid	95
118	Hybrid	90
119	TSP, Transp.	90
120	Existing to be removed	N/A
121-123	Hybrid	90
124	Hybrid	95
125, 126	Hybrid	90
127	TSP, DE	95
128	Existing to be removed	N/A

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)
129	TSP, DE	95
130-133	Hybrid	85
134	Hybrid	90
135	Hybrid	95
136	Hybrid	90
137-139	Hybrid	95
140	Hybrid	90
141	Hybrid	95
142	Hybrid	90
143	Hybrid	95
144	Hybrid	100
145	TSP, Transp.	80
146	Existing to be removed	N/A
147	Hybrid	100
148	Hybrid	95
149	Hybrid	90
150	Hybrid	95
151	Hybrid	90
152	Hybrid	95
153	Hybrid	90
154	Hybrid	95
155	Hybrid	90
156	TSP, DE	80
157, 158	Hybrid	80
159	Hybrid	85
160	Existing to be removed	N/A
161	Hybrid	95
162	Hybrid	90
163	Existing to remain	N/A
164	Hybrid	100
165	Hybrid	90
166	Hybrid	95
167	Hybrid	90
168	TSP, SW	105
169-171	Hybrid	90
172	Existing to remain	N/A
173	Hybrid	110
174	TSP, SW	110
175	TSP, DE	110
176	Existing to remain	N/A
177	TSP, DE	115
178	Hybrid	90
179	Hybrid	85
180	Hybrid	80
181, 182	Hybrid	95
183	Hybrid	90
184, 185	Hybrid	110

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)
186	TSP, DE	80
187	Hybrid	95
188–190	Hybrid	90
191, 192	Hybrid	100
193	Hybrid	85
194	TSP, Transp.	80
195	LSP	85
196	Existing to be removed	N/A
197–199	LSP	85
200, 201	Hybrid	85
202	Hybrid	90
203	Hybrid	80
204	Hybrid	85
205, 206	Hybrid	90
207, 208	Hybrid	85
209	Hybrid	95
210	TSP, SW,DE	105
211	TSP, DE	80
212	Existing to remain	N/A
213	TSP, SW	105
214	Hybrid	90
215	Hybrid	100
216	Hybrid	90
217–220	Hybrid	85
221, 222	Hybrid	95
223	Hybrid	85
224	Existing to remain	N/A
225, 226	Hybrid	90
227	Hybrid	85
228–234	Hybrid	90
235	Hybrid	95
236–238	Hybrid	90
239	Hybrid	95
240	Hybrid	90
241	Hybrid	95
242	Hybrid	90
243, 245	Hybrid	95
246, 247	Hybrid	90
248	Hybrid	95
249, 251	Hybrid	85
252	Hybrid	90
253	Hybrid	95
254	TSP, DE	80
255	Hybrid	80
256, 257	TSP, DE	80
258	Hybrid	100
259, 260	Hybrid	95

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)
261	Hybrid	90
262	Hybrid	100
263–265	Hybrid	90
266	Hybrid	95
267	Hybrid	90
268	Hybrid	105
269	Hybrid	85
270–273	Hybrid	90
274	TSP, DE	90
276–279	Existing to remain	N/A
281	Existing to remain	N/A
282	Hybrid	95
283	TSP, DE	85
284	Hybrid	85
285	Hybrid	95
286–290	Hybrid	90
291	Hybrid	100
292	Hybrid	100
293	Hybrid	90
294	Hybrid	100
295	Hybrid	95
296	Hybrid	90
297	Hybrid	95
298	Hybrid	100
299	TSP, Transp.	80
300	Existing to be removed	N/A
301	Hybrid	100
302–304	Hybrid	95
305	Hybrid	105
306, 306A–I	Existing to remain	N/A

Table 3-1b. Palermo-Pease Line Structure Data

Structure Nos.	Structure Type	Proposed Structure Height (Ft.)
70A	TSP, DE	90
71	Existing to be removed	N/A
71A	Hybrid	80
72	Existing to be removed	N/A
72A	TSP, DE	80
201	TSP, SW	85
214	Existing to remain	N/A
214A	TSP, SW	85
215	Existing to remain	N/A

Right-of-Way Requirements

PG&E currently owns rights-of-way and easements along the entire project route. Additional overhang easements may be needed in some locations due to recent development on adjacent properties in the Marysville and Palermo areas.

Construction

This section describes construction methods to be used in the proposed project. Reconstruction work on the Palermo–East Nicolaus project will include the following general types of activities.

- Structure replacement/modifications.
- Temporary crossing structure installation.
- Wire pulling and tensioning.
- Tower demolition/removal.
- Structure replacement and reconductoring work area development.
- Material/equipment staging and lay-down area development.
- Access to all these activity areas.

Construction is expected to take 12 to 18 months. Table 3-2, Table 3-3, and Table 3-4 provide specific details about project construction.

Specific details for each of these activity types are presented in the following sections.

Table 3-2. Site Grading and Soil Excavation

Construction Phase	Maximum Daily Grading Acres	Total Acres for Whole Project	Maximum Daily Excavation (CY)	Total Excavation (CY) for Whole Project
Construction of staging areas/helicopter landing zones and new temporary roads	1 acre	130	40	40
Existing tower removal and tower site recovery	N/A	N/A ¹	4 CY	1600 CY
Pole site excavation, concrete base construction, and new pole installation	1 acre ²	100	160 CY ³	16,000 CY
Transmission line installation	N/A ⁴	N/A	N/A	
Staging areas/helicopter landing zones recovery	1 acre	109	N/A	

¹ Part of area being disturbed for new construction.
² Assumes 4 poles per day max with a 50x200 area
³ Assumes 40 CY per structure
⁴ Assumes pull sites included in staging areas.

Table 3-3. Soil Disposal and Concrete Importing

Construction Phase	Maximum Daily Exported Soil (CY)	Total Exported Soil (CY) for Whole Project	Maximum Daily Imported Concrete (CY)	Total Imported Concrete (CY) for Whole Project
Construction of staging areas/helicopter landing zones and new temporary roads	N/A ¹	0	N/A ²	0
Existing tower removal and tower site recovery	Included above	0	N/A	0
Pole site excavation, concrete base construction, and new pole installation	Include above	0	80 CY	3,000 CY
Transmission line installation	N/A	0	N/A	0
Staging areas/helicopter landing zones recovery	None ³	0	None	0

¹ Do not expect to export any soil. Minor scraping for weed abatement and grading only.
² No concrete, but may import rock base for locations that are expected to be used during the wet months. If needed, assume 5" cover over entire area.
³ Only grading will be required at these sites.

Table 3-4. On-Road Construction Equipment and Material Delivery Trucks (Except Dump Trucks for Exported Soil and Concrete Trucks for Imported Concrete)

Construction Phase	Maximum Daily Delivery Trucks	Total Delivery Trucks for the Project
Construction of staging areas/helicopter landing zones and new temporary roads	5	50
Existing tower removal and tower site recovery	5	500
Pole site excavation, concrete base construction, and new pole installation	10	1,000
Transmission line installation	5	500
Staging areas/helicopter landing zones recovery	2	20

New Structure Installation/Tower Removal

The hybrid pole design proposed for use at the majority of locations along the project alignment enables a two-part installation process that will reduce the length of time that the existing lines need to be taken out of service (line clearances). A concrete base can be installed separately from the steel top, and can usually be done without taking a line clearance, although installing the upper pole segment will still require a line clearance. Each hybrid pole hole will be augured to a maximum diameter of 7.5 feet and a depth of approximately 20 feet; the pole hole will be compacted with road base and slurry after the pole is inserted.

The project will be constructed in segments to balance taking the existing lines out of service as well as environmental seasonal constraints. The poles will be 80–120 feet tall when complete and will be well suited to conditions encountered in the field (prolonged inundation and/or saturated soils associated with wetlands and rice crops).

Installation of the hybrid poles, TSPs, and LSPs involves these steps.

- Staking the pole location.
- Flagging the work area.
- Installing silt fencing (if required).
- Preparing the crane pad (if required).
- Excavating the hole (all structures will have a maximum 7.5-ft diameter excavation).
- Installing forms, rebar, and anchor bolts (for TSP and LSP structures).
- Pouring concrete.
- Removing forms.

- Placing gravel around and grooming the base area.
- Installing the new pole.
- Removing the old conductor and stringing the new conductor.
- Spreading the excess soil on site and trucking other construction materials offsite for disposal.

Hybrid poles will not require forms, rebar and anchor bolts.

The existing lattice steel towers will be dismantled and removed upon new structure completion and transfer of conductor. A crane or helicopter will be used to take down the tower and remove it from the project area. Where removal could otherwise cause extensive environmental impacts, towers will be partially dismantled, with the bases left behind (e.g. towers with large elderberry shrubs growing within the tower footprint). Tower footings will be cut down to below ground level or left depending on the environmental sensitivity of the site.

Installation of wood poles (shoo-flys) involves these steps.

- Staking the pole location.
- Flagging the work area.
- Excavating a two to three foot diameter hole.
- Installing the pole.
- Backfilling with native spoils or gravel.
- Transferring wire and equipment.
- Removing the pole.
- Backfilling.

Pole locations will be sited to avoid environmentally sensitive areas. At each pole location, the work area will be flagged by PG&E and/or the environmental monitor prior to construction. For pole installations near wetlands, riparian habitat, or special-status plant or wildlife habitat, a biological monitor (a trained professional biologist) will approve the type and placement of environmental protections and will monitor the area during construction activities.

A work area of about a 25-foot radius around each pole will be required. Some work areas may require removal of vegetation and installation of silt fencing (e.g., during the wet season, if required). Work areas around transmission poles generally will not require grading or surfacing.

Conductor Replacement

Conductor pull and tension sites will be regularly spaced along the alignment. This activity is usually the last step in the construction process and entails either stringing the new structures with pulling rope or using the existing conductor to

pull the new one through. If the new conductor cannot be pulled through using the existing conductor, then a helicopter or crane can be used to install the rope onto rollers that are affixed to the end of insulators where the conductor is normally attached. The rope is flown along and snapped into each roller or placed with a crane and then is pulled onto the tension spools with the new conductor behind it.

Locations where the alignment crosses busy roadways, railroads, and other aerial utilities will first have crossing guard structures installed to keep the conductor from falling down across those areas while pulling. The existing conductor will be placed in a hoist and attached at one end to the steel tower to support the down strain load, hence removing load on the existing insulator strings. The old insulators will be removed and new insulators placed, along with conductor rollers. Rollers and insulators will be brought in by truck or helicopter to each tower site.

In sensitive areas, monitors will coordinate with ground crews to determine appropriate access. The crew may be required to access some towers on foot and by pick-up trucks, or materials may be delivered by helicopter. With the roller in place, the hoist will lower the existing conductor into the roller. When all rollers have been installed in a given section of the tower line, a cable will be attached from the puller truck to one end of the conductor; new conductor will be attached to the existing conductor at the opposite end of the pull section, and the reconductoring process will begin. The old conductor will be removed while the new conductor is simultaneously pulled in.

Once the new conductor is in place, the crews will sag the new conductor, clip it into the new insulators, and remove the rollers from the section. Helicopters will also be used to remove the rollers and to clip in the new conductor to the insulators.

The 16 pull and tension sites may require preparation. Temporary crane pads may need to be built if the terrain will not allow for safe operation of a crane. The size of the pad will vary based on the terrain. Pull/tension sites will consist of a relatively flat area in line with the conductor. Where possible, these sites will be placed on previously disturbed areas. Minor grading may be required to establish these sites. Rock will be placed if wet conditions are forecast. Disturbed areas will be recontoured and reseeded as necessary. Water baffles and other erosion control measures will be used as necessary to minimize erosion during work at the sites during the wet season.

The equipment at the pull site will be utilized for four pulls, two in one direction, and two in the other. Equipment includes rope trucks or tensioners, reels of conductor to receive the old conductor as it is removed, reels of new conductor to feed out, and trucks or other equipment to handle the weight of the conductor reels and to move them on and off site.

Due to the environmental sensitivity of critical vernal pool habitat and similar areas, efforts will be made to minimize any construction impact at these locations. Whenever possible, vehicles will remain on established roadways. To

the extent possible, previously disturbed areas will be utilized for access and work sites. When off-road access is necessary, vehicles and equipment will stay within designated routes and utilize construction mats. Vehicles will include pick-up trucks, tensioner and cable pullers mounted on a line truck, and a rubber-tired crane truck or helicopter. No grading will be performed at sensitive sites.

In order to accomplish the reconductoring, various pull and tension sites are planned along the project alignment (see Table 3-5). Figure 3-2 identifies work areas, including pull and tension sites.

Table 3-5. Staging, Landing, and Pull Sites

Type of Construction Site	Area per Site	Number of Sites
Lay Down / Staging / Helicopter landing zone	1.24 - 7.41 Acres	13
Pull sites	.27 acres – 2.4 acres	9

Prior to transmission line construction, approximately thirteen lay-down/staging/helicopter landing zone areas roughly 1.24 acres each will be prepared to provide space for materials delivery, storage, and preparation; equipment storage; crew parking; and prior to installation. If construction activities take place during winter, areas will be winterized to allow for construction activities to proceed. Upon completion of the project, the areas will be left as agreed to by the property owner. The site layouts will be approved by the project's environmental monitor, and work crew activities will follow all PG&E environmental guidelines. Staging areas will be set back at least 50 feet from streams, creeks, or other water bodies to avoid impacts to riparian habitat.

Crossing Structures

Crossing structures will be installed at all major road, railroad and other aerial utility crossings along the alignment to prevent injury or damage from the inadvertent falling of the conductor.

These structures typically consist of paired, single-Y configured pole structures or paired wood poles with cross bracing designed to catch falling conductor; a network of cables and netting may also be tied into these poles. A line truck is used to auger and set the required number of wooden poles on each side of a crossing; these poles may also be guyed for stability. In some instances boom vehicles/equipment are used instead of utility poles to catch any falling conductor.

These structures will be installed along roadsides in disturbed areas and will cause relatively little disturbance. These protective structures will be installed from paved roads whenever possible. Where this is not possible, guard and crossing structure sites will be accessed on existing dirt roads and installed in such a way to minimize soil disturbance. Following reconductoring activities, crossing structure poles will be removed, the holes backfilled, and the disturbed areas recontoured and reseeded as necessary.

Near sensitive areas, monitors will coordinate with ground crews to determine appropriate placement of structure poles. Features to be avoided will be flagged. If sensitive areas cannot be avoided, temporary footings may be used to hold the poles in place in lieu of auguring holes.

Access

Access to the staging areas will primarily be by existing major roadways suitable for truck traffic, including highways, county roads, and other major roadways.

Construction crews will use existing paved or graveled roads along most of the transmission line corridor to access tower/pole sites; these include existing paved roads and farm roads, in addition to existing maintenance access to the existing transmission lines. Where necessary, existing access roads will be widened to a maximum of 16 feet, and new, temporary, access roads will be constructed; where ground conditions allow, crew will simply follow a designated overland route that would not require improvements. In environmentally sensitive areas, new, temporary access roads will be restored to pre-construction conditions. Stream crossings will be designed as described in Table 3-6, below, as needed. Where restrictions on vehicular use and heavy equipment use are noted, foot traffic and helicopter use would still be acceptable.

Table 3-6. Proposed Stream and Wetland Crossings

Tower Access	Type of Crossing	Construction/Design	Construction Constraints
Towers 10–12	Mats/plating	Route designed to avoid/minimize impacts on identified features; crews will lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	Vehicular traffic and heavy equipment use to be scheduled for dry season; crews will implement mitigation as necessary to avoid significant damage or soil compaction within features along route.
Towers 44–50	Mats/plating	Route designed to avoid/minimize impacts on identified features; crews will lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	Vehicular traffic and heavy equipment use to be scheduled for dry season; crews will implement mitigation as necessary to avoid significant damage or soil compaction within features along route.
Towers 54–64	Mats/plating	Route designed to avoid/minimize impacts on identified features; crews will lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	Vehicular traffic and heavy equipment use to be scheduled for dry season; crews will implement mitigation as necessary to avoid significant damage or soil compaction within features along route.
Towers 66–69	Repair existing road (washouts), plating	The existing roadway has been damaged by erosion and will be improved for construction; one existing narrow culvert may require plating to accommodate larger/heavier vehicles.	Vehicular traffic and heavy equipment use to be scheduled for dry season.

Tower Access	Type of Crossing	Construction/Design	Construction Constraints
Towers 70–71	Mats/Plating/bridge	Mat, plate or bridge over small seasonal stream.	Vehicular traffic and heavy equipment use to be scheduled for dry season; crews will implement mitigation as necessary to avoid significant damage or soil compaction within features along route.
Towers 73–82	Mats, plating, bridge	Route designed to avoid/minimize impacts on identified features; crews will lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	Vehicular traffic and heavy equipment use to be scheduled for dry season; crews will implement mitigation as necessary to avoid significant damage or soil compaction within features along route.
Towers 83–86	Repair and widen existing road, plating	The existing roadway is inadequate for construction and will be temporarily improved and widened for construction; existing narrow culverts/irrigation valves may require plating to accommodate larger/heavier vehicles.	Vehicular traffic and heavy equipment use to be scheduled for dry season.
Towers 89–96	bridge	The existing access road has several “wet” crossings (cobble base) that may be impassible for larger/heavier construction vehicles, therefore portable bridges (that would span top of bank to top of bank) are proposed.	Vehicular traffic and heavy equipment use to be scheduled for the dry/low flow season. If bridging is not possible, construction would utilize sky crane helicopters to transport materials to job sites.
Towers 97–98	Plating/bridge	One existing narrow culvert may require plating to accommodate larger/heavier vehicles.	Vehicular traffic and heavy equipment use to be scheduled for dry season.
Towers 117–125	Plating, bridge	Option 1: Plate across narrow irrigation canal that runs parallel to and adjacent tower line to create a work surface over canal segment at each tower site. Option 2: Create a plated crossing (or use bridge) to cross onto the east side of the tower line (across ditch) and travel up that side from tower to tower; crossings will be set up at intervals along this tower line segment to accommodate the work.	Vehicular traffic and heavy equipment use to be scheduled for dry season.
Towers 231–276	Mats, plating	Route designed to avoid/minimize impacts on identified features; crews will lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	Vehicular traffic and heavy equipment use to be scheduled for dry season; crews will implement mitigation as necessary to avoid significant damage or soil compaction within features along route. Many of the previously identified features along this segment of line have been eliminated or severely altered by recent highway and levee construction projects; an existing access is now present along the tower bases.

Tower Access	Type of Crossing	Construction/Design	Construction Constraints
Towers 288–291	Mats/plating	Route designed to avoid/minimize impacts on identified features; crews will lay mitigation down to cross features along route that cannot be avoided (as soil conditions dictate).	Vehicular traffic and heavy equipment use to be scheduled for dry season; crews will implement mitigation as necessary to avoid significant damage or soil compaction within features along route.

Encroachment permits will be obtained from California Department of Transportation (Caltrans) and the appropriate counties for crossing of jurisdictional roadways or highways. In addition, a Stormwater Pollution Prevention Plan (SWPPP) will be written for the entire project as described in APM HYDRO-1, and workers will receive written and tailboard instructions on the plan.

Traffic control may be required for work along major roadways. All required permitting and notification will be made to comply with permit conditions. Occasionally, it may be necessary to temporarily close one lane of traffic, and appropriate traffic control and safety measures will be taken. A traffic control plan will be prepared according to Caltrans requirements and submitted for approval by the local County Public Works Departments.

Helicopters will be used to install poles in locations where overland access is not possible or difficult due to topography and vegetation. Helicopters will be used to remove and deliver structures, materials, equipment, concrete, and workers to these pole locations and to other locations where access is difficult or the project schedule requires. Temporary helicopter landing areas will be established at locations shown on Figure 3-2. An area of at least 200 by 200 feet is required for clearance. In addition, staging areas will be used for helicopter landings. Helicopters will use the temporary landing areas to pick up and drop off crew and materials, as well as to stage and refuel.

Erosion and Sediment Control and Pollution Prevention during Construction

An erosion control and restoration plan will be prepared as part of the permit process.

Cleanup and Post-Construction Restoration

Crews will be required to maintain clean work areas as they proceed along the line and will be instructed that no debris may be left behind at any stage of the project. The cleanup and restoration process will include reseeding disturbed areas to restore the landscape. In many cases, the land will be left for replanting of crops by landowners/land managers of agricultural lands.

Once the cleanup has been completed, on a case by case basis, the work areas will be inspected on foot with the specific property owners to make sure that their concerns have been addressed. When all construction is completed, there will be a final walk down of the work areas with the crews and the biological monitor to ensure that proper cleanup and landscape restoration has been carried out. The final walk down will include access roads, pull sites, landing zones, staging areas, and pole locations.

Construction Workforce and Equipment

Equipment that may be used includes: a line truck, water truck, four-wheel-drive pick-ups, 70-ton crane, helicopter, auger, bulldozer, hand tools, rope truck for reconductoring, and a truck-mounted rope puller and conductor tensioner. Project construction will require an excavation crew, a light-duty helicopter crew, a heavy-duty helicopter crew, a pole crew, line crew, substation crew, and environmental monitor. Table 3-7 describes the maximum number of construction workers needed daily for each construction phase. Table 3-8 describes the roles of each crew.

Table 3-7. Construction Workers

Construction Phase	Maximum Daily Workers
Construction of staging areas/helicopter landing zones and new temporary roads	30
Existing tower removal and tower site recovery	30
Pole site excavation, concrete base construction, and new pole installation	50
Transmission line installation	30
Staging areas/helicopter landing zones recovery	20

Table 3-8. Crews Expected To Be Used during Project Construction

Crew	Roles
Excavation	The excavation crew will be a contract crew to PG&E responsible for development of the staging areas, access roads, and pull sites. In addition, the excavation crew will perform construction cleanup activities.
Light-duty helicopter	The light-duty helicopter crew will be a contract crew to PG&E responsible for Federal Aviation Administration (FAA) permits, the helicopter (including maintenance and refueling), transporting work crews and materials to pole sites, and removal and installation of the sock line, as needed.
Heavy-duty helicopter	The heavy-duty helicopter crew will be a contract crew to PG&E responsible for FAA permits, the helicopter (including maintenance and refueling), transporting new poles to pole sites, and installation of poles using a sky crane, as needed.
Tower	The tower crew (either a PG&E or contract crew) will be responsible for the excavation contractor, the heavy-duty helicopter contractor, the light-duty helicopter contractor, the development of pole-related staging areas, installation of steel pole foundations, and installation of transmission line steel poles.
Line	The line crew (either a PG&E or contract crew) will be responsible for managing an excavation crew and a light-duty helicopter crew, development of line-related staging areas, establishment of pull and tension sites, installation of rollers and crossbeams, removal/installation of the sock line, replacement of wood poles, and installation of new conductor.
Environmental and biological monitors	The environmental monitor will be a contractor to PG&E and will be responsible for inspection of all project construction activity, including inspection of work sites prior to the start of construction activity, monitoring of activities and cleanup, preparing and submitting California Public Utilities Commission (CPUC) compliance reports, and otherwise ensuring compliance with the CPUC Permit to Construct. If warranted, a qualified biological monitor will be utilized in areas with sensitive biological resources.

Table 3-9, Table 3-10, and Table 3-11 present specific information regarding equipment expected to be used during project construction.

Table 3-9. Equipment Expected To Be Used during Project Construction

Type of Equipment	Use
Aerial lifts	Remove old conductor and install new
Backhoe	Excavate foundations, spoil removal, backfill
Boom truck	Erect structures
Low Drill	Auger foundations
Concrete mixer truck	Haul concrete
Crane	Erect structures
Crew-cab truck/pick-ups	Transport personnel, tools, and materials
Dump truck	Haul material
Equipment/tool vans and cargo containers	Tool storage
Grooming/grading equipment: Dozer, water truck, line truck, loader, grader, rock transport, roller	Road construction (staging, pull sites): Move/compact soils, compact soils and control dust, properly pitch road for run-off, deliver road base for access roads, staging areas, and pull sites, compact road and surfaces
Helicopters (light and heavy duty)	Erect poles, install sock line, haul materials, equipment, and people
Hole auger	Excavate holes
Line truck and trailer	Haul conductor, poles, equipment, materials, and people, and to install pole/conductor
Materials storage units	Store material/tools
Mobile offices	Supervision and clerical office
Puller	Install conductor
Reel dolly	Install and move conductor
Tensioner	Install conductor

Table 3-10. On-Site Construction Equipment and Usage

Construction Phase	Equipment Type and Pieces	Operation Hours/Day	Total Operation Days for Whole Project
Construction of staging areas/helicopter landing zones and new temporary roads	D-8 or similar bulldozer, grader, loader, backhoe, dump truck, line truck and pick-up truck	12 hrs	120
Existing tower removal and tower site recovery	Backhoe, bulldozer, grader, line truck, dump truck, crane, helicopter and pick-up truck	12 hrs	120
Pole site excavation, concrete base construction, and new pole installation	Digger, backhoe, crane, concrete truck, dump truck, line trucks, helicopter and pick-up truck	12 hrs	300
Transmission line installation	Crane, line truck, pick-up truck and helicopter	12 hrs	200
Staging areas/helicopter landing zones recovery	D-8 or similar bulldozer, grader, loader, backhoe, dump truck, line truck and pick-up truck	12 hrs	100

Table 3-11. Helicopter Usage

Construction Phase	Helicopter Type	Pieces and Type/Make	Operation Hours/Day	Total Hours for Project
Existing tower removal and tower site recovery	Heavy Duty	2-Bell 214	4 Hours	200
	Light Duty	2-Hughes 500	4 Hours	640
Pole site excavation, concrete base construction, and new pole installation	Heavy Duty	1-Bell 214	4 Hours	400
	Light Duty	2-Hughes 500	4 Hours	800

Construction Schedule

Table 3-12 provides a summary of the currently proposed construction schedule for the Project. The construction period for the transmission line is expected to last approximately 12–18 months. Project construction will be performed in approximately six geographic stages along the line, with each stage ranging from one to three months in duration. Construction in each stage will be conducted in phases. Specifics on each phase of construction are shown in Table 3-13.

Table 3-12. Construction Schedule

Milestone	Date
Permit to construct decision adopted and effective	July 1, 2009
Acquisition of required permits	July 1, 2009
Final engineering completed	February 1, 2009
Transmission line construction begins	October, 2009
Project operational	November, 2010

Table 3-13. Average Duration of Construction Phases

Construction Phase	Average Duration (Days) for Each Segment
Construction of staging areas/helicopter landing zones and new temporary roads	30 days
Existing tower removal and tower site recovery	Will be done in stages, top portion of the tower will be removed when new structures are built; the remainder of the tower and foundations will be removed later, 3 days per tower, followed by site remediation as required.
Pole site excavation, concrete base construction, and new pole installation	Foundations for TSPs require 5 days per, then return to install new pole about 2 days. Hybrid poles- install concrete bottom 1 day and then return to install steel top and transfer conductors- 1 day per.
Transmission line installation	Contracting requires two weeks per phase.
Staging areas/helicopter landing zones recovery	Assume one week per site.

The construction schedule will be determined by the project's environmental requirements and electric line clearance restrictions. Pending the outcome of environmental review and permitting, construction activities are proposed to begin in July of 2009. It is anticipated (due to the various environmental and operational restrictions) that construction will occur year round, but will be seasonal along certain portions of the project alignment. Up to ten or more construction crews (one crew per structure installation/removal site) may be working on the project at any time in order to meet the proposed project construction schedule.

Operation and Maintenance

The regular inspection of transmission lines, instrumentation, and control and support systems is critical for safe, efficient, and economical operation of electric transmission facilities. Early identification of items needing maintenance, repair, or replacement will ensure continued safe operation of the project and continued reliable service to the uniform process used for transmission lines.

No additional maintenance is required as a result of the project beyond the existing ongoing maintenance. The existing maintenance process involves three types of inspections: aerial inspection, ground inspection, and climbing (aerial and climbing only if there is a problem or a ground inspection indicates the need for a closer inspection). The frequency of inspection may vary depending on factors such as the age of the system, pole type, vegetation conditions, and other factors. For the proposed project transmission lines, it is generally assumed that PG&E troublemen will inspect all structures from the ground annually for corrosion, misalignment, deterioration, and foundation failures. In addition, ground inspection will occur on selected lines to check the condition of hardware, insulators, and conductors. Inspection will include checking conductors and fixtures for corrosion, breaks, broken insulators, and failing

splices. PG&E will conduct inspections by driving to the poles in a pick-up truck where feasible.

Troublemakers will use an all-terrain vehicle or go by foot where needed to minimize surface disturbance and in certain areas where access is difficult. Aerial inspection using helicopters may be conducted (if conditions indicate the need) annually using infrared technology. Any specific access requirements that may result from right-of-way negotiations with property owners will be documented and provided to the troublemakers with instructions to comply with these access requirements during inspection and maintenance. (For more detail, please refer to PG&E's Overhead Line Inspection Guideline).

Maintenance Procedures

Maintenance of the transmission line is generally on an as-needed basis, when the troublemakers discover something needing repair or in response to an emergency situation. Specific access requirements that may result from right-of-way negotiations with property owners will be documented and provided to the transmission line troublemakers, with instructions to comply with these access requirements during inspection and maintenance.

The PG&E vegetation management inspector will inspect and document vegetation conditions annually. Where needed, vegetation inspections may be conducted more frequently.

Environmental Commitments and Applicant-Proposed Mitigation Measures

As part of PG&E's standard construction practices, environmental commitments have been incorporated into the project design and will be implemented to avoid or minimize impacts to biological resources. PG&E also has proposed resource-specific measures to ensure that potential impacts are less than significant. These applicant-proposed measures (APMs) are included in the respective resource sections in Chapter 4. A complete list of APMs is found in Chapter 5, *Mitigation Measures*.

With implementation of the environmental commitments and APMs, all potential project-related impacts will be avoided or reduced to a less-than-significant level.

Electric and Magnetic Fields Summary

Recognizing that there is public interest and concern regarding potential health effects from exposure to electric and magnetic fields (EMF) from transmission lines, this document provides some general background information regarding

EMF associated with electric utility facilities in Appendix A. However, EMF is not addressed here as an environmental impact under CEQA. 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 does create 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, (Jul. 16, 2004), Delta DPA Capacity Increase Substation Project Final MND and Supporting Initial Study (November 2006), A.05-06-022, section B.1.14.1, page B-31, adopted in D.07-03-009 (March 1, 2007).

Alternatives

CEQA does not require a review of alternatives where, as here, the proposed project will result in no significant environmental impacts after mitigation. (See Atlantic-Del Mar Reinforcement Project, A.01-07-004, Assigned Commissioner's Ruling dated 10-16-02.) Moreover, the project consists of reconstructing an existing transmission line, so the discussion of routing issues required in GO 131-D, section IX.B.1.c as part of the application is not applicable to this application.

PG&E considered an alternate project to add capacity and improve reliability to meet the present and forecasted electric demands of the area. The alternative was to construct a new transmission line from Palermo Substation to Rio Oso Substation. The new transmission line would be approximately 45 miles long using 715 all-aluminum conductor.

At the time of the proposal, this alternative was not recommended because of significant uncertainties in permitting requirements and feasibility associated with any proposed route for such a long new line. Requirements from agency consultations, CPUC permitting, mitigation of environmental impacts and need for additional rights-of-way would likely result in additional project costs, additional environmental impacts, and additional time needed to complete the project.

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Chapter 4

Affected Environment and Environmental Effects

This chapter describes the affected environment and environmental effects for the following resources.

- Aesthetics and Visual Resources.
- Agriculture.
- Air Quality.
- Biological Resources.
- Cultural Resources.
- Geology, Soils, and Seismicity.
- Hazards and Hazardous Materials.
- Hydrology and Water Quality.
- Land Use and Planning.
- Mineral Resources.
- Noise.
- Population and Housing.
- Public Services.
- Recreation.
- Transportation and Traffic.
- Public Utilities.
- Growth-Inducing and Cumulative Impacts.

Aesthetics and Visual Resources

Introduction

Aesthetic or visual resources are generally defined as both the natural and built landscape features that can be seen and that contribute to the public's experience and appreciation of the environment. Depending on the extent to which a project's presence will alter the perceived aesthetic character and quality of the environment, aesthetic or visual impacts may occur.

The purpose of this chapter is to document the existing aesthetic and visual resources in the PG&E Palermo–East Nicolaus 115 kV Transmission Line Project (project) study area, to assess the potential impacts on such resources as a result of the project's construction and operation, and to present mitigation measures that would reduce these impacts. A summary of public regulations and policies pertaining to aesthetic and visual quality in the project vicinity is also provided.

The proposed project has been designed to minimally affect visual resources in the project area. The changes in appearance of the project area that will result from these proposed minor modifications will not substantially alter the existing visual character or quality of the project site and surrounding area. Impacts to aesthetics and visual resources resulting from the project will be less than significant.

Relevant Plans and Policies and Project Consistency

The California Public Utilities Commission (CPUC) Decision 95-08-038 states that local governments have no discretionary authority over utility power transmission line or substation projects (CPUC 1995, p. 13). However, as part of the environmental review process, PG&E has considered relevant land use plans and policies related to aesthetic and visual quality for the jurisdictions crossed by the project route in the following discussion and outlined in italics at the end of each set of policies. The consistency of construction and operation of this project with any environmental plans, policies, or regulations adopted by agencies with jurisdiction over local aesthetic regulations is identified.

Documents Reviewed

As outlined in Section 4.9, *Land Use and Planning*, the transmission line is located in the City of Oroville, the City of Marysville, East Linda, and unincorporated areas of Butte, Sutter, and Yuba counties. No federal policies applicable to the project area pertaining to aesthetics were found. Applicable plans, policies, and regulations that pertain to visual quality for these counties are presented in the following section. The documents reviewed for this analysis are listed here.

- City of Oroville General Plan.
- City of Marysville General Plan.
- East Linda Specific Plan.
- Plumas Lake Specific Plan.
- Butte County General Plan.
- Yuba County General Plan.
- Sutter County General Plan.
- Yuba-Sutter Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP).
- Caltrans Scenic Highway Program.
- California DFG Strategic Plan.

Local Regulations

Although PG&E is not subject to local land-use regulations, the following overview of local regulations relating to land use is provided for informational purposes.

City of Oroville General Plan

The route passes through the City of Oroville Planning Area as defined by the Oroville General Plan 2030 (2008). The plan contains a number of policies regarding visual resources, particularly in relationship to transmission lines. These policies are found in the Community Design, Open Space, and Public Facilities and Services Elements of the Oroville General Plan 2030.

Community Design Element:

Action A2.2: Conduct a study to explore the possibility of enhancing power transmission corridors with plantings, low maintenance native plants, bicycle and pedestrian corridors, revenue producing crops, or off-street parking.

Action A2.3: Conduct a study to explore the potential for undergrounding powerlines (City of Oroville 2008, p. 4-22).

Open Space Element:

Goal OPS-5: Maintain and enhance the quality of Oroville's scenic and visual resources.

Policy P5.1: Maintain the appearance of Oroville, as seen from the freeway, as a city to be visited, enjoyed and admired.

Policy P5.3: Maintain the scenic view of the Feather River and Table Mountain (City of Oroville 2008, p. 6-18).

As described in the section titled *Existing Conditions*, the project does not propose significant changes in Oroville's visual resources nor does it affect views of the Feather River or of Table Mountain.

Public Facilities and Services Element:

Goal PUB-10: Provide telecommunications and energy utilities in ways that are safe, environmentally acceptable and financially sound.

Policy P10.2: Review proposed utility projects, including power line, substations and other facilities, to ensure their compatibility with surrounding land uses.

Policy P10.3: Encourage utility agencies to use existing transmission corridors for future power transmission line development.

Policy P10.4: Encourage future construction of power transmission lines underground, where technologically feasible (City of Oroville 2008, p. 7-47).

The project utilizes an existing transmission corridor and does not propose a new transmission line.

City of Marysville General Plan

The City of Marysville General Plan (1985) contains provisions in its Circulation and Scenic Highways Element as well as in Section V: Implementation, regarding visual resources and the siting of utility lines. The route passes through areas within the city's sphere of influence zoned as natural open space, industrial, and a planned development area.

Scenic Routes

The only existing scenic route delineated by the Marysville General Plan is along Highway 70 crossing the Yuba River Bridge entering Marysville. This provides a

scenic view of the river (City of Marysville 1985, p. 38). No policies specifically guide development along this scenic highway or make provisions for designating additional scenic highways.

The Yuba River Bridge is located about 2.5 miles from the project route and the project is not visible from this location.

Section V: Implementation

C. Regulation

9. Underground Utilities Districts: The city has adopted an underground utility district code in order to allow the city to decide if poles, overhead wires, and associated overhead structures would be a safety hazard (Marysville Municipal Code, Chapter 15.04).

The existing line does not fall under the jurisdiction of an underground utility district.

East Linda Specific Plan

The East Linda Specific Plan (Yuba County 1990) was prepared by Yuba County to guide the growth of the East Linda Community located to the east of Highway 65. Although the plan describes extensive guidelines for architectural design, it does not discuss aesthetics and visual resources as they pertain to the transmission line corridor. The plan acknowledges that the existing PG&E transmission line and easement transects the plan area. It proposes that part of the easement be used for a drainage and recreation easement and that no buildings be placed there (Yuba County 1990, p. 1-9). In general, the plan describes the transmission line easement as an opportunity to establish a greenbelt and to develop a pedestrian path and bikeway (Yuba County 1990, p. 5-4).

Section 8, the Urban Design Element of the East Linda Specific Plan recommends that new planting in open space corridors such as power line easements should draw upon native species (Yuba County 1990, p. 8-4).

As described in the East Linda Specific Plan, the transmission corridor reconductoring may represent an opportunity for the community to implement positive aesthetic change.

Plumas Lake Specific Plan

The Plumas Lake Specific Plan prepared by Yuba County (Yuba County, 1993) provides direction for development of approximately 5,000 acres in southern Yuba County along Highway 70 between Olivehurst and the southern edge of Yuba County at Bear River. The plan contains the following relevant policies guiding visual resources:

Public Infrastructure

Section 4.4: Electric and Gas

An existing major electric transmission line transects the Plan area in the most northerly region. Residential parcels abutting this facility should be designed to have excess depth or an intervening road or open space to provide some separation from residential structures. In general, such structures should not be located closer than 60 feet to the right-of-way

It is anticipated that all other electric and gas services and distribution lines in new development will be placed underground in accordance to Public Utility Commission (PUC) rules.

The project modifies an existing utility line and does not propose a new distribution or transmission line.

Implementation:

Section 5.7: Design Review Process

Projects for Which Design Review is Required: Public utility structures such as electrical substations and transmission towers in excess of the maximum height restrictions of the land use district. (p. 83)

The project modifies an existing utility line.

Butte County General Plan, Land Use Element

The Butte County General Plan (2000) addresses visual resources in a generalized manner, citing the scenic qualities of the Sierra Foothills and the extensive scenic views that are available of the foothills and mountains toward the east from the valley (Butte County 2000, p. 9). The Land Use Element recommends general policies from the Scenic Highways Element to protect valuable scenic areas. It also encourages a development of a scenic highways system within the county (Butte County 2000, p. 42).

The route does not cross or lie in proximity to a Butte County scenic highway—only Highway 70 north of 149 is a county scenic highway. Because this portion of the roadway is located approximately 11 miles from the northern terminus of the project and nine miles from the northernmost point of the project, the project will not be visible.

Yuba County General Plan

The Yuba County General Plan includes a number of policies pertaining to visual resources. These are found in the Land Use Element and the Open Space and Conservation Elements. The Environmental Setting and Background Paper of the

Yuba County General Plan also describes the Bear Creek and Yuba River corridors as “visually appealing” to many people (Yuba County 1996, p. 16-4).

The following policies from the Yuba County General Plan pertain to aesthetic resources.

Land Use Element

Policy 122-LUP: Light and glare from new development projects shall be minimized through application of one or more of the following measures:

- Careful siting of illumination on a parcel in relation to adjacent properties.
- Use of non-reflective paint and building materials.
- Screening or shielding light at the source.
- Use of vegetation screening or fencing and trees to shade roads and other pavement expanses.
- Use of directional lighting that focuses narrowly on the desired area of illumination.
- Use of lower intensity or temporary lighting controlled by timing devices.
- Use of sound- or motion-activated lighting that illuminates only when there is nearby activity (Yuba County 1996, pp. 5-53–54).

As described in Chapter 3, *Project Description*, replacement poles will have dull grey surfaces. No new lighting or reflective surfaces are proposed as part of the project.

Open Space and Conservation Element

Preservation of Natural Resources

Policy 2-OSCG: Maintain and enhance natural resources, open space lands and the scenic beauty of Yuba County in order to protect the quality of the environment, the county's economy, and the health and well-being of present and future residents (Yuba County 1996, p. 7-14).

Policy 7-OSCO: Full disclosure and consideration of impacts on natural resources, open space lands and scenic resources identified in this **General Plan**, when reviewing proposals for development or use of county lands (Yuba County 1996, p. 7-14).

Policy 8-OSCO: Land use planning decisions which minimize impacts on natural resources, open space lands and scenic resources, and mitigation for those impacts which are unavoidable.

Policy 26-OSCP: All review processes for development projects shall document any impact to natural resources, open space lands and scenic resources as identified in Volume I of this **General Plan**.

Policy 27-OSCP: Natural resource areas, open space lands and scenic resource areas, as identified by Volume I of this **General Plan**, shall be

maintained in a manner that does not compromise their resource, open space and scenic values unless no other reasonable alternatives exist. Where impacts may occur, mitigation shall be provided which fully compensates for the identified impacts.

Policy 29-OSCP: Structures shall be designed and sited in foothill and mountain areas in a manner that reduces or eliminates silhouettes against the sky along ridgelines or hilltops and fits the natural terrain (Yuba County 1996, p. 7-15).

Objective 9-OSCO: Preservation of important open space lands and scenic views, and creation of new open space opportunities in conjunction with development projects.

Policy 34-OSCP: The scenic qualities of the county's roads and highways shall be carefully protected through adoption of adequate controls over the placement and appearance of outdoor advertising structures, and outdoor storage and parking areas.

Policy 35-OSCP: Landforms shall be recontoured where affected by roadway construction provide a smooth and gradual transition between modified landforms and existing grade (Yuba County 1996, p. 7-16).

Policy 175-OSCP: The County shall incorporate trails into future planning for drainage channels, street rights-of-way, landscape corridors, levees, transmission line easements and other open space areas whenever feasible (Yuba County 1996, p. 7-49).

The project does not substantially change scenic views from roadways, nor does it involve significant grading.

Yuba County Scenic Highways Map

Wheatland Road and Highway 20 are proposed Yuba County scenic routes (Yuba County 1968). Other potentially eligible new corridors in Yuba County include the State Highway 70/Marysville Bypass to the Butte County line, and State Highway 49 (Yuba County 1968, p. 7-17).

The project route crosses Highway 20 and may cross the Marysville Bypass, but it is not located within two miles of either of the other potentially eligible or proposed scenic routes. Also because none of these roadways are designated county scenic roadways, the project does not affect views within existing scenic roadway corridors in the county.

Sutter County General Plan

The Sutter County General Plan (1996) includes general policies regarding visual resources. In particular, the plan identifies the Sutter Buttes as a visual resource and directs development to preserve views of this distinctive landform.

The following policies are from Section 1, Land Use Element, of the Sutter County General Plan.

Policy 1.H-1: The County shall require that new development be designed to utilize vegetation screening structures and parking areas.

Policy 1.H-2: The County shall require that new development along Highway 20 incorporate design development standards that protect views of the Sutter Buttes.

Policy 1.H-3: The County shall require that design and development standards be applied to all industrial and commercial areas to improve the aesthetic appearance of those developments (Sutter County 1996, pp. 17–18).

The Sutter County General Plan is in the process of being updated, and the 2008 Background Report identifies a number of visually and aesthetically scenic roadways throughout Sutter County. These consist of roadways such as those around and through the Sutter Buttes and those along the Sacramento and Feather Rivers (Sutter County 2008). However, no policies are currently in place to designate these as county scenic roadways.

The project does not affect scenic views such as those of the Sutter Buttes.

Yuba-Sutter Natural Communities Conservation Plan/Habitat Conservation Plan

The project crosses the Yuba-Sutter Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP) area, an area that covers approximately one quarter of the area of the two counties. This plan is currently under development, and there are no provisions for aesthetic resources in this area.

State Regulations

California Department of Transportation

California Scenic Highway Program

California's Scenic Highway Program was created by the Legislature in 1963. Its purpose is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. 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 Caltrans for scenic highway approval, and receives from Caltrans the designation. A city or county

may propose adding routes with outstanding scenic elements to the list of eligible highways. However, state legislation is required for designation.

The project route does not cross or pass near any designated or eligible state scenic highways. Highway 70 in Butte County north of Highway 191 is eligible for the state scenic highway designation; however the project is more than 10 miles from this portion of Highway 70 and is not visible from this roadway. In Yuba County, Highway 49 is an eligible state scenic highway, but this is approximately 25 miles from the project route. Sutter County has no officially designated or eligible state scenic highways.

California Department of Fish and Game Strategic Plan

The project passes within two miles of the Lake of the Woods State Wildlife area managed by the California Department of Fish and Game. The DFG's Strategic Plan (1998) outlines general goals to maintain and promote the aesthetic value of wildlife. This plan does not list specific aesthetic policies that would restrict the proposed project.

Existing Conditions

Setting

The Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project runs approximately 40 miles from the Palermo Substation at the eastern edge of the town of Palermo in southern Butte County southwards to the East Nicolaus Substation in the town of East Nicolaus in Sutter County. Most of the route passes through unincorporated portions of Sutter, Yuba, and Butte Counties in the northern Sacramento Valley (See Figure 4.1-1).

The landscape of the Sacramento Valley and the project route is generally the flat terrain associated with the alluvial fans of rivers draining from the Sierra Nevada mountain range. This visual setting is characterized primarily by grazing lands, agricultural fields, and orchards. Elevations in the project area range from approximately 40 to 380 feet above sea level with elevations gradually dropping as the route moves south (Benchmark Maps 2007). The combination of relatively flat topography and agricultural fields contributes to an open landscape character. The Sierra Nevada mountains to the east and the Sutter Buttes to the west can be seen from many locations along the route, except when weather or air quality conditions limit visibility.

The project's rural landscape setting is punctuated by urbanized areas such as Marysville, Linda, Olivehurst, and Palermo. Scattered rural residences and associated farm buildings are also found along the route. The project route also passes alongside the edge of Yuba Community College. The route crosses several rivers and creeks including the Bear River and the Ping Slough in Sutter County,

the Yuba River near Marysville, and Jack Slough in Yuba County, North and South Honcut Creeks on the border between Yuba and Butte Counties, and Wyandotte Creek and the Wyman Ravine in Butte County. Roadway crossings include Highways 65, 70, and 20 as well as dozens of smaller rural roads. In southern Yuba County, the route passes within two miles of the Lake of the Woods State Wildlife Area managed by the DFG.

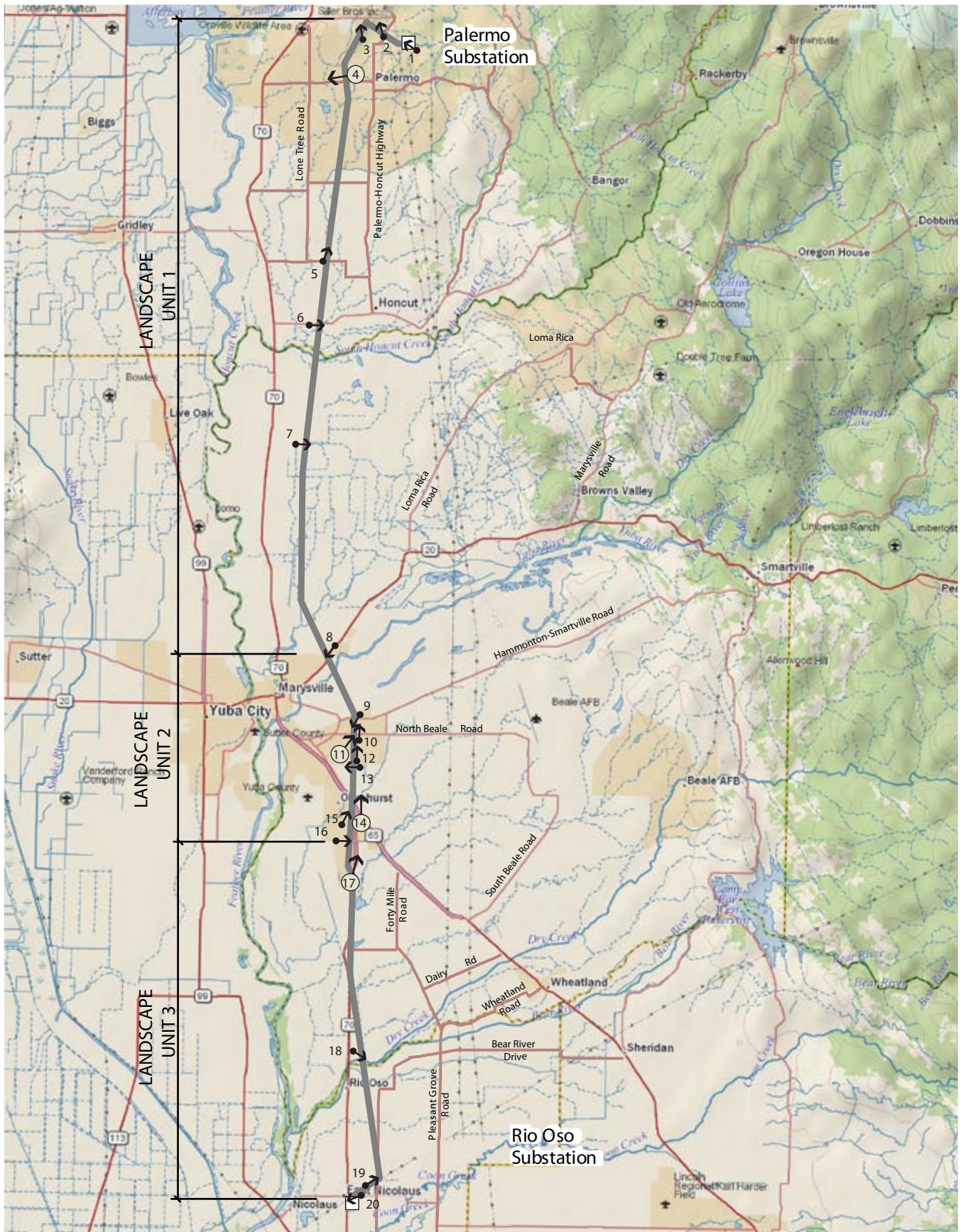
Project Viewshed and Landscape Units

The project viewshed is defined as the general area from which the project will be visible. For most of the project route and viewshed, the terrain is the relatively flat valley floor. As described below, the project will be visible from locations along public roads as well as from public open space and limited residential areas. However, as seen from many places along the route, intervening vegetation and buildings screen the project. Within this area several existing overhead transmission lines, including the project, are established landscape features.

For reference, it may be noted that visual details generally become apparent to the viewer when they are seen in the foreground, at distances of 0.25 to 0.5 of a mile or less (Smardon et al. 1986). The primary focus considered for purposes of the PEA visual analysis is this foreground viewshed area, where visual details are apparent, and up to approximately one mile from the proposed project area, where change could be noticeable.

A set of three distinct sub-areas or landscape units has been identified for purposes of documenting and describing the project's foreground viewshed. Each identified landscape unit can be considered a distinct "outdoor room" with distinguishing topographic, vegetation, and/or development patterns. Table 4.1-1 summarizes the landscape units found within the project viewshed. Figure 4.1-1 delineates the project route, the geographical locations of the three landscape units, and their relationship to the photo viewpoint locations.

Landscape Unit 1 encompasses the Palermo Substation (the route's northern terminus) and the route down to its Highway 20 crossing in Yuba County. Landscape Unit 2 covers the route from the Highway 20 crossing to McGowan Parkway near Highway 70 in Olivehurst. Unit 3 runs from McGowan Parkway to the route's southern terminus outside of the town of East Nicolaus in Sutter County. (see Figures 4.1-1 and 4.1-2a through 4.1-2e).



Source: DeLorme

- 1 → Photo Viewpoint
- ③ → Simulation Viewpoint

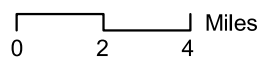


Figure 4.1-1
Photo Viewpoint Locations
Palermo-East Nicolau 115 kV
Transmission Line Project



1. Stageline Road looking northwest toward Palermo Substation



2. Upper Palermo Road at Pinecrest Road looking northwest



3. Lincoln Boulevard at Firloop Circle looking north



4. Baldwin Avenue at Railroad Avenue looking west*

*Simulation View

Figure 4.1-2a
Landscape Unit 1 - Visual Character Photographs
Palermo-East Nicolaus 115 kV Transmission Line Project



5. Central House Road at route crossing looking northeast



6. Lower Honcut Road east of Highway 70 looking east



7. Ramirez Road east of Highway 70 looking east



8. Highway 20 westbound looking southwest



9. Hammonton-Smartville Road near crossing looking southwest



10. Yuba Community College looking north toward North Beale Road



11. Fernwood Drive near Wildwood Drive looking northeast*



12. River Bank Drive near pedestrian path looking north

*Simulation View

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Figure 4.1-2c

Landscape Unit 2 - Visual Character Photographs
Palermo-East Nicolaus 115 kV Transmission Line Project



13. Erle Road near Edgewater Circle looking west



14. Highway 70 northbound at Highway 65 merge looking north*



15. Powerline Road at Yuba Gardens School looking northeast



16. McGowan Parkway at Powerline Road looking east

*Simulation View

Figure 4.1-2d



17. Highway 70 northbound looking northeast*



18. Chalice Creek Drive looking southeast



19. Watts Avenue near Pacific Avenue looking northeast



20. East Nicolaus Substation (from East Nicolaus Avenue and Highway 70)

*Simulation View

Figure 4.1-2e

Table 4.1-1. Summary of Landscape Units within the Project Viewshed (Figures 4.1-2a through 4.1-2e)

Landscape Unit	Approximate Length (miles)	Structure Numbers	Photo Numbers*
Landscape Unit 1: Palermo Substation to Highway 20	22	1 to 172	1 to 8
Landscape Unit 2: Highway 20 to McGowan Parkway	6	173 to 220	9 to 16
Landscape Unit 3: McGowan Parkway to East Nicolaus Substation	12	221 to 306	17 to 20

* For photograph viewpoint locations, see Figure 4.1-1.

Visual Character along the Project Route

Landscape Unit 1: Palermo Substation to Highway 20

Towers 1 to 172 (Photos 1 through 8, Figures 4.1-2a and 4.1-2b)

Landscape Unit 1 runs from the Palermo Substation to where the route crosses Browns Valley Road (Highway 20) on the outskirts of Marysville. Although the route crosses through the very southern limits of the city of Oroville, the focus of this Landscape Unit is the lower Sierra foothill community of Palermo and the farmland in the northern Sacramento Valley. The visual setting in this unit is a gently rolling landscape of mature forests giving way to creeks and low-lying grasslands that make up the valleys of the Wyandotte and Honcut Creeks. Elevations along the northern portion of the route reach almost 400 feet, whereas the center of Palermo lies at about 160 feet and farmlands further south vary between 60 to 150 feet. Aside from the small town of Palermo, the area is sparsely populated. Views of the project are available from a small number of residences and agricultural buildings.

The photos in Figure 4.1-2a (Photos 1 through 4) and Figure 4.1-2b (Photos 5 through 8) depict existing conditions for Landscape Unit 1. A simulation was prepared for Viewpoint (Photo) 4 to depict proposed future conditions. The Viewpoint 4 simulation is shown in Figure 4.1-3.

The Palermo Substation is located in a flat area off of Stageline Road west of Drescher Tract Road. As depicted in Photo 1, a view from about 350 feet away on Stageline Road, the substation is visible from adjacent properties (see Figure 4-1.2a). In this area, more distant views of the project route from the south, east, and west are screened by vegetation and topography. Limited views toward the substation are available from the north, including views from the Feather Falls Casino and the associated Kampgrounds of America campground on Lower Wyandotte Road 0.75 of a mile away. Due to an intervening low and forested ridge that reaches about 400 feet in elevation, the substation is not visible from most of the town of Palermo, located 1.5 miles to the southwest.

The project route follows an existing transmission route for approximately 1.5 miles from the substation west then northwest, crossing Upper Palermo Road (and Pinecrest Road). The project line is one of three parallel lines at this point (Photo 2). The route turns southwest near the intersection of Lincoln Boulevard and Ophir Road, and from Ophir Road proceeds approximately 1.5 miles southwest, where it crosses Lincoln Boulevard near Firloop Circle (Photo 3). It continues southeast for about 1.3 miles between the railroad corridor and Railroad Avenue. Photo 4, taken from Baldwin Avenue at Railroad Avenue represents views from this area looking west toward the project. A half mile south of South Villa Avenue, at what would be the extension of Louis Avenue, the line crosses the Union Pacific Railroad tracks and continues on the west side of the tracks. As shown in Photos 5 and 7, for most of this Landscape Unit the route runs within 100 feet west of the Union Pacific Railroad corridor.

In Landscape Unit 1, the route crosses various local roads including Cox Lane, Central House Road, Middle and Lower Honcut Roads, Ramirez Road, Ellis Road, Kimball Lane, and Jack Slough Road. These rural roads connect residents of the area to Highway 70 and to the towns of Palermo, Honcut, Wyandotte and Gridley. Photo 6 shows the crossing at Lower Honcut Road, a well-traveled roadway that joins Honcut to the east with Highway 70. As shown in Photo 8, at the southern end of the unit, the route crosses Highway 20.

Vegetation south of the town of Palermo consists of grasslands and farms, riparian corridors and orchards. The route crosses several waterways including South Honcut Creek and Jack Slough. Riparian trees such as cottonwoods are characteristic of the vegetation in these areas.

Distant views of the project are also available from the heavily traveled Palermo-Honcut Highway and from Highway 70. Palermo-Honcut Highway runs parallel to the route approximately one to three miles to the east, and Highway 70 runs parallel to the route one to three miles to the west. The Sutter Buttes provide a distinctive landscape backdrop feature in eastern-facing views from some locations within this landscape unit. The Buttes lie approximately 12 miles away from the southern end of this unit.

Landscape Unit 2: Highway 20 to McGowan Parkway

Towers 173 to 220 (Photos 9 through 16, Figures 4.1-2c and Figure 4-1.2d)

Landscape Unit 2 runs roughly six miles from Browns Valley Road (Highway 20) near the northeast edge Marysville to the Highway 70 route crossing at McGowan Parkway in Olivehurst. Landscape Unit 2 includes the most populated areas of project corridor, passing through the communities of Linda and Olivehurst as well as the city limits of Marysville, the Yuba County seat. Elevations in this area are fairly constant, ranging from approximately 55 to 75 feet above sea level.



Existing view from Baldwin Avenue at Railroad Avenue looking west (VP 4)



Visual simulation of proposed project

Note: For viewpoint location refer to Figure 5-1

The photos in Figure 4.1-2c (Photos 9 through 12) and Figure 4.1-2d (Photos 13 through 16) depict existing conditions for Landscape Unit 2. Simulations were prepared for Viewpoint (Photo) 11 and Viewpoint (Photo) 14 to depict proposed future conditions. The Viewpoint 11 simulation is shown in Figure 4.1-4 and the Viewpoint 14 simulation is shown in Figure 4.1-5.

Highway 20, a proposed Yuba County scenic route, runs east and west and connects smaller foothill communities with Marysville and Yuba City. Views from Highway 20 encompass low-lying farmlands as well as distant views of the Sierra Nevada foothills and the Sierra Buttes. In this area, the line passes within 0.25 of a mile of an existing residential area. Where the route briefly crosses through Marysville, views of the transmission line are screened by a levee that separates the residential areas from farmland to the northeast.

The route runs southeast for about two miles after crossing Highway 20, then crosses the Yuba River and orchard land before entering the residential community of Linda, a suburb of Marysville. On the north edge of Linda the route passes through the Peach Tree Golf & Country Club, a private club built in 1960. Near Linda the route crosses a number of local and regional roadways including Hammonton-Smartville Road (shown in Photo 9), North Beale Road (an entry road for Beale Air Force Base), and Erle Road (Photo 13). For slightly more than 1.5 miles the project traverses the Linda community passing adjacent to the campus of Yuba Community College campus (Photo 10). Photo 11 and Photo 12, respectively, are views from a recently built suburban development and a nearby walking trail in Linda.

Highways 65 and 70 are major north-south-running routes that connect Roseville and Sacramento with the communities of Lincoln and the Marysville/Yuba City area. Photo 14, taken from Highway 65, shows the project route where it crosses near the junction of the two highways. This view includes existing lattice towers of the project line along with a parallel transmission line as well as existing distribution lines. After this roadway crossing, the project route continues parallel to and within 0.25 of a mile of Highway 70. At this location the route enters Olivehurst, where it also travels parallel to and within 100 feet of a residential area along Powerline Road for one mile. Photo 15, taken from Yuba Gardens School on Powerline Road near 11th Avenue shows a view this area in Olivehurst. Photo 16 shows the route at McGowan Parkway just before its second Highway 70 crossing.

Landscape Unit 3: McGowan Parkway to East Nicolaus Substation

Towers 221 to 306 (Photos 17 through 20, Figure 4.1-2e)

Landscape Unit 3 extends approximately 12 miles from McGowan Parkway to the East Nicolaus substation. Although the route passes through a newer residential development in the northern portion, this unit's landscape is generally characterized by unpopulated agricultural areas typified by grasslands and rice

fields. Railroad tracks, rural roads, and levees punctuate the landscape setting. The route crosses several waterways including the Bear River located at the border of Yuba and Sutter Counties and Yankee Slough. Elevations in this relatively flat landscape range between 40 and 60 feet above sea level.

The photos in Figures 4.1-2e (Photos 17 through 20) depict existing conditions for Landscape Unit 2. A simulation was prepared for Viewpoint (Photo) 17 to depict proposed future conditions. The Viewpoint 17 simulation is shown in Figure 4.1-6.

For most of this unit, the route runs parallel to and within 0.25 of a mile of Highway 70. Approximately one mile south of McGowan Parkway, the route crosses Highway 70 (Photo 17). The existing transmission route continues to be one of two parallel lines supported by lattice towers throughout this unit.

As shown in Photo 18, south of Plumas Arboga Road the project route passes near several recently built residential developments along Highway 70 in the historic Plumas Lake area. In this area the route crosses then runs parallel to the Western Pacific Railroad tracks until it turns west at Pacific Avenue north of Watts Avenue.

The East Nicolaus substation on El Centro Boulevard (Highway 70) is the project's southern terminus and is situated in an area of residential, light industrial, commercial, and farmland in the East Nicolaus community (Photo 19). Photo 20, taken from approximately 200 feet away, shows a Highway 70 view looking toward the East Nicolaus substation.

Impact Analysis

Methods

The analysis of potential aesthetic and visual impacts associated with the project is based on review of technical data including project maps and drawings provided by PG&E, aerial and ground-level photographs of the project area, local planning documents, and computer-generated visual simulations. During field observations in August 2008, existing aesthetic and visual conditions in the project area were documented and potentially affected sensitive viewing locations were identified.

This study addresses the California Environmental Quality Act (CEQA) Guidelines for aesthetic and visual impact analysis. Included are a systematic documentation of the project setting and an evaluation of aesthetic and visual changes associated with the project. This visual study also employs assessment methods based, in part, on the U.S. Department of Transportation Federal Highway Administration (FHWA) and other accepted visual analysis techniques as summarized by Sardon et al. (1986).



Existing view from Fernwood Drive near Wildwood Drive looking northeast (VP 11)



Visual simulation of proposed project

Note: For viewpoint location refer to Figure 5-1



Existing view from Highway 70 northbound at Highway 65 merge looking north (VP 14)



Visual simulation of proposed project

Note: For viewpoint location refer to Figure 5-1



Existing view from Highway 70 northbound looking northeast (VP 17)



Visual simulation of the proposed project

Note: For viewpoint location refer to Figure 5-1

Consistent with FHWA methods, this impact analysis describes change to existing aesthetic and visual resources and assesses viewer response to that change. Central to this assessment is an evaluation of representative views from which the project will be visible to the public. In order to document the visual change that will occur, visual simulations show the project from a subset of the visual character photographs, representing key viewpoints. The visual simulations are presented as “before” and “after” images.

The visual impact assessment was based on evaluation of the changes to the existing visual resources that will result from construction and operation of the project. These changes were assessed, in part, by evaluating the “after” views provided by the computer-generated simulations and comparing them to the existing environment.

Visual Simulation Methods

As part of the project analysis, Environmental Vision produced a series of visual simulations to illustrate before-and-after visual conditions in the project area. The simulations illustrate the location, scale and appearance of the proposed project as seen from representative public viewpoints. The visual study employs photographs taken in August 2008 using a digital single-lens reflex camera with a 50 mm equivalent lens which represents a horizontal view angle of 40 degrees.

Environmental Vision employed computer modeling and rendering techniques to produce the visual simulation images. The computer-generated visual simulations are the results of an objective analytical and computer modeling process described briefly below.

The four simulation vantage points are summarized below and delineated on Figure 4-1.1.

1. Baldwin Avenue at Railroad Avenue in Lincoln Boulevard at Firloop Circle in Palermo (Viewpoint 4).
2. Fernwood Drive near Wildwood Drive in Linda (Viewpoint 11).
3. Highway 70 northbound at Highway 65 (Viewpoint 14).
4. Highway 70 northbound near Algodon Road (Viewpoint 17).

Existing GIS and engineering data and digital aerial photographs supplied by PG&E engineers provided the basis for developing an initial digital model. A three-dimensional model of the proposed transmission tower extensions was also developed using design data and GIS project data supplied by PG&E. The three-dimensional computer model of the proposed transmission facility improvements was combined with the digital site model to produce a complete computer model of the proposed project. A set of computer-generated perspective plots were then produced to represent the selected viewpoints.

For each of the simulation viewpoints, viewer location was digitized from topographic maps using 5 feet as the assumed eye level. Computer wireframe

perspective plots were overlaid on 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 final hard-copy visual simulation images contained in this visual analysis were printed from the digital image files and produced in color on 8 1/2-by-11-inch sheets as Figures 4-1.3 through 4-1.6. The visual impacts associated with these changes are described below.

Significance Criteria

To determine the significance of the anticipated aesthetic and visual changes, the project's effects were evaluated in light of the direction provided by the CEQA Guidelines. Appendix G of the Guidelines indicates that a project will have a significant effect on the environment if it will:

- Have a substantial, adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare, which will adversely affect day or nighttime views in the area.

Factors considered in applying these criteria to determine significance include the extent of project visibility from residential areas, public open space, and designated scenic routes; the degree to which the various project elements will contrast with or be integrated into the existing landscape; the extent of change in the landscape's composition and character; and the number and sensitivity of viewers. Project conformance with public policies regarding visual quality was also taken into account.

Impacts and Mitigation Measures

Visual Change

The changes proposed by the project will generally occur within an existing PG&E right-of-way, which is occupied by existing transmission structures including those of the project route and adjacent transmission and distribution lines. The project proposes replacing many of the existing structures and, to varying degrees, project components will be visible to the public. Representative visual changes associated with these modifications are described below.

Landscape Unit 1: Palermo Substation to Highway 20

Figure 4-1.3 provides a before-and-after view from Baldwin Avenue at Railroad Avenue, looking west toward the project and the railroad corridor. From this location in Palermo, one currently sees an unobstructed view of two existing lattice towers. The tower on the left is situated within the project route while the structure seen to the right is associated with the adjacent existing transmission line. Large mature trees situated along Railroad Avenue are prominent in the foreground and scattered large trees and smaller orchard trees form the landscape backdrop seen beyond the railroad corridor.

The simulation shows an unobstructed view of the new replacement hybrid pole which is situated close to the location of the existing tower it replaces. The new structure will be 90 feet tall whereas the existing tower is approximately 75 to 80 feet tall. In comparison to the existing structure it replaces, the new pole will be slightly taller; however its profile and form will appear more streamlined. In these respects the change to existing visual conditions is incremental. A comparison of the Figure 4-1.3 before and after images demonstrates that the visual change associated with the project would not substantially alter the existing landscape composition and aesthetic character at this location. Therefore the visual effect is less than significant.

Landscape Unit 2: Highway 20 to McGowan Parkway

Figure 4-1.4 provides a before-and-after view of the project from Fernwood Drive near Wildwood Drive. Existing residences are visible in the foreground. On the right in the background, two existing lattice towers appear against the sky behind the residences. The existing lattice tower situated within the project route is about 75 feet tall and is located approximately 300 feet away. Existing wood distribution poles are also visible behind the homes.

The simulation view shows the replacement structure, an 80-foot steel pole. The particular pole shown is a transposition pole. Its design is somewhat unique and more visually complex than a typical replacement pole. The new pole is located slightly further from the photo viewpoint, and although it is somewhat taller than the existing tower, it would look similar in scale. The new transposition pole would also be similar in general appearance to the existing utility structures in the area. As seen from this vantage point, the project will result in a minor visual change which could be somewhat noticeable to the public. However, given the presence of existing utility structures in this area, it would not significantly alter the existing visual character or quality of the landscape setting.

Landscape Unit 3: McGowan Parkway to East Nicolaus Substation

Figure 4-1.5 provides a before-and-after view of the project from northbound Highway 70 at the Highway 65 merge in Olivehurst. This view includes both the

project route and a second existing transmission line that crosses Highway 70 in the foreground. Lattice towers associated with both lines appear prominently on each side of the roadway. In the background a wood-pole utility line crosses the roadway and wood poles of another existing line appear on the right side of the roadway.

The simulation shows three new steel replacement poles, one on the left side of the roadway and two on the right side. The project replaces the existing 90- to 95-foot lattice tower on the left side of the road with an 80-foot steel pole approximately 400 feet away. In addition, the existing 75-foot lattice tower on the right is replaced by a 100-foot steel pole. This replacement structure is about 900 feet from the photo viewpoint. The simulation also shows a lattice tower on the adjacent transmission line replaced by a steel pole.

Overall, the replacement poles are similar in scale to the existing lattice towers. They are consistent in form with the various existing wood utility poles seen in the area. While the new poles appear somewhat more substantial than the lattice towers, their streamlined profile will result in a reduced sense of visual clutter at this location. A comparison of the existing view and the visual simulation demonstrates that, given the presence of existing transmission structures, this incremental visual change would not be particularly noticeable and would not substantially alter the landscape composition or character at this location.

Figure 4-1.6 provides a before-and-after view of the project from Highway 70 northbound near Plumas Arboga Road in the Plumas Lake area. This view includes existing lattice towers associated with the project route (seen on the right) as well as an adjacent transmission route to the left. Because of the area's flat, open landscape character, unobstructed close range and distant views of these transmission lines and structures are available from this portion of Highway 70.

The simulation shows a 90-foot hybrid pole. The new structure replaces the existing 90-foot lattice tower. The replacement pole, approximately 450 feet away, is somewhat closer to the viewpoint than the existing tower. The next replacement pole, about 1,100 feet away, is a 90-foot hybrid pole that replaces a 70-foot lattice tower. As seen from this Highway 70 vantage point, the project introduces structures that differ in form but are similar in scale to existing structures. This change represents a minor incremental visual effect that would not be particularly noticeable to the public, nor would it substantially alter the area's existing landscape character or quality given the presence of existing large transmission structures.

Visual Impacts

The project occupies an existing transmission corridor where transmission structures are currently visible to the public. As such, the project represents an incremental change to the existing landscape setting.

Impact VIS-1: Project construction would not substantially affect existing views within the project area—less than significant

Construction-related visual impacts will result from the presence of equipment, materials, and work crews along the route and at the substations. Although these effects are relatively short term, they will be most noticeable to residents who live in close proximity to the project area and to motorists traveling along the route on public roadways. Project construction is anticipated to take approximately 12 to 18 months. However, at any one tower location this time period will be considerably shorter.

Construction-related visual impacts along access roads could also occur. PG&E will implement the following measure to reduce potential construction-related visual effects.

- PG&E and their contractors will make every effort to keep construction activities as clean and inconspicuous as practical.

Short-term visual impacts will be less than significant, and no mitigation is required.

Impact VIS-2: The project would not have an adverse effect on a scenic vista—no impact

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. As described in the section titled *Visual Character along the Project Route* and the section titled *Visual Simulation Methods*, there are no affected scenic vistas in the project area; therefore the project would not have an adverse effect on a scenic vista.

Impact VIS-3: The project would not damage scenic resources within a state scenic highway—no impact

As described in the setting section, no designated state scenic highways exist within the project area. Therefore the project would not damage scenic resources within a designated state scenic highway.

Impact VIS-4: The project would not substantially alter the appearance of the existing project area—less than significant

The project will replace the majority of the 320 existing transmission towers along the route. Most existing structures are lattice towers that will be replaced with hybrid pole structures that will be slightly taller. The total number of poles along the route would be reduced by 15. To varying degrees, these changes may be noticeable when seen from public roads in the area. However, from many roadway locations near the project route, no changes will be visible. As demonstrated in the visual simulations and outlined in the section titled *Visual*

Change, these effects will represent a relatively minor level of visual impact that will not substantially alter the appearance of the existing landscape in the project area. Overall, the change associated with the project will be minor and incremental when seen within the context of the existing landscape setting, which includes existing transmission lines. Therefore the project will not substantially degrade the existing visual character or quality of the site or its surroundings.

Impact VIS-5: The project would not create a substantial new source of light or glare which will adversely affect day or nighttime views in the area—less than significant

The project does not propose any new nighttime lighting. As described in Chapter 3, *Project Description*, replacement poles will have dull grey surfaces. After their installation, the new conductors may initially appear brighter or shinier than the existing conductors, however, it is expected that they will weather to a dull finish within a few years. Therefore, the project will not create a new source of substantial nighttime light or daytime glare.

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Section 4.2

Agriculture Resources

Introduction

This section provides a description of local agricultural resources on parcels that would be traversed by the proposed project and in the project vicinity. The impact analysis evaluates the project's potential to adversely affect existing agricultural resources.

The proposed project has been designed to minimally affect agricultural land. Although in some instances farmland and grazing land would be temporarily affected, impacts on agricultural resources from project construction and operation will be less than significant.

Existing Conditions

Regulatory Setting

State of California

California Farmland Mapping and Monitoring Program

The CDC, under the Division of Land Resource Protection (DLRP), has set up the Farmland Mapping and Monitoring Program (FMMP). This program monitors conversion of the state's farmland to and from agricultural use. The map series identifies eight classifications and uses a minimum mapping unit size of 10 acres. The map categories are defined by the FMMP in this manner.

- **Prime Farmland:** Land that has the best combination of physical and chemical characteristics for the production of crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods.
- **Farmland of Statewide Importance:** Land that is similar to prime farmland but with minor shortcomings, such as greater slopes or less ability to hold and store moisture.

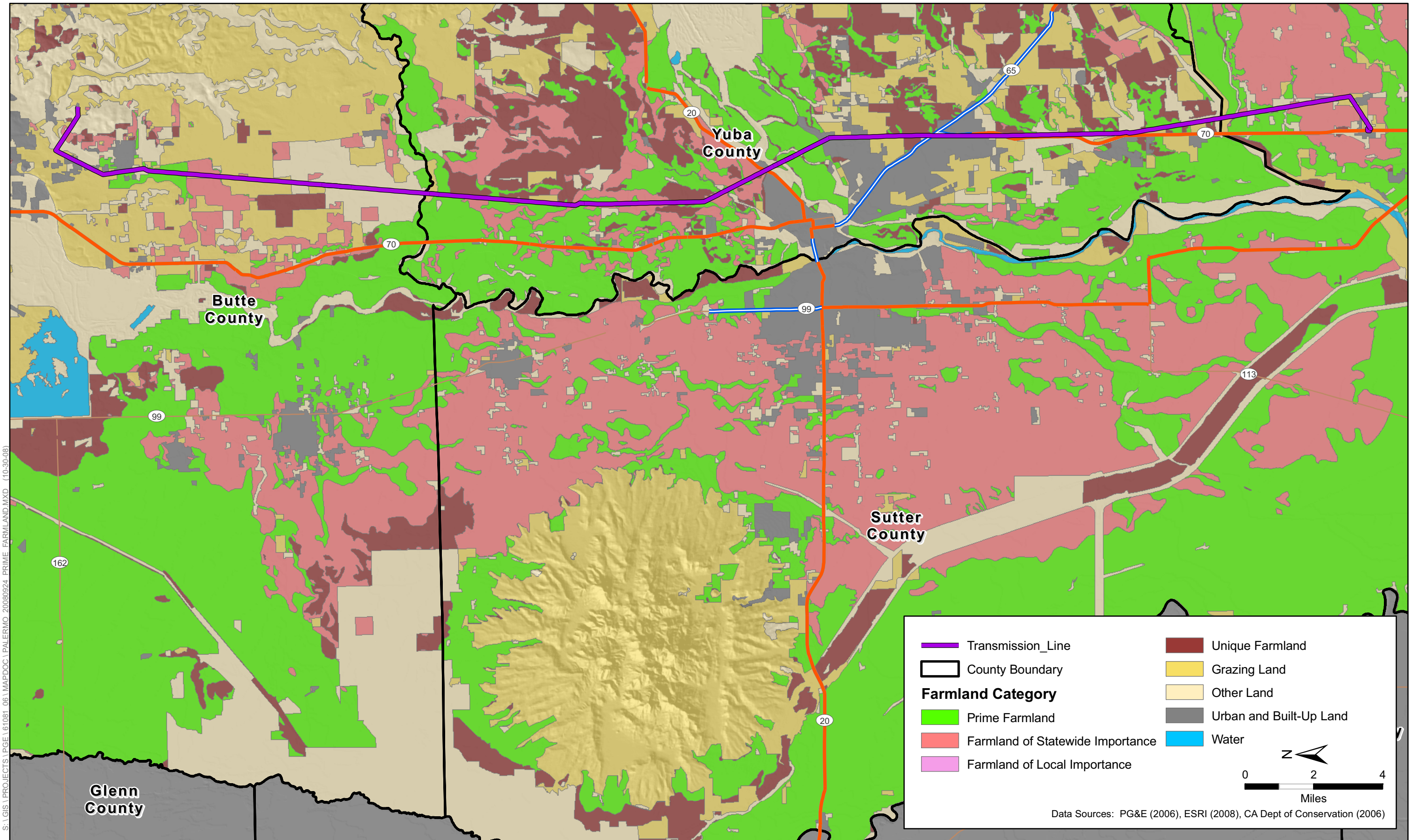
- **Unique Farmland:** Land of lesser quality soils used for the production of specific high-economic-value crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high-quality or high yields of a specific crop when treated and managed according to current farming methods. The land is usually irrigated but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. Examples of crops include oranges, olives, avocados, rice, grapes, and cut flowers.
- **Farmland of Local Importance:** Land of importance to the local agricultural economy, as determined by each county's board of supervisors and local advisory committees. Examples include dairies, dryland farming, aquaculture, and uncultivated areas with soils qualifying for prime farmland and farmland of statewide importance.
- **Grazing Land:** Land on which the existing vegetation, whether grown naturally or through management, is suitable for livestock grazing or browsing.
- **Urban and Built-Up Land:** Land used for residential, industrial, commercial, construction, institutional, and public administrative purposes; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures; and other development purposes. Highways, railroads, and other transportation facilities are included also in this category.
- **Other Land:** Land that is not included in any of the other mapping categories. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres.
- **Water:** Water areas with an extent of at least 40 acres.

The FMMP maintains an inventory of state agricultural land and updates its Important Farmland Series Maps every two years (CDC 2007). The FMMP also produces a biannual report on the amount of land converted from agricultural to non-agricultural use.

The FMMP is an informational service only and does not have regulatory jurisdiction over local land-use decisions. Three categories of farmland—Prime Farmland, Farmland of Statewide Importance, and Unique Farmland—are considered valuable, and any conversion of land within these categories typically is considered an adverse impact. Multiple properties along the alignment are designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland and Grazing Land (see Figure 4.2-1).

California Land Conservation Act of 1965

The California Land Conservation Act of 1965 (Williamson Act) enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. Its intent is to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. In return, landowners receive property



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Figure 4-2-1
Palermo to East Nicolaus 115 kV Transmission Line Reconstruction Project
Prime Farmland in the Project Vicinity

tax assessments that are much lower than usual because they are based on farming and open space uses as opposed to full market value.

Local governments receive an annual subvention of foregone property tax revenues from the state through the Open Space Subvention Act of 1971. The vehicle for these agreements is a 10-year rolling-term contract (*rolling term* means that unless either party files a notice of nonrenewal, the contract is automatically renewed annually for an additional year). There are no parcels in the project vicinity that are currently under Williamson Act contract (see Figure 4.2-2).

County and City Plans

Although PG&E is not subject to local land-use regulations, the following overview of local regulations relating to agricultural resources is provided for informational purposes.

Butte County

Butte County General Plan

Goals and policies in the Butte County General Plan (Butte County, 1995) related to agricultural resources are as follows.

Goal 1: Maintain parcel sizes that ensure the long-term preservation, conservation and continuity of those general plan areas identified as Orchard and Field Crops and Grazing and Open Lands.

Policy 1.5: Conserve Orchard and Field Crops lands and Grazing and Open Lands as designated in the General Plan Land Use Map.

Goal 3: Support the management of agricultural lands in an efficient, economical manner, with minimal conflict from non-agricultural uses.

Policy 3.2: In order to preserve the maximum amount of land for commercial agricultural production and to avoid conflicts, restrict non-agricultural uses in the zoning ordinance, including, but not limited to, water ski lakes, riding stables, golf courses, residential subdivisions, and industrial and commercial uses not directly related to agriculture on agricultural lands. Public uses, including but not limited to, sewer treatment plants, drainage facilities, and energy generating facilities shall be permitted subject to a use permit. Such facilities shall be carefully located so as not to unduly interfere with existing or planned agricultural activities.

Goal 5: Seek and support preservation policies and programs to protect long-term agricultural production.

Policy 5.1: Encourage the use of the Williamson Act as a means of preserving agricultural land.

Butte County Zoning Ordinance

The Butte County Zoning Ordinance provides detailed regulations about the type and location of land uses that can occur within County zoning districts. The ordinance identifies the following County zoning districts as relevant to agricultural uses.

- **Agricultural (A-5–A160):** This zone permits single family residences, mining, quarrying, and commercial excavation. Regarding utilities, it states (a) Uses permitted: (4) The erection, construction, alteration or maintenance of gas, electric, water or communication transmission facilities.
- **Agricultural Residential (AR–AR-10):** This zone permits single-family residences and agricultural uses. Regarding utilities, the ordinance states: (c) Uses requiring use permits. The following uses are permitted subject to a use permit: (3) Public and quasi-public uses. A quasi-public use is defined as: operated by a private nonprofit educational, religious, recreational, charitable, fraternal, or medical institution, association or organization, said use having the purpose primarily of serving the general public, and including, but not limited to, such uses as churches, private schools, universities, community youth and senior citizen recreational facilities, meeting halls, private hospitals, public utility facilities unless preempted from local review by state or federal regulations, private schools, daycare centers, fraternities, sororities, and the like.

City of Oroville General Plan

Goals and policies in the City of Oroville General Plan (City of Oroville, 1995) related to agricultural resources are as follows.

Objective 6.21a: Retain the maximum feasible amount of agricultural production space for its contributions to the local economy, lifestyle, air quality, habitat value and sense of Oroville's heritage.

Implementing Policy 6.21e: Assist, if appropriate, orchard owners in obtaining contracts under the Williamson Act to ensure property taxation based on agricultural value, not development value.

City of Oroville Zoning Ordinance

The proposed project does not traverse any agricultural zones in the City of Oroville.

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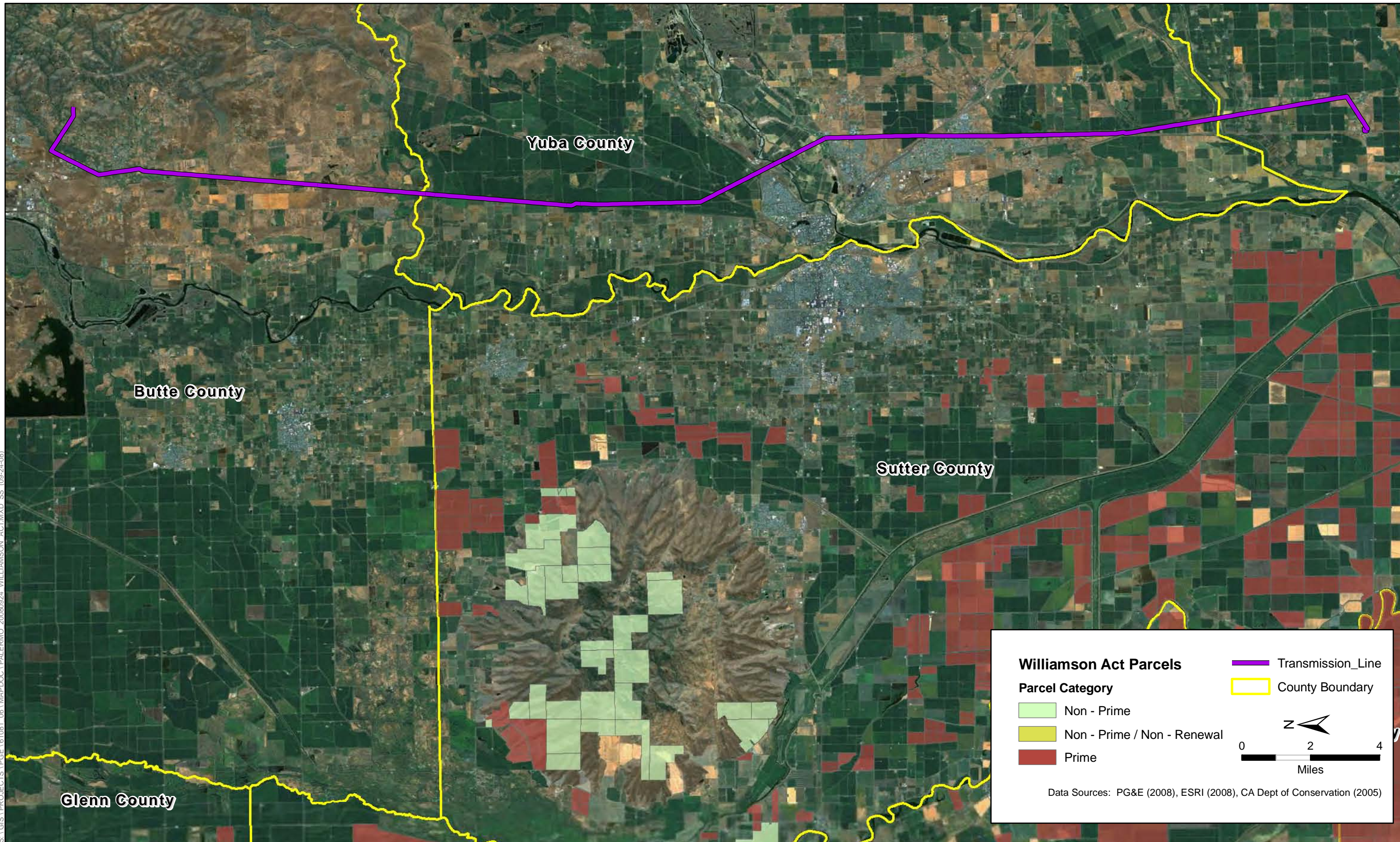


Figure 4-2-2
Palermo to East Nicolaus 115 kV Transmission Line Reconstruction Project
Williamson Act Parcels in the Project Vicinity

Yuba County

Yuba County General Plan

Goals and policies in the Yuba County General Plan (Yuba County, 1996) related to agricultural resources are as follows.

Land Use Goal 2: Retain the most productive agricultural lands in agricultural use, and clearly define areas suitable for urbanization and other forms of non-agricultural development.

Open Space and Conservation Goal 6: Protect productive agricultural land.

Land Use Objective 12: Retention of at least 50 percent of the non-prime field crop land now in agricultural production for agricultural use during the term of the Plan.

Land Use Policy 39: Land designated as Important Farmland on the Important Farmlands Map that is not in a designated Community Boundary or a Planning Reserve or Specific Plan area shall be protected from non-agricultural encroachment by designating the land Valley Agriculture, with a minimum parcel size that maintains present agricultural uses.

Open Space and Conservation Policy 110: The retention of agriculture as a primary extensive land use shall be encouraged by the County in order to maintain agriculture's economic viability, but also its contribution to the preservation of open space and wildlife habitat.

Yuba County Zoning Ordinance

The Yuba County Zoning Ordinance provides detailed regulations about the type and location of land uses that can occur within County zoning districts. The ordinance identifies the following County zoning districts relevant to agricultural uses.

- **Exclusive Agricultural District (AE-10–AE-80).** The purpose of this zone is to preserve the maximum amount of the limited supply of agricultural land, eliminate the encroachment of land uses which are incompatible with the agricultural uses of the land, and prevent the unnecessary conversion of agricultural land to urban uses. Regarding utilities, it states (a) The following uses and structures may be permitted in the AE Zone if a Conditional Use Permit has first been secured: 14) Public utility buildings and public service or utility uses, (transmission and distribution lines excepted), including but not limited to reservoirs, storage tanks, pumping stations, telephone exchanges, power stations, transformer stations, service yards and parking lots.
- **Agricultural/Residential (A/RR).** The purpose of this zone is to preserve the rural character and amenities of these lands best utilized for low-density residential development and to promote the most desirable use of land and

the direction of building development in accordance with the General Plan. Regarding utilities, it states: The following uses and structures may be permitted in the A/RR Zone if a conditional Use Permit has first been secured: 13) Public utility buildings and public service or utility uses, transmission and distribution lines (excepted), including but not limited to reservoirs, storage tanks, pumping stations, telephone exchanges, power stations, transformer stations, service yards, parking lots and fire stations.

East Linda Specific Plan

The East Linda Specific Plan (Yuba County 1990) does not address agricultural lands. There is no land within the Plan area zoned for agriculture and no agricultural land uses in the Plan area.

East Linda Specific Plan Zoning

No agricultural zones exist within the East Linda Specific Plan.

Plumas Lake Specific Plan/Zoning

The Plumas Lake Specific Plan contains a unique set of policies, land use classifications, and development standards that have been tailored to the Plan area. These policies, classifications, and standards act as a cohesive whole and replace the other, more generalized tools for the implementation of the General Plan, such as the County zoning ordinances, subdivision standards, and development policies that are applicable to other areas of Yuba County (Yuba County, 1993). This means zoning designations for the plan area are located in the Specific Plan, not in the Yuba County Zoning Ordinance (Cucchi 2008, pers. comm.). Goals and policies in the Plumas Lake Specific Plan related to agricultural resources are as follows.

Public Services Goal 4: Where urban development allowed by the Plan is adjacent to agricultural lands, it is the obligation of the urban area and developments within the Plan to provide adequate buffering to minimize potential conflicts with agricultural activities. No special obligation to modify farming practices is imposed upon agriculture by this plan.

There are no designated agricultural zones in the Plumas Lake Specific Plan.

Sutter County

Sutter County General Plan

Goals and policies in the Sutter County General Plan (Sutter County, 1996) related to agricultural resources are as follows.

Goal 6.A: To preserve high-quality agricultural land for agricultural purposes.

Policy 6.A-1: The County shall preserve agriculturally designated areas for agricultural uses and direct nonagricultural development to areas designated for urban/suburban growth or rural communities and/or cities.

Goal 6.B: To facilitate preservation, growth, and expansion of agricultural industries within Sutter County.

Sutter County Zoning Ordinance

The Sutter County Zoning Ordinance provides detailed regulations about the type and location of land uses that can occur within County zoning districts. The ordinance identifies the following County zoning districts related to agricultural resources.

- **General Agricultural District (AG-20):** The purpose of the AG-20 zoning designation is to provide areas for general farming, low-density uses, open spaces, and, by use permit, limited retail service uses that, in the opinion of the planning commission, support the local agricultural industry. It is intended that this classification may be applied to rural communities where the predominance of land use is of a general agricultural nature, however, the needs of the agricultural community may require the location of retail, commercial and service establishments. The zoning ordinance states that communication or utility substations, gas storage and transmission lines require a use permit.
- **Upland Agricultural District (U-A):** This district classification is intended to be applied in the mountainous and foothill areas of the County in which light agriculture and grazing are desirable predominant uses, and in which protection of the uplands from fire, pollution, erosion, and other detrimental effects is important to the general welfare. Regarding utilities, it states that communication or utility substations, gas storage and transmission lines require a use permit.
- **Exclusive Agricultural District (A-2).** This district classification is intended to be applied in the fertile valley and foothill areas of the County in which intensive agriculture is and should continue to be the predominant land use, and in which the protection of this use is important to the general welfare. Regarding utilities, it states that communication or utility substations, gas storage and transmission lines require a use permit. (Sutter County, 2008)

Environmental Setting

Butte County

The top three crops of Butte County in 2007 were almonds, rice, and walnuts. The estimated gross value of agricultural production in Butte County for 2007 totaled \$507,253,000. This value reflects a \$53 million increase over the 2006 gross value total of \$454,212,000. The total increase in gross value of agriculture during 2007 was 30 percent above Butte County's 10-year average of \$356,103,000. In 2007 there were 97,505 total acres utilized for fruit and nut crops, the majority of which were almond and walnut crops. As for field crops, 368,369 acres were in production in 2007. Of those acres 240,000 were used for pasture, while 101,634 were used for rice crops. (Butte County, 2008)

In Butte County, the transmission line traverses land with the FMMP designation of Prime Farmland, Farmland of Statewide Importance, and Grazing Land (see Figure 4.2-1). The transmission does not cross or border any parcels in Butte County that are Williamson Act parcels. The project would traverse lands zoned Agricultural. Utility uses are permitted in these zones.

Table 4.2-1 shows the acres of farmland in Butte County, including the most recent conversion information.

Table 4.2-1. Farmland Conversion in Butte County, 2004–2006

Land Use Category	Total Acreage Inventoried		2004–06 Acreage Changes		
	2004	2006	Acres Lost	Acres Gained	Net Change
Prime Farmland	197,557	196,219	1,784	446	-1,338
Farmland of Statewide Importance	22,323	21,604	944	225	-719
Unique Farmland	24,957	24,235	1,056	334	-722
Farmland of Local Importance	0	0	0	0	0
Grazing Land	406,401	407,678	1,337	2,614	1,277
Agricultural Land Total	651,238	649,736	5,12	3,619	-1,502

Source: CDC 2008

Existing agricultural activities within the project area include rice farming, fruit and nut orchards, livestock grazing, and field crops, including pasture.

Yuba County

The gross value of Yuba County's agricultural production for 2007 was \$153,364,000, a decrease of \$9,755,000 or six percent from the previous year.

In 2007 prune/dried plum crops plummeted from the highest-valued crop in Yuba County to the sixth highest valued crop, with a dramatic decrease in yield resulting from adverse weather conditions during bloom affecting fruit set. Other notable changes for Yuba County in 2007 were increased yields of rice, cling

peaches, and walnuts, the top three Yuba County crops in 2007. Acreage used for fruit and nut production totaled 25,857 in 2007, while 244,057 were utilized for field and vegetable crops, 191,000 of which were utilized for pasture (Yuba County, 2008).

In Yuba County, the transmission line traverses land with the FMMP designations of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Grazing Land (see Figure 4.2-1). The transmission does not cross or border any Williamson Act parcels in Yuba County. The project would traverse lands zoned as Exclusive Agricultural. Utility uses are permitted in these zones.

Table 4.2-2 shows the acres of farmland in Yuba County, including the most recent conversion information.

Table 4.2-2. Farmland Conversion in Yuba County, 2004–2006

Land Use Category	Total Acreage Inventoried		2004–06 Acreage Changes		
	2004	2006	Acres Lost	Acres Gained	Net Change
Prime Farmland	42,676	41,993	818	135	-683
Farmland of Statewide Importance	11,094	11,019	98	23	-75
Unique Farmland	33,109	32,372	1,174	437	-737
Farmland of Local Importance	0	0	0	0	0
Grazing Land	143,533	142,729	1,898	1,094	-804
Agricultural Land Subtotal	230,412	228,113	3,988	1,689	-2,299

Source: CDC 2008

Existing agricultural activities within the project area include rice farming, fruit and nut orchards, livestock grazing, and field crops, including pasture.

City of Oroville

Few residents of the Oroville General Plan area depend solely on agriculture for their livelihood and those who do may be engaged primarily in rice farming outside the area. Agriculture is, nonetheless, a significant presence in the area. Olives and citrus are represented, and rice is the main field crop in the area. It is estimated that 2,000 to 3,000 head of grazing animals are within the General Plan Area at any given time, especially in the northwestern area, and some in the foothills (City of Oroville, 1995).

The project would cross a small corner of the City of Oroville currently zoned industrial. It would not cross any portion of Oroville zoned for agricultural uses. It would not cross any land designated by FMMP as Prime Farmland or any Williamson Act parcel.

Sutter County

Sutter County's gross agricultural production value totaled \$377,950,800 in 2007. Rice, walnuts, peaches, tomatoes, dried plums, and almonds were the leading agricultural commodities. Agriculture represents an integral part of Sutter County's economic base. Industries such as banking, labor, marketing, transportation, and other services directly or indirectly tied to agriculture benefited appreciably: the agricultural industry returned more than \$1.32 billion to Sutter County's economy in 2007. Acres utilized for fruit and nut crops totaled 50,817 in 2007, with walnuts and dried plums the leading crops. Acres used for field crops totaled 242,132, of which 72,653 were utilized for pasture (Sutter County, 2008).

In Sutter County the transmission line traverses land with the FMMP designations of Prime Farmland, Farmland of Statewide Importance, and Grazing Land (see Figure 4.2-1). The transmission does not cross or border any parcels in Sutter County that are Williamson Act parcels. The project would traverse lands zoned general agricultural. Utility uses are allowed with a use permit in these zones.

Table 4.2-3 shows the acres of farmland in Sutter County, including the most recent conversion information.

Table 4.2-3. Farmland Conversion in Sutter County (2004–2006)

Land Use Category	Total Acreage Inventoried		2004–06 Acreage Changes		
	2004	2006	Acres Lost	Acres Gained	Net Change
Prime Farmland	166,202	165,817	658	273	-385
Farmland of Statewide Importance	107,742	107,194	704	156	-548
Unique Farmland	19,480	19,245	436	201	-235
Farmland of Local Importance	0	0	0	0	0
Grazing Land	50,636	51,516	336	1,216	880
Agricultural Land Subtotal	344,060	343,772	2,134	1,846	-288

Source: CDC 2008

Existing agricultural activities within the project area include rice farming, fruit and nut orchards, livestock grazing, and field crops, including pasture.

Impact Analysis

Methods

Various documents were reviewed to complete this agricultural analysis, including CDC FMMP data, aerial photographs, city/county general plans, city/county zoning ordinances/maps, web searches, discussions with city/county

planners, and environmental impact reports for other projects in the area. In addition, field visits were conducted along the transmission line route and at the substation sites where public access was available, as well as on private parcels where access was granted.

Significance Criteria

For this analysis, an impact pertaining to agricultural resources was considered significant under CEQA if the project would result in any of the following environmental effects. These criteria are based on Appendix G of the State CEQA Guidelines (*14 CCR 15000 et seq.*).

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Conflict with existing zoning for agricultural use, or a Williamson Act contract.
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use.

Impacts and Mitigation Measures

Impact AG-1: Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to Non-Agricultural use—less than significant

The project has been designed to avoid farmland to the extent possible. Like the existing transmission line, the project would permanently remove a very small amount of prime agricultural land from agricultural production due to the construction of pole foundations. Of the 219.99 total acres of farmland affected by the project, no land designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would be converted due to the construction of new tower bases.

Of the 219.99 total acres of farmland affected by the project, construction, staging and access would temporarily remove 215.79 acres of land designated as Prime Farmland, Unique Farmland or Farmland of Statewide Importance from agricultural production. This land would be removed from production due to the construction of temporary access roads; grading sites to provide helicopter landing pads; and for use as work areas to remove or replace existing towers and

construct new towers. Once construction is completed, access roads, helicopter landing pads and work areas would be restored to their original condition.

The small reduction of FMMP-categorized farmland (215.79 acres temporarily) due to this project is negligible in the context of available farmland in Yuba, Sutter, and Butte Counties. Due to the large amount of land available for (and currently supporting) agricultural purposes in the immediate project vicinity and in the surrounding counties, it is not expected that the small amount of acreage that would be permanently reduced would affect agricultural production in the area. The general plans of all three affected counties include strong agriculture preservation policies. Furthermore, nearly all of PG&E's use of agricultural land for transmission line construction would be temporary, property owners would be compensated, and most of the lands would be reclaimed and returned to agricultural production or grazing land after construction. Therefore, impacts are considered less than significant.

Impact AG-2: Conflict with existing zoning for agricultural use of a Williamson Act contract—no impact

The proposed project does not cross or border any Williamson Act parcels, and for this reason there is no impact.

Impact AG-3: Involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to non-agricultural use—less than significant

The project would not permanently convert any other farmland (i.e. local farmland not designated as Prime, Unique or of Statewide Importance). The project would, however, temporarily remove a small amount (2.2 acres) of additional other farmland from agricultural production due to the construction of temporary access roads, work areas, and helicopter landing sites.

All access roads and staging sites built in the project area for construction purposes would be temporary. Thus, access to portions of agricultural land not within the project area and the movement of agricultural equipment would be only temporarily affected by the Project. This temporary effect would be minimal, as the proposed access roads and staging sites are not expected to create significant barriers between various portions of agricultural land or between routes for the movement of agricultural equipment.

The project would not include uses incompatible with adjacent farming land, as the project would replace an existing use, a PG&E transmission line which has proven to be compatible with agricultural uses in the area. The impact would be less than significant.

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Acronyms

CDC	California Department of Conservation.....	4.2-1
DLRP	Division of Land Resource Protection.....	4.2-1
FMMP	Farmland Mapping and Monitoring Program.....	4.2-1
Williamson Act	California Land Conservation Act of 1965.....	4.2-2

Citations

CDC 2007	4.2-2
Butte County 1995 Butte County General Plan	4.2-3
City of Oroville 1995 City of Oroville General Plan.....	4.2-4
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Miscellaneous

No table of figures entries found.

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No table of figures entries found.

Impacts and Mitigation Measures

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Introduction

This section describes existing air quality conditions in the project area and evaluates potential air quality impacts associated with construction and operation of the proposed project. Where a potentially significant impact is identified, mitigation measures are recommended to reduce the level of expected impacts.

Although project construction would result in temporary impacts to air quality in the project region, the project would comply with all federal, state, and local air quality regulations and all potential air quality impacts associated with project construction and operation would be less than significant.

Existing Conditions

Regulatory Setting

The project area and surrounding areas are subject to air quality regulations developed and implemented at the federal, state, and local levels. At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for implementation of the U.S. Clean Air Act (CAA). Some portions of the CAA (e.g., certain mobile-source and other requirements) are implemented directly by the EPA. Other portions of the CAA (e.g., stationary-source requirements) are implemented by state and local agencies.

Responsibility for attaining and maintaining air quality in California is divided between the California Air Resources Board (CARB) and regional air quality districts—in this case, the Butte County Air Quality Management District (BCAQMD) and Feather River AQMD (FRAQMD). Areas of control for the regional districts are set by CARB, which divides the state into air basins. These air basins are defined by topography, which limits air flow access, or by county boundaries. Plans, policies, and regulations relevant to the proposed project are discussed below.

Federal

Clean Air Act

The CAA establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS), and specifies future dates for achieving compliance. The standards are divided into primary and secondary standards; the former are set to protect human health within an adequate margin of safety, and the latter to protect environmental values, such as plant and animal life.

The 1990 amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and an incorporation of additional sanctions for failure to attain or meet interim milestones. The sections of the CAA that are most applicable to the proposed project include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions). Title I of the CAA identifies attainment, nonattainment, and unclassifiable areas with regard to criteria pollutants and sets deadlines for all areas to reach attainment for the following criteria pollutants: ozone, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), fine particulates (PM₁₀—particulate matter [PM] less than 10 microns in diameter), carbon monoxide (CO), and lead. The NAAQS were amended in July 1997 to include the eight-hour ozone standard and a NAAQS for PM less than 2.5 microns in aerodynamic diameter (PM_{2.5}). Applicable NAAQS for these criteria pollutants are presented in Table 4.3-1.

The CAA requires states to submit a State Implementation Plan (SIP) for areas in nonattainment for federal standards. The SIP, which is reviewed and approved by the EPA, must demonstrate how the federal standards would be achieved. Failing to submit a plan or secure approval could lead to denial of federal funding and permits. In cases where the SIP is submitted by the state but fails to demonstrate achievement of the standards, the EPA is directed to prepare a federal implementation plan.

Title II of the CAA contains a number of provisions regarding mobile sources, including requirements for reformulated gasoline, new tailpipe emission standards for cars and trucks, oxides of nitrogen (NO_x) standards for heavy-duty vehicles, and a program for cleaner fleet vehicles. Identification and regulation of hazardous air pollutants (HAPs) are addressed in Title III.

Federal Regulations on Greenhouse Gases and Climate Change

The EPA does not consider carbon dioxide (CO₂) and similar greenhouse gasses (GHG) to be criteria pollutants under the CAA. Accordingly, they are not subject to NAAQS unless they fall into one of the criteria pollutant categories above. The EPA's position in the matter is currently being litigated. The EPA is, however, active in the global warming mitigation arena, and in most cases, the

reduction in greenhouse gas emissions is approached through requirements for improved energy efficiency.

State of California

California Clean Air Act

In 1988, the state legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. The CCAA requires all areas of the state to achieve and maintain the California Ambient Air Quality Standards (CAAQS) by the earliest practical date. The CAAQS incorporate additional standards for most criteria pollutants and set standards for other pollutants recognized by the state. In general, the CAAQS are more stringent than the corresponding NAAQS.

CARB and local air districts bear responsibility for achieving California's air quality standards, which are to be achieved through district-level air quality management plans that would be incorporated into the SIP. In California, the EPA has delegated authority to prepare SIPs to CARB, which, in turn, has delegated that authority to individual air districts. CARB has traditionally established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

Responsibilities of air districts include overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA.

The CCAA of 1988 substantially added to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA focuses on attainment of the CAAQS, which, for certain pollutants and averaging periods, are more stringent than the comparable federal standards.

The CCAA requires designation of attainment and nonattainment areas with respect to CAAQS. The CCAA also requires that local and regional air districts expeditiously adopt and prepare an Air Quality Attainment Plan if the district violates state air quality standards for CO, SO₂, NO₂, or ozone. These plans are specifically designed to attain these standards and must be designed to achieve an annual five percent reduction in district-wide emissions of each nonattainment pollutant or its precursors. No locally prepared attainment plans are required for areas that violate the state PM₁₀ standards.

The CCAA requires that the state air quality standards be met as expeditiously as practicable but, unlike the federal CAA, does not set precise attainment

deadlines. Instead, the act established increasingly stringent requirements for areas that would require more time to achieve the standards.

California Air Resources Board Idling Limit Regulation

CARB has adopted a regulation for in-use off-road diesel vehicles, which became effective under California law on June 15, 2008. This regulation is designed to reduce harmful emissions from diesel powered construction and mining vehicles operating in California. Fleet owners are subject to retrofit or accelerated replacement/repower requirements for which CARB must obtain authorization prior to enforcement from the EPA under the CAA. However, this regulation also imposes idling limitations on owners, operators, renters or lessees of off-road diesel vehicles, which CARB is authorized to enforce.

The idling limits are effective and enforceable as of June 15, 2008. The regulation requires an operator of applicable off-road vehicles (self-propelled diesel-fueled vehicles of 25 horsepower and greater that were not designed for on-road driving) to limit idling to no more than five minutes. These requirements are specified in *13 CCR 2449[d][3]*.

State Regulations on Greenhouse Gases and Climate Change

Executive Order S-3-05

Signed by Governor Arnold Schwarzenegger on June 1, 2005, Executive Order S-3-05 asserts that California is vulnerable to the impacts of climate change. The executive order puts forth that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established total GHG emissions targets. Executive Order S-3-05 established the following GHG emissions reduction targets for California.

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to initiate a multi-agency effort to reduce GHG emissions to target levels. To comply with the executive order, the secretary of CalEPA created a Climate Act Team (CAT) composed of members of various state agencies and commissions. CAT released its first report in March 2006 (CalEPA 2006). The report proposes achieving GHG targets through the voluntary actions of California businesses, local government and community actions, and state incentive and regulatory programs.

Assembly Bill 32, California Climate Solutions Act of 2006

In September 2006, the California State Legislature adopted the California Global Warming Solutions Act of 2006 (AB 32). AB 32 establishes a cap on statewide GHG emissions and sets forth the regulatory framework to achieve the corresponding reduction in statewide emission levels. Under AB 32, GHG are defined as CO₂, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires that CARB takes these actions.

- Adopt early action measures to reduce GHG.
- Establish a statewide GHG emissions cap for 2020 based on 1990 emissions.
- Adopt mandatory report rules for significant GHG sources.
- Adopt a scoping plan indicating how emission reductions would be achieved through regulations, market mechanisms, and other actions.
- Adopt regulations needed to achieve the maximum technologically feasible and cost-effective reductions in GHGs.

Senate Bill 97

Senate Bill 97, signed in August 2007, acknowledges that climate change is an important environmental issue that requires analysis under CEQA. The bill directs the California Office of Planning and Research (OPR) to prepare, develop, and transmit to CARB the guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, by July 1, 2009. CARB is required to certify or adopt those guidelines by January 1, 2010.

Actions Taken by California Office of Planning and Research

In June 2008, OPR issued a Technical Advisory on CEQA and Climate Change (OPR 2008). For projects subject to CEQA, this document recommends that emissions be calculated and mitigation measures be identified to reduce those emissions. The OPR report does not identify emission thresholds for GHGs, but instead recommends that each lead agency develop their own thresholds.

Actions Taken by California Attorney General's Office

The California Attorney General (AG) has filed comment letters under CEQA about a number of proposed projects. The AG also has filed several complaints and obtained settlement agreements for CEQA documents covering general plans and individual programs that the AG found either failed to analyze GHG emissions or failed to provide adequate GHG mitigation. The AG's office prepared a report listing the measures that local agencies should consider under CEQA to offset or reduce global warming impacts. The AG's office also has prepared a chart of modeling tools to estimate GHG emissions impacts of projects and plans. Information on the AG's actions can be found on the California Department of Justice, Office of Attorney General web site (DOJ 2008).

California Air Pollution Control Officers Association Guidance

The California Air Pollution Control Officers Association (CAPCOA) released a report in January 2008 that describes methods to estimate and mitigate GHG emissions from projects subject to CEQA. The CAPCOA report evaluates several GHG thresholds that could be used to evaluate the significance of a project's

GHG emissions. The CAPCOA report, however, does not recommend any one threshold. The report is designed as a resource for public agencies as they establish agency procedures for reviewing GHG emissions from projects subject to CEQA (CAPCOA 2008).

Air Quality Districts

At the local level, responsibilities of air quality districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws; and for ensuring that NAAQS and CAAQS are met.

The project area is located within the Butte, Sutter, and Yuba Counties, in which the BCAQMD has the local air quality jurisdiction over Butte County and the FRAQMD the local air quality jurisdiction over Sutter, and Yuba Counties.

Butte County Air Quality Management District

BCAQMD has adopted emission thresholds in CEQA Air Quality Handbook (BCAQMD 2008) to determine the level of significance of project-related emissions. Table 4.3-2 summarizes applicable thresholds that are used in the analysis of project-related construction and operational emissions. Emissions that equal or exceed the designated threshold levels are considered potentially significant and should be mitigated. As shown in Table 4.3-2, the level of analysis and mitigation recommended follows a tiered approach based on the overall amount of emissions generated by the project. A detailed explanation of the thresholds follow Table 4.3-2.

Table 4.3-2. BCAQMD Significance Thresholds for Criteria Pollutants of Concern

Pollutant	Level A	Level B	Level C
NO _x	≤ 25 lbs/day	> 25 lbs/day	> 137 lbs/day
ROG	≤ 25 lbs/day	> 25 lbs/day	> 137 lbs/day
PM10	≤ 80 lbs/day	> 80 lbs/day	> 137 lbs/day
Level of Significance	Potentially Significant Impacts	Potentially Significant Impacts	Significant Impacts

Source: BCAQMD 2008

- **Level A:** Any project that has the potential to emit Level A thresholds would be subject to standard mitigation measures. The District's standard mitigation measures, included in the Handbook, are recommended to reduce air quality impacts to a level of insignificance.

- **Level B:** Projects that exceed Level B thresholds have the potential to cause significant air quality impacts. Projects proponents should select as many of the district's best available mitigation measures (BAMM) as necessary, in addition to the district's standard mitigation measures.
- **Level C:** If emissions from a project would exceed Level C thresholds, all possible mitigation measures, including off-site mitigation measures, would be implemented to reduce the overall air quality impacts of the project to a level of insignificance.

Feather River Air Quality Management District

FRAQMD has adopted CEQA emission thresholds in Indirect Source Review Guidelines (FRAQMD 1998) to determine the level of significance of project-related emissions. Table 4.3-3 summarizes applicable thresholds that are used in the analysis of project-related construction and operational emissions. Emissions which equal or exceed the designated threshold levels are considered potentially significant and should be mitigated.

Table 4.3-3. FRAQMD Significance Thresholds for Criteria Pollutants of Concern

Pollutant	Significance Threshold
NO _x	25 lbs/day
ROG	25 lbs/day
PM10	80 lbs/day

Source: FRAQMD 1998

If a threshold has not been exceeded, the District's standard mitigation measures (FRAQMD 2004a) are recommended to address cumulative air quality impacts. These measures include standard construction and operational measures.

If a threshold has been exceeded, appropriate mitigation measures should be selected to reduce the operational emissions to below each threshold exceeded. If construction emissions exceed the thresholds, the all feasible measures found in District's BAMM for construction activity (FRAQMD 2004b) are recommended and should be implemented to reduce air emissions to the maximum extent.

Environmental Setting

Climate and Meteorological Conditions

The project area is located within the Sacramento Valley Air Basin (SVAB), which includes the counties of Butte, Colusa, Glenn, Sacramento, Shasta, Sutter, Tehama, Yolo, and portions of Placer and Solano. The SVAB is bounded on the north by the Cascade Range, on the south by the San Joaquin Valley Air Basin, on the east by the Sierra Nevada, and on the west by the Coast Range.

Summer conditions are typically characterized by high temperatures and low humidity, with prevailing winds from the south. Summer temperatures average approximately 90 degrees F during the day and 50 degrees F at night.

Winter conditions are characterized by occasional rainstorms interspersed with stagnant and sometimes foggy weather. Winter daytime temperatures average in the low 50s and nighttime temperatures average in the upper 30s. During winter, north winds become more frequent, but winds from the south predominate. Rainfall occurs mainly from late October to early May, averaging 17.2 inches per year but varying significantly each year.

In addition to prevailing wind patterns that control the rate of dispersion of local pollutant emissions, Yuba and Sutter counties experience two types of inversions that affect the air quality. The first type of inversion layer contributes to photochemical smog problems by confining pollution to a shallow layer near the ground. This inversion type occurs in the summer, when sinking air acts like a lid over the region. The second type of inversion occurs when the air near the ground cools while the air aloft remains warm. These inversions occur during winter nights and can cause localized air pollution hot spots near emission sources because of poor dispersion.

Background Information on Air Pollutants

Air quality studies generally focus on five pollutants most commonly measured and regulated, and referred to as *criteria air pollutants*: ozone, CO, NO₂, SO₂, and inhalable PM (PM10 and PM2.5). Because ozone, a photochemical oxidant, is not emitted into the air directly from sources, emissions of ozone precursors, NO_x and reactive organic gases (ROG), are regulated with the aim of reducing ozone formation in the lowermost region of the troposphere.

Ozone and NO₂ are considered to be regional pollutants because they (or their precursors) affect air quality on a regional scale: NO₂ reacts photochemically with ROG to form ozone, and this reaction occurs at some distance downwind of the source of pollutants.

Pollutants such as CO, PM10, and PM2.5 are considered to be local pollutants because they tend to disperse rapidly with distance from the source. The principal characteristics surrounding these pollutants are discussed below.

- **Ozone:** Ozone is an oxidant that attacks synthetic rubber, textiles, and other materials and causes extensive damage to plants by leaf discoloration and cell damage. It is also a severe eye, nose, and throat irritant and increases susceptibility to respiratory infections. Ozone is not emitted directly into the air: it forms from a photochemical reaction in the atmosphere.

Ozone precursors, including ROG and NO_x, are emitted by mobile sources and stationary combustion equipment and react in the presence of sunlight to form ozone. Because reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summertime problem.

- **CO:** CO is essentially inert to most materials and to plants but can significantly affect human health because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. Effects on humans range from slight headaches to nausea to death. Motor vehicles are the dominant source of CO emissions in most areas.

High CO levels develop primarily during winter, when periods of light wind combine with the formation of ground-level temperature inversions—typically from evening through early morning. These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

- **NO₂:** NO₂ is a brownish gas that contributes to the formation of ground-level ozone pollution. NO₂ increases respiratory disease and irritation and may reduce resistance to certain infections. The majority of ambient NO₂ is not directly emitted, but is formed rather quickly from the reaction of nitric oxide (NO) and oxygen in the atmosphere. NO and NO₂ are the primary pollutants that make up the group of pollutants referred to as NO_x. In the presence of sunlight, complex reactions of NO_x with ozone and other air pollutants produce the majority of NO₂ in the atmosphere. NO₂ is one of the NO_x emitted from high-temperature combustion processes, such as those occurring in trucks, cars, and power plants. Indoors, home heaters and gas stoves also produce substantial amounts of NO₂.
- **Sulfur dioxide:** SO₂ is a colorless, irritating gas with a “rotten egg” smell formed primarily by the combustion of sulfur-containing fossil fuels. SO₂ is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives and off-road diesel equipment. SO₂ is also emitted from several industrial processes, such as petroleum refining and metal processing.
- **Inhalable PM:** PM suspended in the atmosphere can reduce visibility, retard plant growth, corrode materials, and impact human health. Health concerns focus on particles small enough to reach the lungs when inhaled (inhalable PM). Federal and state air quality standards for PM apply to two classes of inhalable particulates: PM₁₀ and PM_{2.5}.
- **Toxic air contaminants (TACs):** TACs are a category of air pollutants that have been shown to affect human health but are not classified as criteria pollutants. TACs are generated by various kinds of sources, including stationary sources such as dry cleaners and gas stations; combustion sources; mobile sources such as diesel trucks, ships, and trains; and area sources such as farms, landfills, and construction sites. Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) noncarcinogenic, and long-term (chronic) noncarcinogenic. To date, CARB has identified 21 TACs and adopted the EPA’s list of HAPs as TACs. Since August 1998, diesel particulate matter (DPM) was added to the CARB list of TACs (CARB 1998).
- **DPM:** DPM is the most complex of diesel emissions. Diesel particulates, as defined by most emissions standards, result from diluted and cooled exhaust gases. DPM in California is a significant part of the total TAC level in the state. In September 2000, CARB approved a Diesel Risk Reduction Plan

(California Air Resources Board 2000) to reduce PM emissions from diesel-fueled engines and vehicles. The plan outlines a comprehensive and ambitious program to reduce emissions from new and existing on-road vehicles (e.g., heavy-duty trucks and buses); off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats); portable equipment (e.g., pumps); and stationary engines (e.g., stand-by power generators). According to the plan, CARB will work with the heavy-duty equipment manufacturing companies and operators to develop an emissions reduction program for construction equipment.

- **GHG:** GHG are any gasses that absorb infrared radiation in the atmosphere. Increases in these gases lead to more absorption of radiation and warm the lower atmosphere further, thereby increasing evaporation rates and temperatures near the surface. Emissions of GHG in excess of natural ambient concentrations are thought to be responsible for the global climate change. The most common of the GHG is CO₂, which constitutes approximately 84 percent of all emissions of GHG in California. GHG are global pollutants, unlike criteria air pollutants (such as ozone precursors) and TACs, which are pollutants of regional and local concern. Sulfur hexafluoride (SF₆) is a non-hazardous, inert gas that is used both as an arc quenching and insulating medium in high-voltage switchgear, circuit breakers and gas insulated substations. It is highly potent greenhouse gas with very long atmospheric lifetimes; thus, a relatively small amount of SF₆ can have a significant impact on global climate change.

Existing Air Quality Conditions

Existing air quality conditions in the project area can be characterized in terms of the NAAQS and CAAQS established by the federal and state governments for various pollutants (Table 4.3-1) and by monitoring data collected in the region. Monitoring data concentrations typically are expressed in terms of parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The air quality monitoring station nearest to the project area is located on Almond Street in the Yuba City. Air quality monitoring data from the Yuba City monitoring station are summarized in Table 4.3-4.

These data represent air quality monitoring data for the last three years (2005–2007). As indicated in Table 4.3-4, the Yuba City monitoring station has experienced two violations of the state one-hour ozone standard and 26 violations of the state eight-hour ozone standard during the last three years. Ten violations of the state 24-hour PM₁₀ standard occurred during the last three years. There were no violations of the CO and PM_{2.5} standards during this period.

Table 4.3-4. Ambient Air Quality Monitoring Data from the Yuba City Monitoring Station (2005–2007)

Pollutant Standard	2005	2006	2007
Ozone			
Maximum 1-hour concentration (ppm)	0.092	0.102	0.095
Maximum 8-hour concentration (ppm)	0.073	0.081	0.081
<i>Number of days standard exceeded^a</i>			
CAAQS 1-hour (>0.09 ppm)	0	1	1
NAAQS 8-hour (>0.075 ppm)	0	0	0
CAAQS 8-hour (>0.07 ppm)	7	13	6
Carbon monoxide (CO)			
Maximum 8-hour concentration (ppm)	3.4	2.3	–
Maximum 1-hour concentration (ppm)	4.4	3.1	–
<i>Number of days standard exceeded^a</i>			
NAAQS 8-hour (≥ 9.0 ppm)	0	0	–
CAAQS 8-hour (≥ 9.0 ppm)	0	0	–
NAAQS 1-hour (≥ 35 ppm)	0	0	–
CAAQS 1-hour (≥ 20 ppm)	0	0	–
PM10^b			
National maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$) ^c	59	63	51
State maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$) ^d	60	66	54
National annual average concentration ($\mu\text{g}/\text{m}^3$)	24.7	23.0	19.7
State annual average concentration ($\mu\text{g}/\text{m}^3$) ^e	25.0	–	–
<i>Number of days standard exceeded^a</i>			
NAAQS 24-hour ($>150 \mu\text{g}/\text{m}^3$) ^f	0	0	0
CAAQS 24-hour ($>50 \mu\text{g}/\text{m}^3$) ^f	5	4	1
PM2.5^b			
National maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$) ^c	45	42	45
State maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$) ^d	47.2	51.6	55.8
National annual average concentration ($\mu\text{g}/\text{m}^3$)	9.5	11.4	8.2
State annual average concentration ($\mu\text{g}/\text{m}^3$) ^e	10.2	11.2	–
<i>Number of days standard exceeded^a</i>			
NAAQS 24-hour ($>35 \mu\text{g}/\text{m}^3$) ^f	0	0	0

Sources: CARB 2008a, EPA 2008.

Notes: ppm = parts per million.

 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.

CAAQS = California ambient air quality standards.

NAAQS = National ambient air quality standards.

– = Insufficient data available to determine the value.

^a An exceedance is not necessarily a violation.^b Measurements usually are collected every 6 days.^c National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.^d State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.^e State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.^f Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

Air Quality Attainment Status

Areas are classified as in attainment or in nonattainment with respect to NAAQS and CAAQS. These classifications are made by comparing actual monitored air pollutant concentrations to state and federal standards (Table 4.3-5). If a pollutant concentration is lower than the state or federal standard, the area is considered to be in attainment of the standard for that pollutant. If pollutant levels exceed a standard, the area is considered a nonattainment area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated as unclassified. This typically occurs in non-urbanized areas, where pollutant levels may be less closely monitored.

Table 4.3-5. Attainment Status for Criteria Pollutants of Concern

Pollutant	BCAQMD		FRAQMD	
	State Designations	National Designations	State Designations	National Designations
1-Hour Ozone	Moderate Nonattainment	No Designation	South Sutter County: Serious Nonattainment The Balance of FRAQMD: Moderate Nonattainment	No Designation
8-Hour Ozone	Nonattainment	Nonattainment	Nonattainment	South Sutter County: Nonattainment The Balance of FRAQMD: Attainment
CO	Attainment	Attainment	Attainment	Attainment
PM10	Nonattainment	Attainment	Nonattainment	Attainment
PM2.5	Nonattainment	Attainment	Attainment	Attainment

Source: CARB 2008b.

Air Quality Attainment Plan

To address the nonattainment status of ozone and PM10 in the SVAB, the BCAQMD and FRAQMD along with other air quality districts located within in the northern portion of the Sacramento Valley developed an Air Quality Attainment Plan to bring the Northern Sacramento Valley Planning Area (NSVPA) into compliance with CAAQS for ozone and PM10. The plan has been updated five times, most recently in 2006. The 2006 Plan focuses on the adoption and implementation of control measures for stationary sources, area wide sources, and indirect sources, and addresses public education and information programs. The 2006 Plan also addresses the effect that pollutant transport has on the ability of the NSVPA to meet and attain the CAAQS.

Projects directly related to population growth (i.e., residential projects) have been forecast in the plan. In general, population-related projects are consistent with the plan because emissions for such projects have been accounted for in the plan and have been mitigated on a regional level through implementation of control

measures identified in the plan. Thus, a proposed project that is consistent with the plan would result in insignificant impacts on air quality in the District.

Sensitive Land Uses

The BCAQMD and FRAQMD generally defines a “sensitive receptor” as a area where human populations, especially children, seniors, and sick persons, are located and where there is reasonable expectation of continuous human exposure according to the averaging period for the air quality standards (e.g., 24-hour, eight-hour, and one-hour). Sensitive receptors typically include residences, hospitals, and schools. Sensitive receptors in the project vicinity are primarily residences.

Land uses along the project alignment are mostly agriculture lands and open space areas, with occasional home tracts (mostly in Palermo, Linda, and Olivehurst) that are located within 100 to 250 feet of the alignment.

Impact Analysis

Methods

The focus of the air quality analysis is to evaluate whether the reconstruction of the transmission line would exceed emission thresholds as established by the BCAQMD and FRAQMD. Construction emissions from the project would result in localized, short-term impacts on ambient air quality in the area. Temporary construction emissions would originate from employee vehicle exhaust, construction equipment exhaust, dust from clearing and grading of staging areas, excavation of pole sites, and installation of new poles and transmission line. Pollutant emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

Construction emissions were estimated using the URBEMIS 2007 Version 9.2.0 model. URBEMIS 2007 uses EPA, CARB, and air-district emissions factors to estimate typical emissions (construction, area source, and vehicular) associated with land use development projects. Construction emissions (vehicle tailpipe emissions and fugitive dust) were modeled using the default equipment horsepower and load factor information from URBEMIS 2007, with conceptual construction schedule, phases, and equipment usage based on the most current available project planning information.

After the project is constructed, maintenance of the project facilities generally is performed as needed. Maintenance work is less extensive and takes place over a few days per year. In addition, maintenance activities are part of the existing

environmental baseline because the maintenance program is routinely performed for the existing transmission line facilities.

In summary, air quality impact analysis focused on emissions generated during construction of the project, because maintenance and operation of the project would not create a substantial source of new emissions.

Significance Criteria

For this analysis, an impact pertaining to air quality was considered potentially significant under CEQA if the project would result in any of the following environmental effects. These criteria are based on Appendix G of the State CEQA Guidelines.

- Conflict with, or obstructed implementation of, the applicable air quality plan.
- Violation of any air quality standard or substantial contribution to existing or projected air quality violation.
- A cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area under NAAQS and CAAQS.
- Exposure of sensitive receptors to substantial pollutant concentrations.
- Creation of objectionable odors affecting a substantial number of people.

In addition, an impact pertaining to GHG was considered potentially significant if the project would result in the creation of substantial quantities of GHG emissions.

Impacts and Mitigation Measures

Consistency with Air Quality Attainment Plan (No Impact)

A project is deemed inconsistent with an air quality plan if it would result in population or employment growth that exceeds the growth estimates in the applicable air quality plan—thus generating emissions not accounted for in the applicable air quality plan emissions budget. Consequently, proposed projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rate included in the relevant air quality plan.

The project would not result in population or employment growth. Therefore, the project would not conflict with or obstruct the implementation of an applicable SIP and Air Quality Attainment Plan. Therefore, there would be no impact.

Construction Impacts

Construction of the project is expected to take 12 to 18 months, which would take place in 2009 and be completed in 2010. The project would be constructed in segments, in which the following construction phases are expected to be the same for each segment along the whole corridor. The peak construction phase is expected to occur during construction of the new poles.

- Staging area preparation, including clearing and grading of staging areas, helicopter landing zones, pull sites, and new temporary roads if needed.
- Existing tower removal, including existing tower removal and tower site recovery.
- New pole construction, including excavation and construction of pole foundation and installation of new poles.
- Transmission line installation.
- Staging area recovery, including recovery of staging areas, helicopter landing zones, pull sites, and temporary roads.

The project corridor is approximately 40 miles long and would be constructed within 12 to 18 months. Each segment is expected to be constructed within one to 1.5 months. Therefore, the average length of a segment is approximately three to four miles. Because construction would progress quickly, construction activities are not expected to take place near an existing residence for more than a few days.

Typical grading, excavation, and earthmoving equipment would be used for construction, including staging area preparation, access road construction, and pole foundation excavation.

Table 4.3-6 summarizes the construction phases, schedule, and activities. It was assumed that construction equipment would operate 12 hours per day during the construction period for each phase. Helicopters would be used to remove existing towers, install new poles, and to deliver materials and workers to locations where overland access is difficult.

For the existing-tower removal phase, two heavy-duty and two light-duty helicopters are assumed to operate at four hours per day for a total of 100 hours for each helicopter. During the new-pole construction phase, one heavy-duty helicopter is assumed to operate at four hours per day for a total of 100 hours and two light-duty helicopters are assumed to operate at eight hours per day for a total of 200 hours for each light-duty helicopter.

Table 4.3-6. Construction Phases, Schedule, and Activities

Project Phase	Total Construction Days ¹	Maximum Daily Disturbed Area (acres)	Total Disturbed Area (acres)	Maximum Daily Excavation (cubic yards)	Total Excavation (cubic yards)	Maximum Daily Delivery Trucks	Total Delivery Trucks
Staging area preparation	120	1	10	40	400	5	50
Existing tower removal ²	120	–	–	4	400	5	500
New pole construction ³	300	1	100	160	16,000	14 ⁴	1,400 ⁴
Transmission line installation	200	–	–	–	–	5	500
Staging area recovery	100	1	10	–	–	2	20

¹ Off-road construction equipment is assumed to operate at 12 hours per day.

² Include the helicopter operation of two Bell 214 and two Hughes 500, which are assumed to operate at 4 hours per day for a total of 100 hours for each helicopter.

³ Include the helicopter operation of one Bell 214 and two Hughes 500. One Bell 214 is assumed to operate at 4 hours per day for a total of 100 hours and two Hughes 500 are assumed to operate at 8 hours per day for a total of 200 hours for each helicopter.

⁴ Include concrete trucks for pole foundation construction.

Based on the described construction activities, construction-related emissions were estimated using the URBEMIS 2007 model. Helicopter emissions were estimated using emission factors of similar helicopters, which were derived from the Federal Aviation Administration (FAA)'s Emissions and Dispersion Modeling System (EDMS). The estimated construction emissions of each phase are presented in Table 4.3-7

Table 4.3-7. Estimated Construction Emissions

Construction Phase	Construction Emissions (pounds per day)					
	ROG	NO _x	CO	SO ₂	PM10 Fugitive Dust	DPM Exhaust
Staging area preparation	9	80	38	0	15	4
Existing tower removal ¹	11	178	69	6	8	4
New pole construction ²	9	141	68	5	34	3
Transmission line installation	3	34	11	0	0	1
Staging area recovery	9	78	37	0	10	4
Maximum daily emissions	11	178	69	6	34	4
BCAQMD thresholds of significance						
Level C—significant impacts	137	137	–	–	137	–
FRAQMD thresholds of significance	25	25	–	–	80	–

¹ Include the helicopter emissions generated by two Bell 214 and two Hughes 500, which are assumed to operate at four hours per day for a total of 100 hours for each helicopter.

² Include the helicopter emissions generated by one Bell 214 and two Hughes 500. One Bell 214 is assumed to operate at four hours per day for a total of 100 hours and two Hughes 500 are assumed to operate at eight hours per day for a total of 200 hours for each helicopter.

Impact AIR-1: Exceedance of NO_x significance threshold— less than significant

According to BCAQMD, projects that are estimated to result in daily construction phase emissions greater than the Level C thresholds may result in significant air quality impacts and should be required to implement all feasible mitigation measures to reduce air emissions below the Level C thresholds.

According to FRAQMD, projects that are estimated to result in daily construction phase emissions greater than the significance thresholds may result in significant air quality impacts and should be required to implement all feasible mitigation measures to reduce air emissions to the maximum extent.

Table 4.3-7 summarizes estimated maximum daily emissions of each construction phase. ROG, NO_x, and PM10 emissions are compared to the significance thresholds established by BCAQMD (see Table 4.3-2) and FRAQMD (see Table 4.3-3).

The tower removal phase and pole construction phase are expected to generate the highest NO_x emissions because both construction phases would include the use of helicopters to remove existing towers and install new power line poles. The estimated NO_x emissions for these two construction phases would exceed the BCAQMD significance threshold of 137 pounds per day and the NO_x emissions generated from each construction phase would exceed the FRAQMD significance threshold of 25 pounds per day. Therefore, the construction-related emissions would result in significant impact. Mitigations are required to reduce NO_x emissions below 137 pounds per day.

Off-road construction equipment is often diesel powered and its tailpipe exhaust can be a substantial source of NO_x. Implementation of APM AIR-1 (Implement BMPs to reduce construction tailpipe emissions) would reduce construction-related emissions to a less-than-significant level.

APM AIR-1: Implement BMPS to reduce construction tailpipe emissions

PG&E will implement all applicable and feasible measures to reduce tailpipe emissions from diesel-powered construction equipment. This requirement will be incorporated into the construction contract. These measures include:

- Shut down idling equipment that is not used for more than five consecutive minutes as required by California law.
- Maintain all construction equipment in proper tune according to manufacturer's specifications.
- Maximize to use of diesel construction equipment meeting CARB's 1996 or newer certification standard for off-road heavy-duty diesel engines.
- Use emission control devices at least as effective as the original factory-installed equipment.
- Locate stationary diesel-powered equipment and haul truck staging areas as far as practicable from sensitive receptors.
- Utilize existing power sources (e.g., power lines) or clean fuel generators rather than temporary power generators.
- Substitute gasoline-powered for diesel-powered equipment when feasible.
- Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel.

The off-road construction equipment is assumed to operate at 12 hours per day for each construction phase. The construction equipment operation hours are expected to reduce to 10 hours per day by minimizing idling limit to no more than 5 consecutive minutes.

In order to reduce the daily NO_x emissions below the significance threshold during the tower removal phase (in which two heavy-duty helicopters and two light-duty helicopters could operate on the same day and contribute to majority of daily NO_x emissions) PG&G would ensure that each helicopter (if all are to be used on the same day) is not operated for more than four hours per day. In addition, the off-road construction equipment used for the tower removal phase would not operate for more than five hours on the same day. Table 4.3-8 summarizes estimated maximum daily emissions of each construction phase with the above mitigations.

Table 4.3-8. Estimated Construction Emissions with Mitigations

Construction Phase	Construction Emissions (pounds per day)					
	ROG	NO _x	CO	SO ₂	PM10 Fugitive Dust	DPM Exhaust
Staging area preparation ¹	8	67	32	0	15	3
Existing tower removal ^{2,3}	6	133	51	6	7	2
New pole construction ^{1,4}	8	131	65	5	34	3
Transmission line installation ¹	3	29	10	0	0	1
Staging area recovery ¹	8	65	31	0	10	3
Maximum daily emissions	8	133	65	6	34	3
BCAQMD thresholds of significance						
Level C – significant impacts	137	137	-	-	137	-
FRAQMD thresholds of significance						
	25	25	-	-	80	-

¹ Operation of off-road construction equipment is assumed to reduce to 10 hours per day by minimizing idling time to 5 minutes.

² Operation of off-road construction equipment is limited to five hours per day helicopters are used on the same day.

³ Include the helicopter operation of two Bell 214 and two Hughes 500, which are assumed to operate at four hours per day for a total of 100 hours for each helicopter.

⁴ Include the helicopter operation of one Bell 214 and two Hughes 500. One Bell 214 is assumed to operate at four hours per day for a total of 100 hours and two Hughes 500 are assumed to operate at eight hours per day for a total of 200 hours for each helicopter.

Impact AIR-2: Potential exceedance of PM10 significance threshold—less than significant

As shown in Table 4.3-7, the estimated PM10 fugitive dust emissions from each construction phase are expected to be lower than the PM10 thresholds. The estimate is based on the planned construction schedule and activities and is intended to be a worst-case estimate. Actual construction emissions would vary substantially, depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content.

Therefore, fugitive dust emissions could exceed the PM10 thresholds at nearby homes, depending on the specific construction activities, site conditions, and weather conditions at any given location. This impact is considered potentially significant. Implementation of APM AIR-2 (Implement mitigation measures for construction fugitive dust emissions) would reduce construction-related emissions to a less-than-significant level.

APM AIR-2: Implement mitigation measures for construction fugitive dust emissions

PG&E will implement all applicable and feasible fugitive dust control measures required by BCAQMD and FRAQMD including those listed below. This requirement will be incorporated into the construction contract.

- Water all active construction sites at least twice daily in dry conditions, with the frequency of watering based on the type of operation, soil, and wind exposure.
- Prohibit all grading activities during periods of high wind (over 20 miles per hour).
- On-site vehicles limited to a speed that minimizes dust emissions on unpaved roads.
- Cover all trucks hauling dirt, sand, or loose materials.
- Cover inactive storage piles.
- Install wheel washers at the entrance to construction sites for all exiting trucks.
- Sweep streets if visible soil material is carried out from the construction site.
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person would respond and take corrective action within 48 hours. The phone number of the District also would be visible to ensure compliance with the District Rules (Nuisance and Fugitive Dust Emissions).
- Limit the area under construction at any one time.

Impact AIR-3: Generation of PM10 and ozone precursors in a nonattainment area—less than significant

Principal air quality concerns during construction relate to (1) generation of fugitive dust on the active construction site; and (2) exhaust emissions from construction equipment and haul/delivery trucks. Although construction of the project would result in temporary generation of PM10 and ozone precursor emissions (i.e., ROG or NO_x) in the project area, construction activities would require a small amount of equipment operating intermittently, over a short duration.

The implementation of mitigations APM AIR-1 and APM AIR-2 will further reduce PM10, ROG, and NO_x emissions during construction. Therefore, generation of construction emissions is not expected to make a considerable contribution to existing air quality problems in the air basin. This impact is considered less than significant, and no mitigation is required.

Impact AIR-4: Elevated health risk from exposure to DPM—less than significant

DPM is identified as a TAC with potential human health impacts. Construction of the project would require the use of diesel-powered equipment, which would generate DPM emissions. Anticipated DPM emission levels are presented in Table 4.3-7.

The assessment of health risks associated with exposure to diesel exhaust typically is associated with chronic exposure, in which a 70-year exposure period often is assumed. In the project area, few existing home tracts are identified within 100 to 250 feet of the alignment. However, because the project would be constructed by segments and would progress quickly, construction activities are not expected to take place near an existing residence for more than a few days. The diesel-powered equipment would be used only within tower or pole construction sites.

Furthermore, as required by CARB regulation, no in-use off-road diesel vehicles may idle for more than five consecutive minutes. In addition, implementation of APM AIR-1 (Implement BMPs to reduce construction tailpipe emissions) would further reduce exhaust emissions during construction. Therefore, health impacts associated with TAC pollutants emitted by diesel equipment are expected to be less than significant with implantation of APM AIR-1.

Impact AIR-5: Objectionable odors from diesel exhaust—less than significant

Diesel exhaust from construction activities may generate temporary odors. Once construction activities were completed, these odors would cease. This impact is considered less than significant. In addition, implementation of APM AIR-1 (Implement BMPs to reduce construction tailpipe emissions) will further reduce exhaust emissions during construction.

Impact AIR-6: Increase in greenhouse gas emissions during construction—less than significant

The principal source of GHG associated with project construction would be tailpipe emissions from construction equipment and haul trucks. The URBEMIS 2007 model was used to estimate GHG levels of tailpipe emissions from on-site construction equipment and delivery trucks. GHG emissions generated from helicopter operations were also estimated. Because the principal source of emissions would be internal combustion, the principal GHG produced would be CO₂. Table 4.3-9 presents estimated CO₂ emissions for construction of each project element.

Table 4.3-9. Estimated Greenhouse Gas Emissions from Construction

Project Phase	CO2 Emissions (tons per year)	CO2 Emissions with APM AIR-1 (tons per year)
Staging area preparation	409	342
Existing tower removal	722	590
New pole construction	1,175	1,031
Transmission line installation	313	265
Staging area recovery	340	285
Total CO2 (tons)	2,959	2,513

Because the BCAQMD and FRAQMD have not established GHG guidelines or specific significance thresholds for GHG emissions, these estimated CO₂ emissions are provided for information purposes only.

The temporary GHG emissions generated by the proposed construction project would be an inconsequentially small fraction of the worldwide GHG emissions during the brief construction period. Therefore, project-related impacts are expected to be less than significant.

Nevertheless, PG&E will implement APM AIR-1 (Implement BMPs to reduce construction tailpipe emissions) and APM AIR-3 (Minimize greenhouse gas emissions during construction) to lower GHG emissions during project construction. In addition, PG&E is implementing several voluntary company-wide actions to further reduce GHG emissions. Continuing implementation of these GHG reduction actions will help to meet the State goal of reducing GHG emissions to 1990 levels by 2020 relative to operational emissions. The voluntary actions by PG&E summarized below will reduce GHG emissions in the future relative to the current emissions deadline:

- PG&E is an active member of the EPA SF₆ Emission Reduction Partnership, which focuses on reducing emissions of SF₆ from transmission and distribution operations. Since 1998, PG&E has reduced the SF₆ leak rate by 89 percent and absolute SF₆ emissions by 83 percent.
- PG&E supports the Natural Gas STAR, a program promoting the reduction of methane (at least 21 times as potent as CO₂ on a per-ton basis) from natural gas pipeline operations. Since 1998, PG&G has avoided the release of thousands of tons of methane.
- In June 2007, PG&E launched the ClimateSmart program, a voluntary GHG emission reduction program that allows its customers to balance out the GHG emissions that are produced by the energy they use, making their energy use “climate neutral.” For ClimateSmart customers, PG&E calculates the amount needed to make the GHG emissions associated with the customer’s energy use “climate neutral” and adds this tax-deductible amount to their monthly energy bill. One hundred percent of customer payments are applied to funding new GHG emission reduction projects in California, such as projects that capture methane gas from dairy farms and landfills and those that conserve and restore California’s forests.
- PG&E is offsetting all of the GHG emissions associated with the energy used in PG&E’s buildings, by participating in its ClimateSmart program. In 2007, this amounted to over 50,000 tons of CO₂ reductions.

The ARB will review and adopt Early Action Measures (pursuant to the California Global Warming Solutions Act of 2006) by January 1, 2010, and equipment used during operation of the project facilities after 2010 would be subject to these requirements. For example, future truck or vehicle operation will be required to comply with any future emissions reduction measures adopted by the ARB, which would further reduce the project’s contribution to GHG emissions. PG&E will implement the ARB Early Action Measures and the California Energy Commission (CEC) GHG emission performance standard for

local, public-owned electric utilities as these policies become effective. These actions will further reduce company-wide GHG emissions for all PG&E projects.

APM AIR-3: Minimize greenhouse gas emissions during construction

PG&E will incorporate the following measures into the construction contract to reduce greenhouse gas emissions.

- Encourage the use of biodiesel fuel for diesel-powered equipment and vehicles.
- Encourage construction workers to carpool.
- Encourage recycling construction waste.

Operations Impacts

Impact AIR-7: Corona impacts—less than significant

Corona activity on electrical conductors surrounded by air can produce very tiny amounts of gaseous effluents: ozone and NO_x. Gaseous effluents can be produced by corona activity on high-voltage power line electrical conductors during rain or fog conditions and can occur for any configuration or location. Typically, concentrations of ozone at ground level for 230 kV and lower voltage power lines during heavy rain are significantly less than the most sensitive instruments can measure, and thousands of times less than ambient levels (and NO_x are even smaller). Thus, this impact is less than significant.

Impact AIR-8: Impacts related to maintenance—less than significant

Maintenance activities are routinely performed for the existing power lines and substation, and emissions associated with ongoing maintenance activities would not noticeably differ for the upgraded facilities. Therefore, no air quality impacts are associated with maintenance activities.

Long-term GHG emissions associated with the operation of a substation would be limited to sulfur hexafluoride (SF₆). SF₆ is a non-hazardous, inert gas that is used both as an arc quenching and insulating medium in high-voltage switchgear, circuit breakers and gas insulated substations. It is highly potent greenhouse gas with very long atmospheric lifetimes; thus, a relatively small amount of SF₆ can have a significant impact on global climate change. Because no changes are proposed that would affect the amount of SF₆ emissions from the existing substation, no air quality impacts are associated with operations.

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Section 4.4

Biological Resources

Introduction

This section provides a description of biological resources within the proposed project area (project area) and vicinity, and assesses the potential impacts of the proposed project on those resources. The impact assessment evaluates the project's potential to significantly affect biological resources and identifies feasible measures to reduce or eliminate potential impacts, where necessary, so that all impacts to biological resources will be less than significant.

Methodology

Methods used to identify and describe biological resources in the project area included a pre-field investigation to review existing information for the region, reconnaissance-level and focused habitat assessments of a generalized study area, and detailed species surveys within the project area. The study area discussed in this section is generally defined as the area within 250 feet of the two existing transmission lines. When a detailed project design and description was developed, the study area was expanded to include all areas within 250 feet of a work area and within 50 feet of temporary access roads. However, the actual survey corridor for each assessment or survey was variable, depending on the type of habitat assessment or survey methodologies applied. Detailed information on each survey area is presented below for vegetation, wetland, plant and wildlife surveys.

Review of Existing Information

The sources of information on biological resources in the project area that were reviewed as part of the pre-field investigation and to prepare this section are listed here.

- A California Natural Diversity Database (CNDDDB) records search (Figure 4.4-1) of the Palermo, Honcut, Yuba City, Olivehurst, Nicolaus, Shippee, Oroville, Oroville Dam, Biggs, Bangor, Gridley, Loma Rica, Sutter, Browns Valley, Gilsizer Slough, Wheatland, Sutter Causeway, Sheridan, Knights

Landing, Verona, and Pleasant Grove U.S. Geological Survey (USGS) 7.5-minute quadrangles (California Natural Diversity Database 2005 & 2008).

- The California Native Plant Society's (CNPS's) 2008 online *Inventory of Rare and Endangered Plants of California* for Butte, Sutter, and Yuba Counties and the Palermo, Honcut, Yuba City, Olivehurst, and Nicolaus USGS 7.5-minute quadrangles (California Native Plant Society 2008).
- A U.S. Fish and Wildlife Service (USFWS) list of endangered, threatened, and proposed species for Butte, Sutter, and Yuba Counties and the Palermo, Honcut, Yuba City, Olivehurst, and Nicolaus USGS 7.5-minute quadrangles obtained from the USFWS Web site (U.S. Fish and Wildlife Service 2008a).
- The Department of Fish and Game's (DFG) 2008 Special Animals List (California Department of Fish and Game 2008).

Vegetation and Wetland Survey Methods

Vegetation and Land Cover Mapping

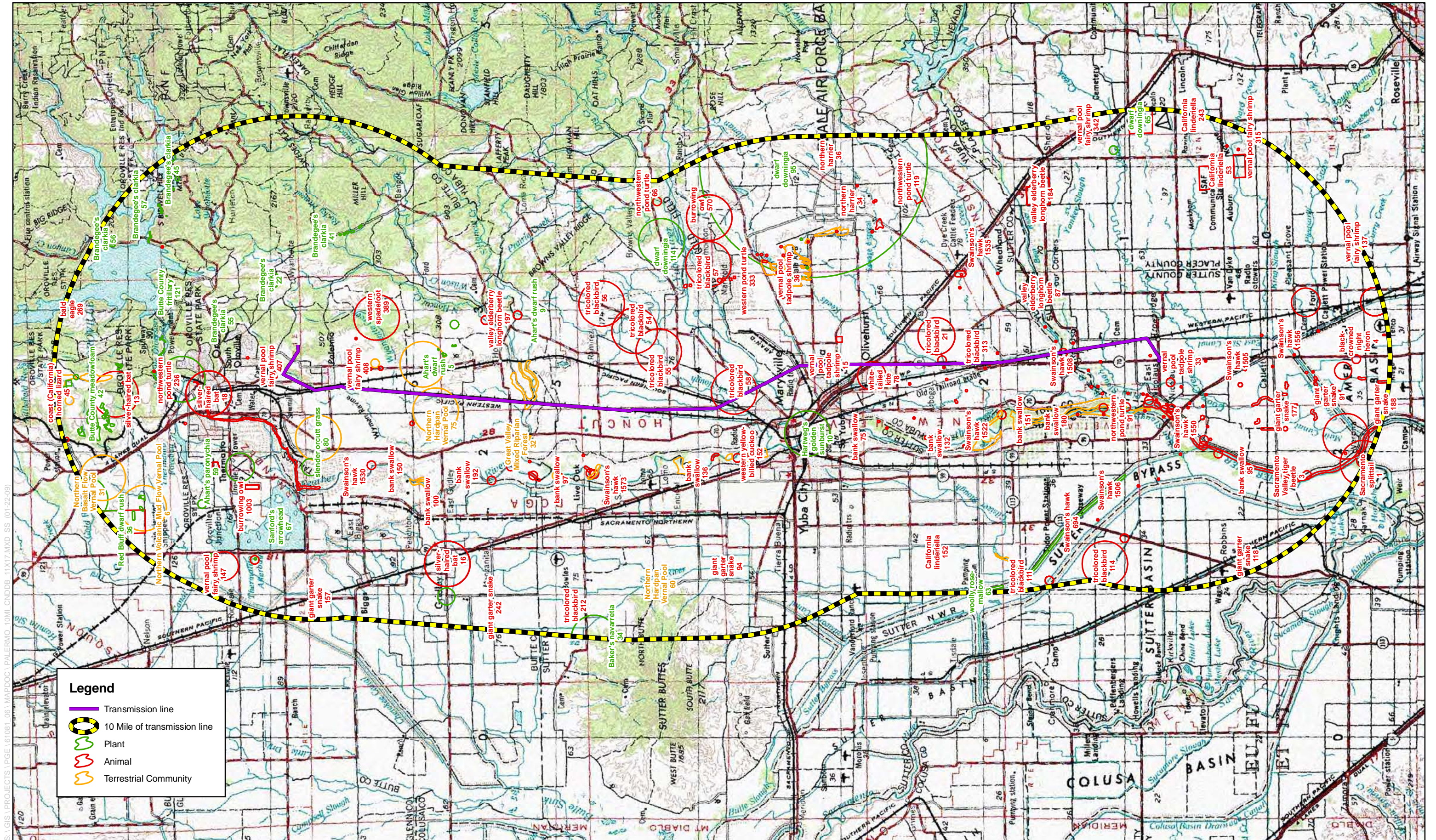
In 2005 and 2006, PG&E and ICF Jones & Stokes biologists used aerial photograph interpretation and field verifications to describe and map vegetation and land cover types occurring within 250 feet of the existing transmission line. The purpose of the mapping effort was to identify the locations of sensitive biological resources and to support preliminary project design and constraints analyses. The majority of the project area was mapped during the 2005–2006 biological survey efforts; however, additional work areas and access roads that occur greater than 250 feet from the existing transmission line were added to the project after the 2006 effort was complete. Vegetation and land cover mapping was completed for these additional areas using aerial photograph interpretation and data collected by ICF Jones & Stokes during a noxious weed survey conducted in 2008.

Vegetation communities observed in the project area were categorized primarily according to the DFG's 2003 *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (DFG 2003).

Preliminary maps of potential wetlands and other waters were also prepared in 2005 to assist PG&E with project planning prior to the wetland delineation (described below).

Wetlands and Other Waters

Waters of the United States, including wetlands, were delineated by ICF Jones & Stokes biologists on March 19 and 21 and April 2 of 2007, and on April 16, 17, and 18 of 2008. ICF Jones & Stokes and North State Resources biologists delineated wetlands on April 23–24, June 10–13, 23–25, and on November 26 of 2008. The study area for the delineation consisted of the area within 50 feet of all linear features (e.g., transmission lines, access roads) and the area within 50 feet



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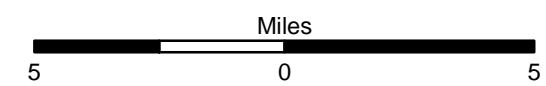


Figure 4.4-1
CNDDDB Occurrences within 10-miles of the
Palermo to East Nicolaus 115 kV Transmission Line Reconstruction Project Area

of all proposed project components/facilities (e.g., towers, substations, staging areas).

Fieldwork for the wetland delineation was conducted using the routine on-site determination methods described in the *U.S. Army Corps of Engineers 1987 Wetlands Delineation Manual* (Environmental Laboratory 1987) and where applicable, the methods outlined in the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Supplement) (U.S. Army Corps of Engineers 2006). The boundaries of non-wetland waters (e.g., drainages) within the project study boundary at each location were identified by locating the ordinary high-water mark (OHWM) following guidance issued by the U.S. Army Corps of Engineers (U.S. Army Corps of Engineers 2005).

Noxious Weeds

Noxious weed surveys were conducted on June 3 and 5, July 30–31, and August 5 and 7, 2008 by Ramona Robison and Chris Voigt of ICF Jones & Stokes. Surveys were generally conducted in a north-to-south direction. Most of the alignment was accessed by vehicle. Areas without vehicle access were walked, with the exception of 1.16 miles located south of Woodruff Lane in Yuba County where a locked gate precluded access. During the survey, invasive plant locations were marked on 11-by-17-inch field maps with project access roads and other components on them.

Wildlife Habitat Assessment Methods

PG&E biologists Jesus Viscarra, Andi Henke, Glen Lubke, and Ellen Yeoman conducted various general and focused wildlife habitat assessments of the proposed project area and vicinity in 2005 and 2006. General observations were made of the existing conditions to assess the potential for various special-status species to occur in the project area. PG&E biologists conducted habitat assessments for giant garter snake (*Thamnophis gigas*), western burrowing owl (*Athene cunicularia*), and nesting raptors.

From 2005 to 2008, ICF Jones & Stokes biologists conducted habitat assessments for valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) (VELB), vernal pool species, giant garter snake, California black rail (*Laterallus jamaicensis coturniculus*), and nesting raptors. In addition, ICF Jones & Stokes biologists made general observations on wildlife habitat conditions in the project area and made revisions to the vegetation and land cover mapping effort as necessary.

Valley Elderberry Longhorn Beetle

ICF Jones & Stokes biologists Patrick Stone and Andrew Newman conducted focused habitat assessments for VELB on June 1–3, 9, and 12–13, 2006. The locations of all suitable elderberry shrubs (*Sambucus* sp.) within 100 feet of the project area were mapped and examined for evidence of VELB occupation. Suitable elderberry shrubs were considered to be all plants with stem diameters greater than 1 inch when measured at the base. Elderberry shrubs with diagnostic exit holes on the stems have hosted beetle larvae within recent past (typically, the last 3 to 5 years depending on stem size and growth) and are considered occupied habitat. Although the exit hole made by an adult beetle is the most useful sign of VELB occupation, the biologists also examined shrubs for adult beetles and leaves for chewing patterns diagnostic of longhorn beetles. Biologist Andrew Newman conducted additional focused surveys on September 24 and 26, 2008 to record the locations of all elderberry shrubs occurring within 100 feet of project access roads.

Vernal Pool Species

ICF Jones & Stokes biologists Patrick Stone and Aundrea Asbell conducted a focused habitat assessment for listed wildlife species associated with vernal pools and swales on February 24–25, March 8–14, March 22–24, April 7–8 and 26–28, and May 5, 2005. Habitat features were classified based on an adaptation of commonly used wetland classification terms described by Helm (1996). Aquatic invertebrates were sampled using a dip net according to the methods described in the USFWS Guidelines (U.S. Fish and Wildlife Service 1996a). The purpose of the habitat assessment was to map the boundaries of seasonal wetlands, pools, and ditches that provide suitable habitat for vernal pool fairy shrimp (*Branchinecta lynchi*), conservancy fairy shrimp (*B. conservatio*), vernal pool tadpole shrimp (*Lepidurus packardii*), California tiger salamander (*Ambystoma californiense*), or western spadefoot (*Spea hammondi*). The biologists examined the size, depth, water quality, flora, and fauna of each potential habitat in order to assess the suitability of each habitat feature to support vernal pool species. Habitat features with sufficient ponding depth and duration to allow listed vernal pool species to complete their life cycle were recorded and mapped using a global positioning system (GPS) receiver with sub-meter accuracy. The biologists recorded the presence and identity of all large branchiopods observed and collected representative photographs of suitable habitat in the project area. The results of this habitat assessment were then used to conduct protocol-level surveys (described below) from 2006 to 2008.

Giant Garter Snake

PG&E biologists Jesus Viscarra and Glen Lubke conducted a focused assessment of potential giant garter snake habitat occurring within 200 feet of the proposed project area on November 8, 2006. ICF Jones & Stokes biologists Will Kohn and Patrick Stone conducted assessments of potential habitat occurring within 200

feet of proposed access roads and staging areas on October 7 and 8, 2008. Concurrent with the 2008 assessments, the biologists reviewed the results of the 2006 habitat assessment to make updates or revisions to the land cover as necessary.

Potential wetland and upland habitat features were identified based on the results of the vegetation mapping and wetland delineations of the project area. Segments of potential habitat were grouped together based on proximity and checked in the field to determine specific habitat conditions, typical hydro-period, land use, and presence of upland habitat and hibernacula. The purpose of the habitat assessment was to determine the location, extent, and relative cover of potential upland and aquatic habitat in the project area.

California Black Rail

Based on preliminary results of vegetation mapping, land cover mapping, and general wildlife habitat assessments, PG&E biologists determined where potential inland breeding habitat for California black rail may occur within 500 feet of the project area. Experienced Jones & Stokes ornithologist Dr. Ted Beedy then conducted a review of existing information, aerial photographs, and vegetation mapping to determine the size and potential suitability of wetlands in the study area before conducting field surveys on May 1, 2006. Dr. Beedy surveyed potential habitat to determine the vegetation, size, and water depth or regime of each wetland area.

Western Burrowing Owl

PG&E biologists Jesus Viscarra and Andi Henke conducted a habitat assessment for western burrowing owl on May 2–4 and 16–17, 2006. Potential habitat was initially identified based on the results of the vegetation mapping efforts described above. The area within approximately 300 feet of the existing transmission line and/or proposed work areas were surveyed in the field to determine the suitability of each area to support nesting owls. The biologists recorded vegetation cover and height; presence of ground squirrel burrows, pocket gopher burrows, or other cover medium; signs or observations of adults; and land cover. The habitat assessment was conducted following the Western Burrowing Owl Consortium guidelines, Phase I (Santa Cruz Predatory Bird Research Group 2008).

Nesting Raptors

PG&E biologists Jesus Viscarra and Ellen Yeoman conducted a survey of the project area on March 1–4 and 7–8, 2005 to assess the potential for nesting raptors to be affected by the project. The biologists surveyed the existing transmission line and recorded the location of all suitable raptor nests observed. Nest sites or structures were considered suitable if they appeared to be used by

native raptor species. For each suitable nest, the biologists recorded the location using a GPS receiver, notes on recent activity, the diameter and species of the tree, and the nests' approximate location in the canopy. The biologists also noted any bird species observed in the study area. The purpose of the nest survey was to determine where concentrations of active or historic nests occur along the proposed project alignment.

Special-Status Species Survey Methods

Special-Status Plant Surveys

Special-status plant surveys were completed on April 19–21, 2005 by ICF Jones & Stokes botanists Kate Carpenter, Jessica Hughes, Rob Preston, and Elena Alfieri. The botanists walked meandering transects within a 250-foot-wide corridor along the project route where access was feasible. The botanical surveys were generally conducted in accordance with guidelines provided by the USFWS (1996b), DFG (2000), and CNPS (2001), which specify that surveys should be floristic (i.e., all species encountered are identified) and that surveys should be conducted during the time of year that special-status plants from the region would be identifiable.

In general, survey intensity varied depending on species richness, habitat type and quality, and the probability of special-status plants occurring in a particular habitat type. Surveys were conducted in greater detail in the portions of the study area with the highest potential for special-status plants to occur (e.g., vernal pools and other wetlands). Consistent with agency guidelines, all plant species observed during the surveys were recorded. When possible, plants were identified to the lowest taxonomic level necessary to determine whether they were special-status plants or were species with unusual or significant range extensions. The 2005 special-status plant survey covered the project area as delineated at that point in time, which included the existing transmission line alignment and a buffer. Since 2005, access roads and additional work areas have been added, and the larger project area is referred to as the 2008 project area in discussions in this section. Surveys for early-blooming, special-status plants have not been conducted in project areas that were added after 2005. Surveys for late-blooming, special-status plant species have not been conducted within the study area.

Special-Status Animals

Protocol-level surveys for listed vernal pool invertebrates were conducted from 2006 to 2008 to determine the presence or absence of Conservancy fairy shrimp in two large vernal pools and the presence or absence of all listed branchiopods in these and twenty other potential habitat features. The survey effort was conducted according to USFWS's Guidelines (1996a). Initial wet-season surveys were conducted from December 21, 2006 through May 14, 2007. Vernal pool tadpole shrimp was observed in a complex of several railroad right-of-way pools

and California linderiella (*Linderiella occidentalis*), a non-listed fairy shrimp, was observed in several of the habitat features examined. In those features that were not found to support listed vernal pool branchiopods in 2006–2007, protocol-level wet-season surveys were repeated from December 26, 2007 through May 1, 2008. No additional occupied sites were identified during the 2007–2008 survey effort. Conservancy fairy shrimp was determined to be absent from the two large vernal pools with suitable habitat conditions.

Affected Environment

Regulatory Setting

This section provides an overview of the laws and regulations that influence the management of biological resources in the project area. Although many of these regulations will not apply to the project if the resources in question are avoided, they are discussed here to provide context in determining which biological resources are considered *sensitive* for the purposes of this report and to discuss potential project-related effects.

Federal

Endangered Species Act

USFWS and the National Marine Fisheries Service (NMFS) have jurisdiction over species listed as threatened or endangered under Section 9 of the Federal Endangered Species Act (ESA). In general, NMFS is responsible for protection of ESA-listed marine species and anadromous fish, and USFWS is responsible for other listed species. ESA protects listed species from harm, or *take*, which is broadly defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.”

For any project involving a federal agency (in this case, the Corps) in which a listed species could be affected, the federal agency must consult with USFWS or NMFS in accordance with Section 7 of the ESA. USFWS or NMFS issues a biological opinion (BO) and, if the project does not jeopardize the continued existence of the listed species, issues an incidental take permit. When no federal nexus is present, proponents of a project affecting a listed species must consult with USFWS or NMFS and apply for an incidental take permit under Section 10 of the ESA. Section 10 requires an applicant to submit a habitat conservation plan (HCP) that specifies project impacts and mitigation measures. Consultation with USFWS or NMFS will be required if the proposed project will affect federally listed species or their habitat.

The project area includes designated critical habitat for VELB. *Critical habitat* is defined as: (1) specific areas within the geographical area occupied by the species at the time of listing, if they contain physical or biological features

essential to conservation, and those features may require special management considerations or protection; and (2) specific areas outside the geographical area occupied by the species if the agency determines that the area itself is essential for conservation. Under Section 7 of the ESA, federal agencies must ensure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species, or destroy or adversely modify its designated critical habitat. These complementary requirements apply only to federal agency actions, and the latter only to habitat that has been designated.

Section 404 of the Clean Water Act

The Corps and the U.S. Environmental Protection Agency (EPA) regulate the discharge of dredged or fill material into waters of the United States under Section 404 of the CWA. Project proponents must obtain a permit from the Corps for all discharges of fill material into waters of the United States, including wetlands, before proceeding with a proposed action. Habitat types in the project area that represent potential waters of the U.S., including wetlands, are described in the section titled *Wetland and Riparian Habitat Types*.

Although a majority of the wetlands in the project area would likely be considered jurisdictional by the Corps, some isolated wetlands may not be considered jurisdictional under Section 404 of the CWA. For the purposes of this assessment and determining effects on potential waters of the United States, it is assumed that all potential waters in the project area would be considered jurisdictional by the Corps. If the project will affect potential waters, a final determination on the jurisdiction of those waters must be made through consultation with the Corps.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (Title 16, United States Code [USC], Part 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs (*16 USC 703, 50 Code of Federal Regulations [CFR] 21, 50 CFR 10*). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. USFWS is responsible for overseeing compliance with the MBTA. Bird species and their nests that occur in the project area would be protected under the MBTA.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act makes it illegal to import, export, take (which includes molest or disturb), sell, purchase, or barter any bald eagle

(*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*), or parts thereof. The USFWS oversees enforcement of this act.

State of California

California Endangered Species Act

California implemented its own Endangered Species Act (CESA) in 1984. CESA prohibits the take of state-listed endangered and threatened species; however, habitat destruction is not included in the state's definition of take. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery, and to promote conservation of these species. The California Department of Fish and Game (DFG) administers CESA and authorizes take through Section 2081 agreements (except for species designated as fully protected). Consultation with DFG will be required if the proposed project will affect CESA-listed species.

Regarding listed rare and endangered plant species, CESA defers to the California Native Plant Protection Act of 1977 (NPPA), which prohibits importing of rare and endangered plants into California, and the taking and selling of rare and endangered plants. CESA includes an additional listing category for threatened plants that are not regulated under NPPA. Plants that are not state-listed but meet the state standards for listing are protected under the California Environmental Quality Act (CEQA).

California Environmental Quality Act

CEQA is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts on projects that require discretionary approvals from state and local agencies. Although threatened and endangered species are protected by specific federal and state laws, the State CEQA Guidelines Section 15380(b) provides that a species not listed under ESA or CESA may be considered rare or endangered if it can be shown that the species meet certain specific criteria. The criteria have been modeled after the definitions of ESA and sections of the California Fish and Game Code discussing rare and endangered plants and animals.

A project normally is considered to result in a significant environmental effect (in the context of biological resources) if it substantially affects a rare or endangered species or the habitat of that species; substantially interferes with the movement of resident or migratory fish or wildlife; or substantially diminishes habitat for fish, wildlife, or plants. The CEQA Guidelines define rare, threatened, or endangered species as those listed under ESA and CESA, as well as any other species that meets the criteria of the resource agencies or local agencies—for example, the DFG-designated species of special concern and plant species identified by CNPS as being of conservation interest.

The CEQA Guidelines specify that the lead agency (in this case, the CPUC) preparing a CEQA compliance document must consult with and receive written findings from USFWS and DFG concerning project impacts on species that are listed as endangered or threatened. The effects of the project on these species and habitats will be important in determining whether the project is considered to cause significant environmental impacts under CEQA.

California Fish and Game Code

Fully Protected Species

The California Fish and Game Code prohibits take of a variety of species; these are referred to as *fully protected species*. Section 5050 lists fully protected amphibians and reptiles; Section 3515 lists fully protected fish; Section 3511 lists fully protected birds; and Section 4700 lists fully protected mammals. The California Fish and Game Code defines *take* as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Except for take related to scientific research, all take of fully protected species is prohibited; and DFG cannot issue take permits for fully protected species.

Sections 3503 and 3503.5

Section 3503 of the California Fish and Game Code prohibits the killing of birds and/or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and/or the destruction of raptor nests. Consultation with DFG will be required if nesting birds would be affected by project-related activities.

Section 1600—Streambed Alteration Agreements

In addition to listed and special-status species, DFG regulates activities that would interfere with the natural flow of, or substantially alter the channel, bed, or bank of a lake, river, or stream, or use material from a streambed. These activities are regulated under California Fish and Game Code Sections 1600–1616 and require a Streambed Alteration Agreement Permit. Requirements to protect the integrity of biological resources and water quality are often conditions of streambed alteration agreements. Conditions that the DFG might require include avoidance or minimization of vegetation removal, use of standard erosion control measures, limitations on the use of heavy equipment, limitations on work periods to avoid impacts on fisheries and wildlife resources, and requirements to restore degraded sites or compensate for permanent habitat losses.

If the project will not affect a streambed, a streambed alteration agreement will not be required. Although the DFG does not specifically regulate the discharge or placement of material into wetlands (or waters of the state), impacts on these sensitive habitats could be considered significant under CEQA if the magnitude of impact is great enough.

Although the existing and proposed transmission line span the Bear River, Yuba River, Honcut Creek, Wyandotte Creek, Wyman Ravine and several sloughs, no construction activities will take place within the channel, bed, or bank of these waterways. Activities that affect the stream beds of these rivers, creeks, and sloughs would require a Streambed Alteration Agreement Permit from the DFG.

Local Regulations

Although PG&E is not subject to local land-use regulations, the following overview of local regulations relating to biological resources is provided for informational purposes.

Butte County

Several policies identified in the Butte County General Plan (Butte County 1979, Section 6.5 and 6.6) apply to biological resources in the project area. The plan describes biological habitat in the county that supports wildlife species and policies to protect them. High mountain areas and lower foothills provide habitat for deer; marsh areas and stream vegetation support waterfowl, game birds, and small animals; Lake Oroville and the County's larger streams are valuable habitat for trout, salmon, bass, and other game fish; and several rare and/or endangered plants and animals occur in the County. Policies 6.5a through 6.5d apply to biological resources and include these specific policies:

- Prevent development and site clearance other than river bank protection of marshes and significant riparian habitats.
- Regulate development to facilitate survival of identified rare or endangered plants or animals.

The plan also provides policy on natural areas, which are the federally owned Feather Falls Scenic Area and the National Wild and Scenic River (Middle Fork of the Feather River), state owned Grey Lodge Waterfowl Management Area and the borrow area along Feather River, and wilderness areas near the northeast boundary of the county. Policy 6.6a states:

Policy 6.6a: Encourage the creation and expansion of natural and wilderness areas.

Sutter County

The Sutter County General Plan states that the county supports areas with significant biological resources and wildlife habitat (Sutter County 1996). Goals and polices in the plan related to biological resources are:

Goal 1.G: To preserve and protect open space and natural resources and reduce pollution.

Policy 1.G-1: The County shall encourage development projects to minimize their impacts to open space areas and wildlife habitats.

Yuba County

Yuba County General Plan

The Yuba County General Plan provides goals, objectives, and policies that apply to biological resources in the proposed project area (Yuba County 1996, Sections 5 and 7). Goal 2-OSCG provides objectives and policies to enhance natural resources, open space lands and the scenic beauty of Yuba County. Goal 5-OSCG protects lands of unique value to plants, fisheries, waterfowl, and other forms of animal life; this goal includes objectives and policies requiring no-net loss of wetlands and riparian habitats, retention of existing designated wildlife areas and protection from incompatible land uses, protection of waterfowl habitat areas, identification of areas containing habitat suitable for threatened, endangered, or special status species, and connection of wildlife preserves and parklands to wildlife/opens space corridors. Policies that apply to plants, fisheries, and animals in the proposed project area are:

Policy 86-OSCP: The County shall encourage the preservation of areas of natural vegetation that may also contain threatened, endangered or special status species, including oak woodlands, riparian areas, marshland, and vernal pools;

Policy 91-OSCP: Where a “take” of threatened, endangered or candidate species is likely, the County shall comply with the requirements of the State and Federal Endangered Species Acts; and

Policy 106-OSCP: The County shall encourage the retention of natural vegetation and open space areas along the Yuba, Bear and Feather rivers.

Goal 7-OSCG of the Yuba County General plan is to conserve valley oaks and encourage the protection and regeneration of oak woodlands in foothill areas. Policies to support conservation of valley oaks and regeneration of oak woodlands that apply to the proposed project area are:

Policy 116-OSCP Project proponents shall identify and map the location of all Valley oaks on property proposed for a development project. Identification need not include individual trees where groves of Valley oaks are present, and need not include trees less than 6 inches in diameter at breast height.

Policy 117-OSCP The following guidelines shall be implemented by the County in order to preserve Valley oaks:

- During any construction, fill should not be placed within an area which is 1.5 times the distance from the trunk to the dripline (the perimeter of the crown) of Valley oaks and no closer than 10 feet from the trunk. The dripline of the tree should be fenced during grading and construction.
- Soil compaction, which could damage root systems and interfere with vital gas and nutrient exchanges in the roots, should be prevented by not operating or storing heavy equipment within oak driplines.
- Excavations around trees should be minimized. Depth of excavations should be the minimum required. Utility lines should be combined in single trenches whenever possible.

- If roots need to be removed, they should be cut rather than torn and immediately covered with mulch or soil to prevent desiccation.
- Developers shall submit a tree protection plan along with grading and erosion control plans when Valley oaks are present on the site to be developed. The tree protection plan should include a planting replacement program for all Valley oaks removed, including a maintenance and monitoring program, and should also show how any snags present on the site will be retained
- Where feasible when they do not pose a threat to public safety; and

Policy 118-OSCP: All proposed parcel maps, subdivision maps and conditional use permits in areas containing oak woodlands shall show the location of existing oaks by canopy area. Based on the amount of existing canopy area on the project site, the determined amount of canopy must be retained.

City of Marysville General Plan

Section 5 of the City of Marysville General Plan applies to open space, conservation, and recreation in portions of the proposed project area located within the City of Marysville (City of Marysville 1985). The plan identifies as a goal:

To designate, protect, and conserve the natural resources, open space, and recreation lands in the city; and provide opportunities for recreation activities to meet citizen needs.

Policies that support this goal and apply to the project include: encouraging the preservation of wildlife habitat areas, protecting the fisheries of adjacent waterways; ensuring that existing natural resources areas, scenic areas, open space areas and parks are protected from encroachment or destruction by development; permitting open space and conservation land use within floodplains; and assuring that floodplains and waterways will not be polluted.

Project Setting

The project area encompasses areas in Butte, Sutter, and Yuba Counties and occurs primarily within the Sacramento Valley subregion of the California Floristic Province (Hickman 1993; pp.44–45). The northernmost portion of the project area occurs in the transitional area between the Sacramento Valley subregion and the northern Sierra Nevada foothills subregion (Hickman 1993; pp.44–45). The climate in the project area consists of hot, dry summers and cool, wet winters. The topography in the project area varies from relatively flat to gently sloping foothills with elevations ranging from 45 feet to 375 feet above mean sea level. Agricultural lands, urban areas, and rural residences are well represented within and immediately adjacent to the project area; however, the project area also contains relatively undeveloped areas that support natural vegetation and wetlands.

Vegetation Communities and Habitats

The project area contains upland vegetation and habitat types as well as wetland and riparian habitat types. Upland vegetation and habitat types observed were non-native grassland, valley oak woodland, interior live oak woodland, foothill pine-oak woodland, urban development, urban parks, rural residential, irrigated pasture, orchard, rice, and row crops. Wetland and riparian habitat types observed were seasonal wetland, northern hardpan vernal pool, vernal swale, valley freshwater marsh, open water, Great Valley willow riparian scrub, and Great Valley mixed riparian forest, intermittent stream, irrigation canal, non-vegetated and vegetated ditch.

The natural vegetation community types follow the California Department of Fish and Game (CDFG) *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (California Department of Fish and Game 2003) where applicable. Each of these vegetation communities and habitat types is described below. All habitat types observed in the project area are shown in Appendix B.

Upland Vegetation and Habitat Types

Non-Native Grassland

Non-native grassland in the project area is dominated by non-native annual grass species but also contains a mixture of native and non-native forbs. Non-native grassland occurs within the herbaceous understory of other vegetation communities (e.g., valley oak savanna woodland, oak/foothill pine woodland). Dominant annual grass species observed in the project area were soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), big quaking grass (*Briza maxima*), and medusa-head (*Taeniatherum caput-medusae*).

Other representative grass species observed were Italian ryegrass (*Lolium multiflorum*), wild oats (*Avena* spp.), and rattail fescue (*Vulpia myuros*). Representative native forbs observed were shining peppergrass (*Lepidium nitidum*), Spanish lotus (*Lotus purshianus*), common fiddleneck (*Amsinckia menziesii* var. *intermedia*), and miniature lupine (*Lupinus bicolor*). Non-native forbs commonly observed were black mustard (*Brassica nigra*), yellow star-thistle (*Centaurea solstitialis*), bristly oxtongue (*Picris echioides*), filaree (*Erodium* spp.), and crane's bill geranium (*Geranium molle*).

Valley Oak Woodland

Valley oak woodland was the most commonly observed woodland vegetation community in the project area. Valley oak woodland in the project area is characterized by a relatively open canopy dominated by mature valley oaks (*Quercus lobata*). Other tree species that were observed in valley oak woodland were interior live oak (*Quercus wislizeni*) and Fremont cottonwood (*Populus fremontii* ssp. *fremontii*). Representative species observed in the shrub layer of valley oak woodland were blue elderberry (*Sambucus mexicana*), Himalayan blackberry (*Rubus discolor*), and coyote brush (*Baccharis pilularis*).

Interior Live Oak Woodland

Interior live oak woodland community in the project area exhibits a relatively open canopy that is dominated by interior live oak but also contains scattered blue oak (*Quercus douglasii*) and foothill pine (*Pinus sabiniana*). Interior live oak woodland has an herbaceous understory of non-native grassland and the shrub layer contains coyote brush, common manzanita (*Arctostaphylos manzanita*), and whiteleaf manzanita (*Arctostaphylos viscida*).

Foothill Pine-Oak Woodland

Foothill pine-oak woodland is limited to the northernmost portion of the project area. Foothill pine is the dominant species in the tree overstory but blue oak and interior live oak were also observed. The shrub layer and herbaceous understory of foothill pine-oak woodland are comparable to those observed in interior live oak woodland.

Urban

Urban habitat consists primarily of the portions of the project area that are located within Palermo, Linda, and Olivehurst, but for the purposes of this PEA, it also includes small industrial and commercial areas in the surrounding areas. The density of residential, commercial, and industrial development varies from low to high density. Vegetation observed within urban habitat is predominantly non-native or ornamental trees and shrubs used for landscaping. Representative species observed were crepe myrtle (*Lagerstroemia indica*), fig (*Ficus carica*), tree-of-heaven (*Ailanthus altissima*), and oleander (*Nerium oleander*).

Urban Park

Urban park habitat is also associated with the portions of the project area located within Palermo, Linda, and Olivehurst. Urban park habitat represents areas of open space amid development and includes parks, golf courses, and athletic fields associated with schools. Although non-native and/or ornamental species are well represented, native tree species (e.g., oaks [*Quercus* spp.]) may also be incorporated into the landscape. Representative species observed in urban park habitats were crepe myrtle, annual bluegrass (*Poa annua*), and Bermudagrass (*Cynodon dactylon*).

Rural Residential

Low-density, rural residential development is scattered throughout the project area. Vegetation observed at rural residences was relatively variable and ranged from natural (e.g., non-native grassland) to ornamental species.

Irrigated Pasture

Irrigated pasture in the project area is used for livestock grazing. As implied, this habitat is actively irrigated to maintain the supply of pasture grasses such as dallisgrass (*Paspalum dilatatum*), annual bluegrass, Italian ryegrass, and creeping wild-rye (*Leymus triticoides*). Most of the irrigated pasture is in the northern portion of the project area.

Orchard

The orchard habitat in the project area consists of stone fruit (i.e., peaches, plums [*Prunus* spp.]), olives (*Olea* spp.), kiwi fruit (*Actinidia chinensis*) and nut trees (i.e., almonds [*Prunus dulcis*] and walnuts [*Juglans regia*]).

Rice

Active and fallow rice fields are scattered within the middle and southern portions of the project area.

Row Crops

Representative row crops observed in the project area and vicinity were alfalfa (*Medicago sativa*), barley (*Hordeum vulgare*), wheat (*Triticum aestivum*) and corn (*Zea mays*).

Wetland and Riparian Habitat Types

The wetland delineation identified approximately 101.93 acres of potential waters of the United States, including wetlands, in the project area (North State Resources, Inc. 2008; ICF Jones & Stokes 2009). These results are preliminary and subject to verification by the Sacramento District of the Corps. Additionally, the project area also contains approximately 1.88 acres of riparian habitats comprised of Great Valley riparian scrub and Great Valley mixed riparian forest. The wetland and riparian habitat types are shown in Appendix B-1.

Northern Hardpan Vernal Pool

Approximately 3.683 acres of northern hardpan vernal pools occur in the project area. Vernal pools are typically inundated only during the winter and spring and are characterized by the presence of a restrictive layer (i.e., hardpan) that perches the water table and prevents rainwater from percolating downward. The hardpan layer creates a unique aquatic environment during the winter and spring months which favors the germination of native vernal pool plants and restricts establishment of many of the non-native introduced grasses common in uplands surrounding vernal pools. Species commonly observed in vernal pools in the project area were coyote thistle (*Eryngium castrense*), popcorn-flower (*Plagiobothrys* spp.), dwarf woolly marbles (*Psilocarphus brevissimus*), and Carter's buttercup (*Ranunculus bonariensis*).

Vernal Swale

Approximately 0.172 acre of vernal swales occur in the project area. Vernal swales are characterized as linear (or somewhat linear) drainage features, rather than as a basin feature. Vernal swales are dominated by plant species categorized as vernal pool plants (Reed 1994) and typically exhibit greater than or equal to 30% cover. These features often provide a hydrologic connection between other wetlands and/or other waters types. Specific characteristics of swales include the presence of field indicators of being frequently flooded for long duration or very long duration during the growing season, including watermarks, sediment deposits, drift lines, drainage patterns, and presence of algal matting indicating water conveyance.

Seasonal Wetland

Seasonal wetlands, which occur within areas of non-native grassland in the project area, encompass approximately 18.91 acres. Seasonal wetlands differ from vernal pools and vernal swales in their species composition and in some cases hydrology. Seasonal wetlands tend to be inundated only during the winter and spring months. Representative species observed in seasonal wetlands in the project area were iris-leaved rush (*Juncus xiphioides*), creeping spikerush (*Eleocharis macrostachya*), white-tipped clover (*Trifolium variegatum*), and Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*). Although seasonal wetland habitat is not recognized on DFG's 2003 *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (DFG 2003), regulatory agencies consider wetlands to be sensitive habitats.

Valley Freshwater Marsh

Valley freshwater marsh encompasses approximately 9.741 acres within the project area and was typically associated with perennially inundated areas. Characteristic species observed in valley freshwater marsh in the project area were cattails (*Typha* spp.), tules and bulrushes (*Scirpus* spp.), sedges (*Carex* spp.), nutsedges (*Cyperus* spp.), and rushes (*Juncus* spp.).

Open Water (Stock Pond)

Open water habitat in the project area consists of ponds, agricultural canals, and the Feather and Bear rivers. Open water encompasses approximately 37.4 acres within the study area. Stock pond and open water features include the deepwater portion(s) of features such as ponds, lakes, rivers, and marshes. Deepwater is the area beyond where the littoral zone (shoreline) transitions to the limnetic zone (deep water). Typically, this is the zone where water depth precludes the establishment of emergent vegetation. Stock pond features are perennially inundated. The stock pond (open water) jurisdictional type is a non-wetland waters of the United States or *other waters*.

Intermittent Stream

Intermittent streams encompass approximately 0.180 acre within the project area. These features include natural drainages that convey waters intermittently during the late fall, winter, and spring months, but are usually dry between the late spring and early fall months. These features may or may not be vegetated and during the period of flow, the water velocity is sufficient to scour a channel into the landscape and often to remove unstable vegetation. Intermittent streams exhibit indicators of being frequently flooded for long duration or very long duration during the growing season. These indicators include water marks, drift lines, sediment deposits, drainage patterns, and scour and deposition of soil material. An OHWM is also present in the form of a natural line impressed on the bank caused by intermittent flow of water through the channel at a specific elevation level on the bank. Hydrology is also influenced by precipitation and groundwater discharge. Upland plant species sometimes colonize these features during the summer when no water is present.

Vegetated Ditch

Features determined to be vegetated ditches, and mapped as such, generally consist of constructed ditches that exhibit positive indicators for all three wetland

parameters (i.e., vegetation, hydrology, and soils). Approximately 4.252 acres of the project area are delineated as vegetated ditch.

Irrigation Canal

Irrigation canals encompass approximately 0.019 acres within the project area. Features determined to be irrigation canals consist of constructed, concrete-lined ditches that exhibit positive indicators of wetland hydrology, but lack hydrophytic vegetation and hydric soils due to the cement-lined bottom. A well-defined OHWM is apparent on both sides of the canals in the form of a clear line (i.e., water mark) and the presence of litter and debris. The irrigation canal jurisdictional type is a non-wetland waters of the United States or other waters if a well-defined OHWM is present and the feature is tributary to waters.

Agricultural Wetlands

Agricultural wetlands are actively farmed fields that exhibit positive indicators for all three wetland parameters (i.e., vegetation, hydrology, and soils). Agricultural wetlands, in this case rice fields, encompass approximately 64.98 acres within the project area, or 63.7% of the wetlands and other waters delineated.

Great Valley Willow Riparian Scrub

Great Valley willow riparian scrub encompasses approximately 0.819 acres within the project area and is associated with agricultural canals. This vegetation community is dominated by small trees and shrubs. Representative species observed in the project area were sandbar willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), and Himalayan blackberry. The herbaceous understory of riparian scrub consists of sparse non-native grassland.

Great Valley Mixed Riparian Forest

Great Valley mixed riparian forest occurs in the project area primarily along Honcut Creeks and various intermittent streams. This community type, which encompasses approximately 1.063 acres, consists of a well developed overstory of mature trees, a shrub layer, and an herbaceous understory. Species observed in the overstory of this community in the project area were Fremont cottonwood, valley oak, and black willow (*Salix gooddingii*). Representative shrubs observed were blue elderberry and Himalayan blackberry. Sparse non-native grassland comprises the herbaceous understory of Great Valley mixed riparian forest.

Waters of the United States

ICF Jones & Stokes conducted a delineation of waters of the United States for the proposed project in 2008 (North State Resources). The wetland delineation was completed within 50 feet of all potential disturbance areas (i.e., tower sites, staging areas, pull sites, landing zones, and access roads) and documented a total of 101.93 acres of potential waters of the United States (see Appendix B-1). The wetland delineation has not been submitted to the Corps as of the preparation of this document and thus should be considered preliminary, pending verification by the Corps.

Special-Status Species

For the purposes of this document, special-status species are plants and animals that are legally protected under the federal ESA, CESA, or other such regulations, and species considered sufficiently rare by the scientific community to qualify for such listing. Special-status species include:

- Species listed or proposed for listing as threatened or endangered under the ESA, *50 CFR 17.11* (listed animals), *50 CFR 17.12* (listed plants), and various notices in the Federal Register (FR) (proposed species).
- Species that are candidates for possible future listing as threatened or endangered under the ESA (U.S. Fish and Wildlife Service 2008b).
- Species listed or proposed for listing by the State of California as threatened or endangered under the CESA (*14 CCR 670.5*).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).
- Plants listed as rare under the California Native Plant Protection Act (*California Fish and Game Code 1900 et seq.*).
- Plants considered by CNPS to be “rare, threatened, or endangered in California” (California Native Plant Society 2008).
- Plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution, which may be included as special-status species on the basis of local significance or recent biological information (California Native Plant Society 2008).
- Animal species of special concern to DFG (California Department of Fish and Game 2008).
- Animals fully protected in California by *California Fish and Game Code 3511* (birds), *4700* (mammals), *5050* (amphibians and reptiles), and *5515* (fish).

Special-Status Plants

Reviews of information sources identified 29 special-status plant species with the potential to occur in the project area (California Native Plant Society 2008; California Natural Diversity Database 2005 & 2008; U.S. Fish and Wildlife Service 2008). One of these 29 species, four-angled spikerush (*Eleocharis quadrangulata*), appeared in the results of the 2005 CNDDDB records search but is no longer considered a special-status species (California Natural Diversity Database 2005, 2008).

The status, distribution, habitat requirements, and blooming period of the remaining 28 special-status plant species are listed in Table 4.4-1. Three of the 28 species, dissected-leaved toothwort (*Cardamine pachystigma* var. *dissectifolia*), Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeae*), and Mosquin's clarkia (*Clarkia mosquinii*), were determined to not be present

because the elevation of the project area falls outside of their elevation ranges (California Native Plant Society 2008). One special-status species, brown fox sedge (*Carex vulpinoidea*), was identified in the project area.

Brown Fox Sedge

Brown fox sedge is a perennial herb in the sedge family (Cyperaceae) that blooms in May and June. Documented habitat for brown fox sedge consists of marshes, swamps, and riparian woodlands at elevations from 98 feet–3,937 feet (California Native Plant Society 2008). Brown fox sedge is not federally or state-listed, but has been designated by CNPS as a List 2.2 species (California Native Plant Society 2008). List 2 species are considered rare, threatened, or endangered in California, but more common elsewhere, and the 0.2 designation refers to the assessment that brown fox sedge is fairly endangered in California (California Native Plant Society 2008).

Sixteen occurrences of brown fox sedge have been documented by the CNDDDB as of August 2008 in Butte, Kern, Los Angeles, San Joaquin, Shasta, Siskiyou, Tehama, and Trinity Counties (California Natural Diversity Database 2008). One population of brown fox sedge was identified in a freshwater emergent wetland near the intersection of Ramirez Road and the Western Pacific railroad line in Yuba County (see Appendix B-1).

Special-Status Wildlife

Review of the CNDDDB, DFG Special Animals List, and USFWS lists identified 35 special-status wildlife species with potential to occur in the project area (California Natural Diversity Database 2008; U.S. Fish and Wildlife Service 2008). The status, distribution, habitat requirements, and potential to occur in the project area of these wildlife species are listed in Table 4.4-2.

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle is federally listed as threatened under the ESA. USFWS recognizes the range of VELB to include the American River, San Joaquin River, and Sacramento River watersheds and tributaries of these watersheds below 3,000 feet in elevation. The beetle primarily occurs in the Greater Sacramento Valley and Northern San Joaquin Valley. Barr (1991) reports the range of VELB to include all of the Central Valley extending to Shasta County in the north and to Kern County in the south. The range of the threatened subspecies as described by Fisher may overlap with that of *Desmocerus californicus californicus*, as described by Horn, along the eastern edge of the Coastal Range and in the southern San Joaquin Valley (Halstead and Oldham 1990).

VELB is dependent on the host plant, red or blue elderberry, throughout its life cycle. The larvae bore into the elderberry stems and feed on soft tissues from the pith of the plant. Metamorphosis occurs in a pupal chamber, which is excavated in a large (greater than one inch) stem of the shrub during the larval stage. Adult beetles feed on foliage and flowers of the elderberry. Adult beetles of this species are only active during the flowering period of the elderberry, typically early

Table 4.4-1. Special-Status Plant Species Identified as Having the Potential to Occur in the Project Area

Common and Scientific Name	Legal Status ^a		Geographic Distribution/California Floristic Province ^c	Habitat Requirements ^b	Potential for Occurrence ^d
	Federal/State/CNPS	Blooming Period ^b			
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	-/-/1B.2	Mar–Jun	Merced, Solano, and Yolo Counties; historically more widespread	Alkaline soils in playas, adobe clay in valley and foothill grassland, vernal pools; below 197'	Low; no occurrences within 10 mi. of project area and suitable microhabitat may not be present
Round-leaved filaree <i>California macrophylla</i> (formerly <i>Erodium macrophyllum</i>)	-/-/1B.1	Mar–May	Sacramento Valley, northern San Joaquin Valley, Central Western California, South Coast, & northern Channel Islands (Santa Cruz Island)	Clay soils in cismontane woodland, valley and foothill grassland; 49–3,937'	Low; no occurrences within 10 mi. of project area and suitable microhabitat may not be present
Dissected-leaved toothwort <i>Cardamine pachystigma</i> var. <i>dissectifolia</i>	-/-/3	Feb–May	North Coast, Sacramento Valley in Butte, Glenn, Mendocino, Placer, Sonoma, and Tehama Counties	Chaparral, lower montane coniferous forest, typically in serpentine or rocky soils; 837–6,890'	None; project area occurs outside species elevation range
Brown fox sedge <i>Carex vulpinoidea</i>	-/-/2.2	May–Jun	Scattered occurrences from Siskiyou to Los Angeles Counties	Freshwater marshes and swamps, riparian woodland; 98–3,937'	High; occurs in project area and nearest CNDDDB record is ~3 mi. away
Pink creamsacs <i>Castilleja rubicundula</i> ssp. <i>rubicundula</i>	-/-/1B.2	Apr–Jun	Scattered occurrences in the southern Inner North Coast Ranges from Shasta to Santa Clara Counties	Serpentine soils in chaparral, valley and foothill grassland, cismontane woodland, meadows and seeps; 66–2,953'	Moderate; nearest occurrence is ~3.5mi. away and suitable microhabitat (i.e., serpentine) may not be present
Hoover's spurge <i>Chamaesyce hooveri</i>	T/-/1B.2	Jul–Sep (uncommonly Oct)	Scattered occurrences in the Central Valley from Tehama to Tulare Counties	Vernal pools; 82–820'	Low; no occurrences within 10 mi. of project area
Brandegees clarkia <i>Clarkia biloba</i> ssp. <i>brandegeae</i>	-/-/1B.2	May–Jul	Northern Sierra Nevada foothills from Butte to El Dorado Counties	Chaparral, cismontane woodland, often on roadcuts; 968–2,903'	None; project area occurs outside species elevation range
Mosquin's clarkia <i>Clarkia mosquinii</i>	-/-/1B.1	May–Jul	Northern Sierra Nevada foothills in vicinity of Feather River Canyon near Pulga in northeast Butte County	Rocky, roadside areas in cismontane woodland and lower montane coniferous forest; 607–3,838'	None; project area occurs outside species elevation range
Recurved larkspur <i>Delphinium recurvatum</i>	-/-/1B.2	Mar–May	Central Valley from Colusa* to Kern Counties	Alkaline soils in valley and foothill grassland, saltbush scrub, cismontane woodland; below 2,460'	Low; no occurrences within 10 mi. of project area and suitable microhabitat may not be present
Dwarf downingia <i>Downingia pusilla</i>	-/-/2.2	Mar–May	Inner North Coast Ranges, southern Sacramento Valley, northern and central San Joaquin Valley	Mesic areas in valley and foothill grassland, vernal pools; below 1,460'	High; suitable habitat and microhabitat present and nearest occurrence is ~4mi. away

Common and Scientific Name	Legal Status ^a		Geographic Distribution/California Floristic Province ^c	Habitat Requirements ^b	Potential for Occurrence ^d
	Federal/State/CNPS	Blooming Period ^b			
Butte County fritillary <i>Fritillaria eastwoodiae</i>	-/-/3.2	Mar–May	Sierra Nevada foothills from Shasta to Yuba Counties	Chaparral, cismontane woodland, and openings in lower montane coniferous forest, sometimes on serpentine; 164–4,921'	Moderate; nearest occurrence is ~6mi. away and suitable microhabitat (i.e., serpentine) may not be present
Adobe-lily <i>Fritillaria pluriflora</i>	-/-/1B.2	Feb–Apr	Northern Sierra Nevada foothills, Inner North Coast Ranges, edges of Sacramento Valley	Often adobe soils in chaparral, cismontane woodland, valley and foothill grassland; 197–2,313'	Low; no occurrences within 10 mi. of project area and suitable microhabitat may not be present
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	-/E/1B.2	Apr–Aug	Inner North Coast Ranges, central Sierra Nevada foothills, Sacramento Valley, Modoc Plateau	Marshes and swamps along lake margins, vernal pools on clay soils; 33–7,792'	Low; no occurrences within 10 mi. of project area
Rose-mallow <i>Hibiscus lasiocarpus</i>	-/-/2.2	Jun–Sep	Central and southern Sacramento Valley, deltaic Central Valley, and elsewhere in the U.S.	Freshwater marshes and swamps; below 394'	High; suitable habitat present and nearest occurrence is ~5.5mi. away
Ahart's dwarf rush <i>Juncus leiospermus</i> var. <i>ahartii</i>	-/-/1B.2	Mar–May	Eastern Sacramento Valley, northeastern San Joaquin Valley with occurrences in Butte, Calaveras, Placer, Sacramento, and Yuba Counties	Wet areas in valley and foothill grassland, vernal pool margins; 98–328'	High; suitable habitat present and nearest occurrence is ~1.5mi. away
Red Bluff dwarf rush <i>Juncus leiospermus</i> var. <i>leiospermus</i>	-/-/1B.1	Mar–May	Scattered occurrences in the northern Sacramento Valley, Cascade Range foothills from Shasta to Placer Counties	Vernally mesic areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; 115–3,346'	Low; no occurrences within 10 mi. of project area
Legenere <i>Legenere limosa</i>	-/-/1B.1	May–Jun	Sacramento Valley, North Coast Ranges, northern San Joaquin Valley and Santa Cruz mountains.	Vernal pools; below 2,887'	High; suitable habitat present and nearest occurrence is ~4mi. away
Butte County meadowfoam <i>Limnanthes floccosa</i> ssp. <i>californica</i>	E/E/1B.1	Mar–May	Endemic to Butte County	Wet areas in valley and foothill grassland, vernal pools and swales; 164–3,051'	High; suitable habitat present and nearest occurrence is ~8mi. away

Common and Scientific Name	Legal Status ^a		Geographic Distribution/California Floristic Province ^c	Habitat Requirements ^b	Potential for Occurrence ^d
	Federal/State/CNPS	Blooming Period ^b			
Veiny monardella <i>Monardella douglasii</i> ssp. <i>venosa</i>	-/-/1B.1	Mar–Jul	Occurrences in the northern and central Sierra Nevada foothills; also historically known from the Sacramento Valley	Clay soils in cismontane woodland, valley and foothill grassland; 197–1,345'	Low; no occurrences within 10 mi. of project area and suitable microhabitat (i.e., clay) may not be present
Baker's navarretia <i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	-/-/1B.1	Apr–Jul	Inner North Coast Ranges, western Sacramento Valley	Mesic areas in cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools; 16–5,709'	High; suitable habitat present and nearest occurrence is ~8.5mi. away
Hairy Orcutt grass <i>Orcuttia pilosa</i>	E/E/1B.1	May–Sep	Scattered locations along east edge of Central Valley and adjacent foothills from Tehama to Merced Counties	Vernal pools; 180–656'	Low; no occurrences within 10 mi. of project area
Slender Orcutt grass <i>Orcuttia tenuis</i>	T/E/1B.1	May–Oct	Sierra Nevada and Cascade Range foothills from Siskiyou to Sacramento Counties	Vernal pools; 115–5,774'	Low; no occurrences within 10 mi. of project area
Ahart's paronychia <i>Paronychia ahartii</i>	-/-/1B.1	Mar–Jun	Northern Central Valley in Butte, Shasta, and Tehama Counties	Cismontane woodland, valley and foothill grassland, vernal pools; 98–1,673'	High; suitable habitat present and nearest occurrence is ~1.5mi. away
Hartweg's golden sunburst <i>Pseudobahia bahiifolia</i>	E/E/1B.1	Mar–Apr	Scattered occurrences in the central Sierra Nevada foothills and eastern San Joaquin Valley from Yuba* to Madera Counties	Clay, often acidic soils in cismontane woodland, valley and foothill grassland; 49–492'	Moderate; nearest occurrence is ~2mi. away but suitable microhabitat (i.e., clay or acidic soils) may not be present
Sanford's arrowhead <i>Sagittaria sanfordii</i>	-/-/1B.2	May–Oct	Scattered locations in Central Valley and Coast Ranges	Freshwater marshes, sloughs, canals, and other slow-moving water habitats; below 2,132'	High; suitable habitat present and nearest occurrence is ~6mi. away
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>	-/-/2.1	May–Sep	Scattered locations in the Central Valley and Southern Coast; Texas, northeastern Mexico	Floodplains, moist places, on alkaline soils, below 1,500'	Low; no occurrences within 10 mi. of project area and suitable microhabitat may not be present
Butte County golden clover <i>Trifolium jokerstii</i>	-/-/1B.2	Jun–Aug	Endemic to Butte County	Wet areas in valley and foothills grassland, vernal pools; 164–1,263'	High; suitable habitat present and nearest occurrence is ~7mi. away
Greene's tuctoria <i>Tuctoria greenei</i>	E/R/1B.1	May–Sep	Scattered distribution along eastern Central Valley and foothills from Shasta to Tulare Counties	Dry vernal pools; 98–3,510'	Low; no occurrences within 10 mi. of project area

^a Status explanations:

- Federal**
- E = listed as endangered under the federal Endangered Species Act.
 - T = listed as threatened under the federal Endangered Species Act.
 - = no listing.
- State**
- E = listed as endangered under the California Endangered Species Act.
 - T = listed as threatened under the California Endangered Species Act.
 - R = listed as rare under the California Native Plant Protection Act (this category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation)
 - = no listing.
- California Native Plant Society**
- 1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
 - 2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere
 - 3 = List 3 species: plants about which more information is needed to determine their status.
 - 0.1 = seriously endangered in California
 - 0.2 = fairly endangered in California
 - = no listing.
 - * = known populations believed extirpated from that County

^bAs reported in the 2008 CNPS online *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2008)

^cAs indicated in the Jepson Manual (Hickman 1993) and CNPS 2008 online *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2008)

^dPotential for Occurrence definitions:

High: Known CNDDDB occurrence of plant in region, or other documents in the project vicinity; or presence of suitable habitat conditions and suitable microhabitat conditions.

Moderate: Known CNDDDB occurrence of plant in region or reported in other documents in the project vicinity; or presence of suitable habitat conditions but not suitable microhabitat conditions.

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

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

Table 4.4-2. Special-Status Wildlife Species Identified as Having the Potential to Occur in the Study Area

Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	E/--	Northern two-thirds of the Central Valley floor. Disjunct occurrences in Solano, Merced, Stanislaus, Tehama, Butte, and Glenn Counties.	Large, deep vernal pools or playas with relatively long ponding duration. Associated with large areas of annual grasslands supporting vernal pools and swales.	Low; Nearest occurrence located greater than miles north of the study area; Species does not occur in two suitable habitat features observed in the study area.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/--	Central Valley and central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County.	Common in vernal pools and other ephemeral wetlands in annual grassland; also found in sandstone rock outcrop pools.	High; Several occurrences within 5-miles of the study area. Suitable habitat present in study area.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E/--	Shasta County south to Merced County	Vernal pools, seasonal wetlands, and ephemeral stock ponds in annual grassland. Also occurs locally in railroad right-of-way pools and roadside ditches.	High; Observed in several pools within the study area. Suitable habitat present in study area.
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T/--	Stream side habitats below 3,000 feet throughout the Central Valley. Largest known populations are associated with the Sacramento River, American River, San Joaquin River, and Putah Creek watersheds.	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant for larvae and primary food source for adults.	High; Several occurrences in or near the Feather River, Bear River, Yuba River, Honcut Creek, and Wilson Creek drainages. Suitable habitat present in the study area.
Green Sturgeon <i>Acipenser medirostris</i>	T/SSC	Marine from British Columbia to the Bering sea; spawns in lower reaches of large rivers from British Columbia to San Francisco Bay. In Central Valley, Sacramento River upstream of Hamilton City to Keswick Dam and possibly lower Feather River.	Adults migrate into large rivers between late February and July and spawn between March and July. Young rear near the spawning ground and appear to remain in the river through the first winter. Food sources are benthic invertebrates and small fish.	Low; May occur in Feather River although spawning population has not been confirmed. Suitable habitat occurs in the study area at the Feather River crossing only.
Steelhead, Central Valley <i>Oncorhynchus mykiss irideus</i>	T/SSC	California coastal and Central Valley drainages; recent declines in the tributaries of the Sacramento River.	Occurs in well-oxygenated, cool, riverine habitat. Adults typically spawn on gravel bars from December through April. Young spend at least 1-year in fresh water, migrate to marine habitats, and return to the natal stream at 3- or 4-years-old. Young feed primarily on benthic invertebrates.	Low; May occur in lower Feather River, Yuba River, Bear River, Honcut Creek, and Wyandotte Creek from July through March; suitable habitat occurs in the study area at these drainage crossings.

Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Spring-run chinook salmon, Central Valley <i>Oncorhynchus tshawytscha</i>	T/SSC	Wild populations in the Sacramento River and its tributaries, including the Yuba River, Mill Creek, Deer Creek, and Butte Creek. Feather River spring-run salmon are primarily hatchery fish. Critical habitat is designated in the Feather River up to Lake Oroville, the lower Yuba River, and the lower Bear River.	Adults migrate into the Sacramento River from April through June, remaining in deep water habitats until eggs develop. Spawning occurs upstream from mid-August through early October.	Moderate; Known to occur in the lower Yuba River. Suitable migration habitat in the study area located within in the Yuba River.
Winter-run Chinook salmon, Sacramento River <i>Oncorhynchus tshawytscha</i>	E/E	Mainstem Sacramento River below Keswick Dam.	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools.	Low; Not known to occur in rivers spanned by the project; Potentially suitable habitat is present in Yuba River.
California tiger salamander <i>Ambystoma californiense</i> (=A. tigrinum c.)	T/SSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County.	Small ponds, lakes, or vernal pools in grass-lands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy	Low; No known occurrences within 10-miles of study area. Suitable habitat is present.
Western spadefoot <i>Scaphiopus hammondi</i>	--/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands.	Moderate; Known occurrence within 3-miles of study area near Wyandote Creek. Suitable habitat is present.
Foothill yellow-legged frog <i>Rana boylei</i>	--/SSC	Occurs in the Klamath, Cascade, north Coast, south Coast, Transverse, and Sierra Nevada Ranges up to approximately 6,000 feet	Creeks or rivers in woodland, forest, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along the edge. Usually found near riffles with rocks and sunny banks nearby.	Low; No known occurrences within 10-miles of study area. Suitable habitat present along Wyman Ravine near Palermo.
California red-legged frog <i>Rana aurora draytoni</i>	T/SSC	Found along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehema County to Fresno County.	Permanent and semipermanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation. May estivate in rodent burrows or cracks during dry periods.	Low; No known occurrences within 10-miles of study area. Suitable habitat present in study area. Possibly extirpated from Central Valley floor.

Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Western pond turtle <i>Actinemmys marmorata</i>	--/SSC	Occurs from the Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests	High; Several known occurrences in Yuba River, Feather River, Dry Creek, and Wyandotte Creek drainages within 10-miles of the study area. Suitable habitat is present in the study area near the Yuba and Bear Rivers, Honcut and Wyandotte Creeks, and Wyman Ravine.
California horned lizard <i>Phrynosoma coronatum frontale</i>	--/SSC	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging	Moderate; Nearest known occurrence located greater than 10-miles north of project. Suitable habitat present in the study area.
Giant garter snake <i>Thamnophis couchi gigas</i>	T/T	Central Valley from the vicinity of Burrell in Fresno County north to near Chico in Butte County; has been extirpated from areas south of Fresno	Sloughs, canals, low gradient streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter	Moderate; Several known occurrences located within 5-miles of the study area. A significant population associated with Feather River and Cross Canal occurs south of the project. Suitable aquatic habitat is present in several sloughs and rice fields in the study area.
Least bittern <i>Lxobrychus exilis (nesting)</i>	--/SSC	Permanent resident along the Colorado River and Salton Sea and in isolated areas of Imperial, San Diego, and Los Angeles Counties; summers in marshlands of Yolo and Sutter Counties, at Tulare Lake, and in parts of Fresno, Merced, Madera, Siskiyou, and Modoc Counties	Marshes and along pond edges where tule and rushes provide cover; nests are built over water and low in thick tule.	Low; No record of nesting within 10-miles of study area. Freshwater marsh and small stands of tule in the study area provide low quality nesting habitat.
White-faced ibis <i>Plegadis chihi (rookery site)</i>	--/SSC	Both resident and winter populations on the Salton Sea and in isolated areas in Imperial, San Diego, Ventura, and Fresno Counties; breeds at Honey Lake, Lassen County, at Mendota Wildlife Management Area, Fresno County, and near Woodland, Yolo County; win	Prefers freshwater marshes with tules, cattails, and rushes, but may nest in trees and forage in flooded agricultural fields, especially flooded rice fields	Low; Adult birds observed in project region; no record of rookery site reported within 10-miles of the study area. Freshwater marsh and stands of tule in the study area provide low quality habitat for rookeries.
White-tailed kite <i>Elanus leucurus</i>	--/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	High; Observed foraging in study area. Suitable nesting habitat present in the study area; potential nests observed within 0.5-mile of the project.

Table 4.4-2. Continued

Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Northern harrier <i>Circus cyaneus</i>	--/SSC	Occurs throughout lowland California. Has been recorded in fall at high elevations	Grasslands, meadows, marshes, and seasonal and agricultural wetlands	High; Observed foraging in study area. Suitable nesting and foraging habitat is present.
Swainson's hawk <i>Buteo swainsoni</i>	--/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields	High; Known to occur in the study area; over 100 records of nesting activity and additional records of foraging reported within 10-miles of the project area since 1979. Suitable nesting and foraging habitat is present.
Golden eagle <i>Aquila chrysaetos</i>	--/FP	Foothills and mountains throughout California. Uncommon nonbreeding visitor to lowlands such as the Central Valley	Nest on cliffs and escarpments or in tall trees overlooking open country. Forages in annual grasslands, chaparral, and oak woodlands with plentiful medium and large-sized mammals	Low; No records of occurrence reported from within 10-miles of the study area. Suitable foraging habitat in study area.
Bald eagle <i>Haliaeetus leucocephalus</i>	--/E, FP	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County	In western North America, nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean	Moderate; Reported to nest at Lake Oroville, approximately 8-miles north of the study area. Low quality foraging habitat is present at river crossings within the study area.
California black rail <i>Laterallus jamaicensis coturniculus</i>	--/T, FP	Permanent resident in the San Francisco Bay and east-ward through the Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties	Tidal salt marshes associated with heavy growth of pickleweed; also occurs in brackish marshes or freshwater marshes at low elevations	Low; No records of occurrence reported within 10-miles of the study area. No suitable habitat present.
Greater sandhill crane <i>Grus canadensis tabida</i>	--/T, FP	Breeds in Siskiyou, Modoc, Lassen, Plumas, and Sierra Counties. Winters in the Central Valley, southern Imperial County, Lake Havasu National Wildlife Refuge, and the Colorado River Indian Reserve	Summers in open terrain near shallow lakes or freshwater marshes. Winters in plains and valleys near bodies of fresh water	Low; Not observed in study area. Suitable wintering habitat present in fields and marshes located in and adjacent to the study area. Three female specimens were collected from near Gridley in 1924.

Table 4.4-2. Continued

Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	C/E	Nests along the upper Sacramento, lower Feather, south fork of the Kern, Amargosa, Santa Ana, and Colorado Rivers	Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant	Low; Historic records of occurrence reported from the Feather River near Marysville; most recent observation in this vicinity was reported in 1986. Low quality suitable habitat may be present in riparian forest along the Bear River, Yuba River, and Honcut Creeks.
Western burrowing owl <i>Athene cucicularia hypugea</i>	--/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast.	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows.	High; CNDDDB reports 4 records of burrowing owl observations within 10-miles of the study area. Active burrows not observed in study; Suitable foraging, wintering, and breeding habitat are present in annual grasslands.
Long-eared owl <i>Asio otus</i>	--/SSC	Permanent resident east of the Cascade Range from Placer County north to the Oregon border, east of the Sierra Nevada from Alpine County to Inyo County. Scattered breeding populations along the coast and in southeastern California. Winters throughout the Central Valley and southeastern California	Nests in abandoned crow, hawk, or magpie nests, usually in dense riparian stands of willows, cottonwoods, live oaks, or conifers	Low; No records of observation reported within 10-miles of study area. Low quality wintering habitat present.
Loggerhead shrike <i>Lanius ludovicianus</i>	--/SSC	Resident and winter visitor in lowlands and foothills throughout California. Rare on coastal slope north of Mendocino County, occurring only in winter.	Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	High; One observation of a breeding pair reported from along Gold Run Creek, approximately 10-miles northwest of the study area. Suitable habitat is present.
Bank swallow <i>Riparia riparia</i>	--/T	Occurs along the Sacramento River from Tehama County to Sacramento County, along the Feather and lower American Rivers, in the Owens Valley; and in the plains east of the Cascade Range in Modoc, Lassen, and northern Siskiyou Counties. Small populations near the coast from San Francisco County to Monterey County	Nests in bluffs or banks, usually adjacent to water, where the soil consists of sand or sandy loam	Moderate; CNDDDB reports 34 records of observations within 10-miles of the study area. Low quality suitable habitat may be present at river crossings.

Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Yellow warbler <i>Dendroica petechia</i>	--/SSC	Nests over all of California except the Central Valley, the Mojave Desert region, and high altitudes in the Sierra Nevada. Winters along the Colorado River and in parts of Imperial and Riverside Counties	Nests in riparian areas dominated by willows, cottonwoods, sycamores, or alders or in mature chaparral; may also use oaks, conifers, and urban areas near stream courses	Moderate; One record of observation reported from approximately 10-miles northwest of the study area. Low quality suitable habitat may be present in riparian forest along river crossings.
Grasshopper Sparrow <i>Ammodramus savannarum</i>	--/SSC	Breeds locally from Del Norte, Trinity, and Tehama counties south, west of the Cascade-Sierra Nevada axis and southeastern deserts to San Diego County; from sea level to 4900 feet. Rare breeder in the Shasta Valley, Siskiyou County and on the valley floor in the Central Valley.	Prefer large tracts of short to middle height, moderately open grasslands with scattered shrubs.	Low; No records of observation within 10-miles of study area. Suitable habitat is present.
Tricolored blackbird <i>Agelaius tricolor</i>	--/SSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony	Moderate; CNDDDB reports 20 records of occurrence within 10-miles of the study area, of which only 7 are presumed extant. Low quality habitat suitable for relatively small colonies is present.
Pallid bat <i>Antrozous pallidus</i>	--/SSC	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts	Low; no records of occurrence reported within 10-miles of study area. Low quality suitable habitat may be present.
Western red bat <i>Lasiurus blossevillii</i>	--/SSC	Scattered throughout much of California at lower elevations	Found primarily in riparian and wooded habitats. Occurs at least seasonally in urban areas. Day roosts in trees within the foliage. Found in fruit orchards and sycamore riparian habitats in the central valley	Moderate; One record of observation reported from the Sacramento River approximately 10-miles southwest of the study area. Low quality suitable habitat may be present.

Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Western mastiff bat <i>Eumops perotis californicus</i>	--/SSC	Southwestern United States and central Mexico. In California, the species has been observed roosting up to 1,300 feet and foraging at > 8,800 feet. The distribution of <i>E. perotis</i> is likely geomorphically determined, with the species being present only where there are significant rock features offering suitable roosting habitat.	Although most frequently encountered in broad open areas, the species occurs in a variety of habitats: dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, montane meadows, and agricultural areas.	Moderate; CNDDDB reports three records of occurrence from near Oroville, approximately 6 miles north of the study area. Low quality suitable habitat may be present.

Status explanations:**Federal**

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

State

- E = listed as endangered under the California Endangered Species Act.
T = listed as threatened under the California Endangered Species Act.
FP = fully protected under the California Fish and Game Code.
SSC = species of special concern in California.
— = no listing.

Potential Occurrence in the Study Area

- High: Known occurrences of the species within the study area; or California Natural Diversity Database, or other documents, reports occurrence of the species within a 10-mile radius of the study area. Suitable habitat is present within the study area.
- Moderate: California Natural Diversity Database, or other documents, reports known occurrence of the species within a 10-mile radius of the study area. Poor quality suitable habitat is present within the study area.
- Low: California Natural Diversity Database, or other documents, does not record the occurrence of the species within a 10-mile radius of the study area. Suitable habitat is present within the study area.

March through early June. During this time, adult beetles mate and lay eggs on living elderberry shrubs. Larvae then bore through the stems of the shrubs and feed through a chamber in the center of the stem. After maturing for one or two years, the larvae chew a hole to the stem surface and return to the chamber to pupate and undergo metamorphosis. When ready, the adult beetle emerges through the circular exit hole (Barr 1991).

Adult VELB and characteristic exit holes, formed when the adult emerges, have been observed in both riparian habitats and savanna habitats adjacent to riparian vegetation (Collinge et al. 2001). VELB utilize both red, or Mexican, elderberry (*Sambucus mexicana*) and blue elderberry (*Sambucus racemosa* var. *microbtrys*) and does not seem to prefer one over the other (Barr 1991). Elderberry co-occurs with other riparian woody plants, including Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), various willows (*Salix spp.*), wild grape (*Vitis californica*), blackberry (*Rubus spp.*), and poison oak (*Toxicodendron diversilobum*) (U.S. Fish and Wildlife Service 1984; Collinge et al. 2001).

CNDDDB reports 22 records of VELB occurrence from within three miles of the proposed project area (2008). Several suitable elderberry shrubs occur in the study area. Based on the results of field surveys, 26 shrubs or clumps of shrubs are located within 20 feet of the project area and another 58 shrubs or clusters are located within 100 feet of the proposed project area (see Appendix B-1). No evidence of VELB occupation (exit holes, chewing pattern, or adult beetles) was observed during the field surveys.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp is federally listed as a threatened species under the ESA. Vernal pool fairy shrimp occur in vernal pools and small ephemeral wetlands in annual grasslands of the California Central Valley and southern Oregon. Disjunct populations of the species also occur in the southern Coast Ranges and as far south as Riverside County (Eriksen and Belk 1999).

Vernal pool fairy shrimp completes its entire life cycle within vernal pool habitats and are therefore dependent on suitable habitat and sufficient seasonal rains for survival. This species is able to hatch, grow to maturity, and successfully reproduce in as few as 18 days, allowing it to inhabit the most ephemeral of seasonal wetlands (Helm 1998). Occupied habitats in the Central Valley are typically small, grass-bottomed pools with clear water approximately 5 cm–20 cm deep.

Vernal pools, railroad right-of-way pools, and other ephemeral wetlands occurring within the project area provide suitable habitat for vernal pool fairy shrimp. CNDDDB reports 18 records of vernal pool fairy shrimp occurrence within three miles of the project area (Figure 4.4-1). The species is known to occur in pools located south of the project near Catlett Road in Sutter County, east of the project near Sheridan in Sutter County and on Beale Air Force base in Yuba County, and northwest of the project near the cities of Thermalito and Shippee in Butte County. Based on the results of field surveys and aerial photograph interpretations, considerable suitable habitat occurs within 250 feet of the

existing transmission line. Approximately 19.9 acres of potential habitat for vernal pool fairy shrimp occurs within 250 feet of proposed work areas or access roads. Of these, 14.67 acres are located within 50 feet of proposed project work areas and 6.77 acres are located within 50 feet of proposed ground-disturbing construction activities (see Appendix B-2). However, no vernal pool fairy shrimp were observed during protocol-level surveys conducted from 2006 to 2008.

Conservancy Fairy Shrimp

Conservancy fairy shrimp is federally listed as an endangered species. This species is found in large vernal pools and seasonal wetlands located in grasslands of the northern two-thirds of the Central Valley of California. Conservancy fairy shrimp have been reported from scattered locations in Butte, Tehama, and Glenn counties, two sites in Solano County, and several sites in Stanislaus and Merced counties (Eriksen and Belk 1999). Although the historic range of this species likely included most of California's Central Valley floor, the species is now restricted to relatively pristine grassland communities that support high-quality vernal pool habitat.

Conservancy fairy shrimp occupy relatively large vernal pools and seasonal wetlands (from 30 m² to 4 ha) that hold water for a relatively long duration into May and June (Eriksen and Belk 1999). Conservancy fairy shrimp, like most fairy shrimp in California, are dependent upon suitable habitat that ponds water frequently and for sufficient duration to allow a population to complete the life cycle, which takes place entirely within the pool habitat.

Conservancy fairy shrimp has not been observed in the project area and CNDDDB reports no records of occurrence from within 10 miles of the project area (2008). Although one record of this species has been reported from Beale Air Force Base, approximately 6 miles east of the project area, the closest confirmed population of conservancy fairy shrimp is located approximately 23 miles west of the project area.

Several large vernal pools that meet this species' size and duration requirements are located within the project area north of Honcut Creek and just south of Central House Road. Although these features provide potentially suitable habitat conditions for conservancy fairy shrimp, protocol level surveys conducted from 2006 to 2008 demonstrated that the species does not occur in these pools. Based on the results of field surveys, a lack of historical presence, and a large distance from the project area to the closest known population, the potential for this species to occur in the project area is low.

Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp is federally listed as an endangered species under the ESA. Vernal pool tadpole shrimp ranges from Shasta County in the north to Merced County in the south, with one disjunct population in western Alameda County (Rogers 2001). Tadpole shrimp populations from southern Oregon and the Great Basin that were once thought to be *Lepidurus packardi* have been redescribed as a distinct species, *Lepidurus cryptus* (Rogers 2001).

Vernal pool tadpole shrimp populations occur in a wide variety of habitats, including vernal pools, ponded clay flats, alkaline pools, ephemeral stock tanks, roadside ditches, and road ruts (Rogers 2001; CNDDDB 2008). Habitat for this species can range from small (2 m²), vegetated vernal pools with clear water to large (up to 107 ha) winter lakes with highly turbid water and little vegetation (Helm 1998). Because vernal pool tadpole shrimp complete their entire life cycle within vernal pool habitat, the species is dependent on suitable habitat and sufficient seasonal rains for survival. This species typically requires ponding durations of greater than 41 days to grow to maturity and reproduce successfully (Helm 1998).

This species is known to occur in the study area (CNDDDB 2008). Several populations of vernal pool tadpole shrimp were observed during the 2005 habitat assessment surveys and during the 2006-2008 protocol-level surveys. The species was observed in habitats located north of Middle Honcut Road, south of Ramirez Road, and near Plumas-Arboga Road (Appendix B-2).

Further, CNDDDB reports 21 records of vernal pool tadpole shrimp occurrences within 3 miles of the project area (2008). Vernal pools, railroad right-of-way pools, and other seasonally ponded depressions within the project area provide suitable habitat for vernal pool tadpole shrimp. Several rice fields within the project area may support a hydrologic regime capable of supporting vernal pool tadpole shrimp; however, these fields are managed for agricultural uses and provide no ecologic value to the species.

Many of the potential habitat features observed in the study area are best classified as railroad right-of-way pools because they are located in a depression between the railroad and a parallel road or agricultural ditch. Although these habitat features are artificial in origin, they provide suitable hydrologic conditions and often support vernal pool tadpole shrimp and other crustaceans. Further, habitat features located on engineered soils resulting from railroad or road construction are less sensitive than many native vernal pools would be to indirect impacts from ground disturbances. Where proposed construction activities do not occur in these features, the habitat will likely continue to provide the same ecologic values as they do currently.

Based on the results of field surveys and aerial photograph interpretations, potential habitat for vernal pool tadpole shrimp occurs within 250 feet of the project area. Approximately 19.9-acres of potential habitat for vernal pool tadpole shrimp occur within 250 feet of proposed work areas or access roads. Of these, 14.67-acres are located within 50 feet of proposed project work areas and 6.77 acres are located within 50 feet of proposed ground-disturbing construction activities (Appendix B-2).

California Red-legged Frog

The California red-legged frog (*Rana aurora draytonii*) is federally listed as threatened under ESA and is a California species of special concern. Critical habitat was designated by USFWS on April 13, 2006; but the project area does not fall within critical habitat (USFWS 2006a). The California red-legged frog is one of two subspecies of red-legged frog (*Rana aurora*) found on the Pacific

coast. The historical range of California red-legged frog extended coastally from the vicinity of Point Reyes National Seashore in Marin County and inland from near Redding, southward to northwestern Baja California. Its current range consists of isolated locations in the Sierra Nevada and North Coast and northern Transverse Ranges. The species may have been extirpated from historic sites in the Central Valley floor due to habitat reduction and the introduction of bullfrog (*Rana catesbeiana*) and predatory fish. It is still relatively common in the San Francisco Bay area and along the central coast of California (USFWS 2002).

Red-legged frogs use a variety of aquatic, riparian, and upland habitat types. However, some individuals may complete their entire life cycle in a pond or other aquatic site that is suitable for all life stages. Red-legged frogs require cool-water habitats, including pools, streams, and ponds, with emergent and submergent vegetation. Red-legged frogs are found in habitats with deep (at least 2.3 feet [0.7 m]) and still or slow-moving water; and vegetation consisting of willows, tules, or cattails. Juvenile frogs seem to favor open, shallow aquatic habitats with dense submergent vegetation. Although red-legged frogs can inhabit either ephemeral or permanent streams or ponds, populations probably cannot persist in ephemeral streams in which all surface water disappears (Jennings and Hayes 1994, USFWS 2002).

As adults, red-legged frogs are highly aquatic when active but depend less on permanent water bodies than do other frog species. Adults may take refuge during dry periods in rodent holes or leaf litter in riparian habitats. Although red-legged frogs typically remain near streams or ponds, marked and radio-tagged frogs have been observed to move more than 2 miles (3.2 km) through upland habitat (USFWS 2002). These movements are typically along riparian corridors. However, some individuals move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas, especially on rainy nights (Fellers and Kleeman 2007).

Suitable habitat for red-legged frogs potentially includes all aquatic, riparian, and upland areas within the range of the species and includes any landscape features that provide cover, such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or hay stacks also may be used. Accessibility to sheltering habitat is essential for the survival of red-legged frogs within a watershed and can be a factor limiting frog population numbers and survival (Fellers and Kleeman 2007).

No records of California red-legged frog have been reported from within 10 miles of the project area (CNDDDB 2008). Protocol field surveys conducted by PG&E in 1998 for the Rock Creek to Cresta project included the northern extent of the project area, near Palermo Substation, and potential habitat areas located approximately 0.5 mile east of the project area from Palermo south to the Rio Oso Substation; no California red-legged frogs were observed (PG&E 1998). Because the project area is located on the valley floor, it is likely this species has been extirpated from the area. Although suitable breeding habitat may be present in several sloughs, marshes, and stock ponds in the study area, the potential for this species to occur in the project area is low.

California Tiger Salamander

The central population of California tiger salamander is federally listed as threatened under ESA. Distinct population segments in Santa Barbara and Sonoma Counties are federally listed as endangered. California tiger salamander is also a California species of special concern. Critical habitat was designated on August 23, 2005, but the project area does not fall within any designated critical habitat (USFWS 2005). The species is endemic to the San Joaquin–Sacramento River valleys, bordering foothills, and coastal valleys of central California. The species' range is from Sonoma County and the Colusa–Yolo County line south to Santa Barbara County in the Coast Ranges and from southern Sacramento County south to Tulare County in the Central Valley (Jennings and Hayes 1994). Historically, a population of California tiger salamander occurred at Gray Lodge Wildlife Refuge in Butte County.

The California tiger salamander is a lowland species restricted to annual grasslands and foothill oak savanna regions where its breeding habitat occurs. Breeding habitat consists of temporary ponds or pools, some permanent waters, and rarely slower portions of streams. Permanent aquatic sites are unlikely to be used for breeding unless they lack predators. California tiger salamanders also require dry-season refuge sites in the vicinity of breeding sites. California ground squirrel burrows are important dry-season refuge sites for adults and juveniles (DFG 2006).

Adult California tiger salamanders move from subterranean burrow sites to breeding pools during November–February after warm winter and spring rains. Eggs are laid in January–February at the height of the rainy season. Nine to 12 weeks are needed to complete development through metamorphosis. During winter, California tiger salamanders take refuge in damp places near the surface of the ground during the day and emerge at night to forage. During dry weather, these salamanders take refuge in ground squirrel burrows, crevices in the soil, or in other burrows. California tiger salamanders are known to travel large distances from breeding ponds into upland habitats. One study found that 20%–25% of individuals captured at one pond were recaptured at ponds approximately 1,900 and 2,200 feet away (Trenham et al. 2001).

In addition to traveling long distances during migration to or from ponds, tiger salamanders may reside in burrows that are a far distance from ponds. Dry-season refuge sites within one mile of suitable breeding habitat are likely a necessary requirement because this species is absent from sites with seemingly suitable breeding habitat where surrounding upland habitats are lacking in small mammal burrows (Jennings and Hayes 1994).

No records of California tiger salamander have been reported from within 10 miles of the project area (CNDDDB 2008). Although suitable breeding habitat and associated uplands are present in the study area, the project is located north of the current range of California tiger salamander. The potential for this listed species to occur in the project area is low.

Western Spadefoot

Western spadefoot is a California species of special concern. The range of this species is distributed among the Sierra Nevada foothills, Central Valley, Coast Ranges, and coastal counties in southern California (Jennings and Hayes 1994).

Western spadefoot can be found in dry grassland habitat close to seasonal wetlands such as vernal pool complexes, typically near extensive areas of friable (but usually not sandy) soil. They require seasonal wetlands for reproduction and metamorphosis. Adult western spadefoots spend most of the year in self-excavated underground retreats and possibly in mammal burrows (Stebbins 2003). They emerge from underground retreats during heavy rains in autumn and winter, and spawn in seasonal wetlands—such as vernal pools—in late winter or early spring (Jennings and Hayes 1994).

CNDDDB reports two records of western spadefoot occurrences from within 10 miles of the project area (2008). One record of occurrence was reported in 1993 from near Pleasant Grove, approximately 10 miles southeast of the project area. The second record of occurrence was reported in 1953 from southeast of Palermo, approximately three miles from the project area. Approximately 76.3 acres of seasonal wetlands and 23.0 acres of vernal pools that occur in the study area may provide suitable breeding habitat for western spadefoots. Annual grasslands located adjacent to the study area could be used by western spadefoot as aestivating habitat.

Giant Garter Snake

The giant garter snake is federally listed as threatened under ESA and state listed as threatened under CESA. The species occurs in the Central Valley of California from Fresno County in the south to Butte County in the north. Although giant garter snakes historically ranged throughout the Central Valley, recent sightings of giant garter snake in the San Joaquin valley are rare and the species has likely been extirpated from habitats south of Fresno County.

Typical aquatic habitat for giant garter snake consists of marshes and agricultural wetlands or waterways such as rice fields, irrigation and drainage canals, sloughs, ponds, small lakes, and low gradient streams. Suitable habitat for giant garter snake must have adequate water from early-spring through mid-fall to provide foraging habitat, emergent vegetation to provide cover, grassy banks or openings in the vegetation to provide basking sites, and higher elevation uplands to provide winter aestivation sites and refuge from flooding. During the winter dormancy period, the species inhabits small mammal burrows and soil crevices located above the flood elevation (USFWS 2008).

CNDDDB reports 47 records of giant garter snake occurrence within 10 miles of the study area. The closest known occurrence to the project area was reported from Ping Slough, near the town of Nicolaus. A significant population of the species is associated with habitat along the Cross Canal between the Feather River and the East Side Canal, which are located approximately 5 miles south of the project area. In the study area, potential giant garter snake habitat occurs in rice fields, sloughs, agricultural ditches, canals, and the surrounding upland areas. Approximately 109.7 acres of suitable rice habitat, 56.25 acres of suitable aquatic

habitat, and 108.37 acres of associated upland habitats were identified in the study area (Appendix B-3).

California Horned Lizard

The California horned lizard (*Phrynosoma coronatum frontale*) is a California species of special concern. This species occurs throughout the Central Valley and Coast Ranges from Shasta County south to Los Angeles, Ventura, and Santa Barbara Counties (Stebbins 2003). California horned lizards occur in a variety of habitats, including clearings in riparian woodlands, chamise chaparral, and grasslands with loose, friable soils.

During periods of inactivity, California horned lizards utilize small mammal burrows or burrow into loose soils under surface objects (Jennings and Hayes 1994). No California horned lizards have been reported within 10 miles of the project area (CNDDDB 2008), and none were observed during the field surveys. The closest known record of occurrence was reported in 2002 from approximately 10.5 miles north of the project area. Several seasonal washes located within the Yuba River floodplain support sandy soils that provide suitable habitat for this species. Grassland habitats in the project area also may provide potential habitat for California horned lizards.

Western Pond Turtle

The western pond turtle (*Clemmys marmorata*) is a California species of special concern. Western pond turtle is the only turtle native to California (DFG 2006). It was found historically in most Pacific slope drainages between the Oregon and Mexican borders. It is still found in suitable river, stream, and pond habitats located west of the Sierra-Cascade crest (Jennings and Hayes 1994).

Western pond turtles require some slow-water aquatic habitat and are uncommon in high-gradient streams (Jennings and Hayes 1994). The banks of inhabited waters usually have thick vegetation, and basking sites such as logs, rocks, or open banks must also be present (DFG 2008). Depending on the latitude, elevation, and habitat type, western pond turtles may become inactive over winter or remain active year-round. Nest sites are typically found on unshaded slopes with high clay or silt composition (Jennings and Hayes 1994). Eggs are laid from March to August, depending on local conditions; and incubation lasts from 73 to 80 days. Western pond turtles are omnivorous and feed on aquatic plant material, aquatic invertebrates, fishes, frogs, and carrion (DFG 2008).

CNDDDB reports 11 records of western pond turtle occurrence from within 10 miles of the project area (2008). In the project vicinity, western pond turtle has been observed in the Feather River, Yuba River, Dry Creek, and Wyandotte Creek drainages. Slow-water aquatic habitat in rivers, streams, and ponds located along the existing transmission line provide suitable habitat for western pond turtle.

Bank Swallow

The bank swallow (*Riparia riparia*) is state listed as threatened under CESA. The bank swallow historically occurred along the rivers of central and southern California; however, the current range has been reduced by 50% since 1900 and

the species has likely been extirpated from southern California. Today, the greatest numbers of bank swallows occur along the banks of the Sacramento River (DFG 2005).

Bank swallow is a migrant species in California. After wintering in South America, individuals first arrive in early April and peak numbers occur in California in May. The species breeds from early May through July, with breeding activity peaking in mid-May to mid-June (DFG 2008). The number of bank swallows in California then decreases in summer and is mostly absent from California by mid-September. Numbers in the region then increases again when birds pass through on fall migration.

The bank swallow requires bluffs or banks with soft sand, sandy loam, or clay soils, often overlooking water. The species commonly mingles with other swallow species during migration.

Bank swallows or potential bank swallow nests were not observed in the study area during reconnaissance-level surveys; however, focused surveys for bank swallows have not been conducted in the study area. CNDDDB (2008) reports observations of bank swallows nesting at several locations along the Feather River west of the study area. Potential nesting habitat may occur in the study area along the banks of the Yuba River and other creeks or washes; however, due to the inherent nature of bank swallow habitat, the proposed transmission line will span suitable habitat areas and work areas will not be located on these river banks.

Tri-colored Blackbird

The tricolored blackbird (*Agelaius tricolor*) is a California species of special concern and its nests are protected under the MBTA. Tricolored blackbirds are largely endemic to California, with more than 99% of the global population occurring in the state. The largest colonies of this species can often be found in the Central Valley.

Tricolored blackbirds often nest in dense cattails or tules and in willow thickets, blackberry, California wild rose, and tall herbs. Colonies require open, accessible water; a suitable nesting substrate; and open-range foraging habitat of natural grassland, woodland, or agricultural cropland (Beedy and Hamilton III 1999). Nests are usually located a few feet above the water and nesting locations must be large enough to support a minimum of about 50 breeding pairs (DFG 2008).

CNDDDB reports 20 observations of tri-colored blackbird from within 10 miles of the study area. Although many of these historical observations were at nesting sites that have since been converted to agricultural or residential uses, recent observations have been near the study area northeast of Marysville and south of Palermo. Suitable nesting and foraging habitat is present in the study area and the species was observed during habitat surveys in 2006. High-quality habitat is concentrated in the large agricultural and wildlife management areas located north and south of Honcut Creek.

Western Burrowing Owl

The western burrowing owl is designated as a California species of special concern, and its nests are protected under the MBTA. Western burrowing owls were formerly a common permanent resident throughout much of California, but population declines were noticeable by the 1940s and have continued to the present. Farming has taken a major toll on western burrowing owl populations and their habitat by destroying nesting burrows and exposing breeders and their young to the toxic effects of pesticides (Haug 1993).

Western burrowing owls prefer open, dry, short grassland habitats with few trees and are often associated with burrowing mammals such as California ground squirrels. They typically occupy burrows abandoned by ground squirrels or other burrowing mammals, but also use artificial burrows such as abandoned pipes, culverts, and debris piles. Western burrowing owls often nest in roadside embankments, on levees, and along irrigation canals from late February through August. The species is more diurnal than most owls and often can be observed during the day, foraging or standing outside the entrance to its burrow (California Department of Fish and Game 2008a). Prey includes arthropods, amphibians, small reptiles, small mammals, and birds—particularly horned larks (Haug 1993, California Department of Fish and Game 2008a).

CNDDDB reports four observations of burrowing owl occurrence from within 10 miles of the study area. The closest known occurrence was reported from approximately five miles west of the study area near Thermalito Afterbay. Suitable nesting habitat is present along several portions of the study area. This species was observed in the northern portion of the study area (near Tower 61) in 2005, and sign was present in the same location in 2006.

Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is state listed as threatened under CESA and is protected under the MBTA. Swainson's hawks breed throughout much of the Rocky Mountains and western Great Plains from southern Alberta and Saskatchewan to northern Mexico. They spend the winter mainly in the Pampas of Argentina, but also in other South American countries, southern Mexico, California, and Florida.

In California, Swainson's hawks nest in the lower Sacramento Valley, San Joaquin Valley, Klamath Basin, and Butte Valley. The species typically uses oaks or cottonwood trees in or near riparian habitats but will also nest in oak groves, in roadside trees, and in lone trees with adequate foraging habitat nearby. Swainson's hawks commonly forage in annual grasslands, irrigated pastures, and alfalfa, hay, and grain fields. The raptor generally arrives in the Central Valley in mid-March and begins courtship and nest construction immediately after arrival at the breeding sites. The young fledge in early July, and most Swainson's hawks leave their breeding territories by late August or early September.

Swainson's hawk is known to occur in the project area. Several hawks were observed foraging in fields adjacent to the project habitat assessments and focused wildlife surveys. CNDDDB reports 112 records of occurrence from within 10 miles of the study area. Swainson's hawks have been reported to nest in

Valley oak, cottonwood, and willow trees within the study area (CNDDDB 2008). Potential nesting Swainson's hawk habitat in the study area is located in several areas: near the southernmost section of the project, near the Bear River, near the Feather River, between Upper and Lower Honcut Creeks, near Yankee Slough, and along Ping Slough. During field surveys in 2005 and 2006, biologists observed potential raptor nests within 0.5 mile of the project area that could potentially be used by Swainson's hawk.

Golden Eagle and Bald Eagle

Golden eagle is a fully protected species under California Fish and Game Code Section 3511 and is protected under the MBTA and the Bald Eagle and Golden Eagle Protection Act. Golden eagles typically inhabit open grassland areas in foothills surrounding the Central Valley. Golden eagle nests are commonly built on cliff ledges, as well as in large trees in open areas. They typically forage in open grasslands, where they prey on California ground squirrels and black-tailed jackrabbit (Kochert et al. 2002). Although suitable nesting habitat is not present, annual grasslands and grain fields in the study area provide suitable foraging habitat for golden eagles.

Bald eagle is state listed as endangered under CESA, a fully protected species under California Fish and Game Code Section 3511, and protected under the MBTA and the Bald Eagle and Golden Eagle Protection Act. Bald eagles are a permanent resident in California and primarily breed in Butte, Lake, Lassen, Modoc, Plumas, Siskiyou, and Trinity counties. This species is found in association with large bodies of water and nests in live trees with open canopy and branchwork (Zeiner et al 1990, B113). In the project vicinity, bald eagles have been documented to nest at Lake Oroville, approximately eight miles north of the study area, where a breeding pair successfully produced a fledgling in 2000 and occupied the nest in subsequent years.

White-tailed Kite, Northern Harrier, and Other Nesting Raptors

The white-tailed kite (*Elanus leucurus*) is a fully protected species under California Fish and Game Code Section 3511 and is protected under the MBTA. The species has a restricted distribution in the United States, occurring only in California and western Oregon and along the Texas coast. In California, the kite is common in lowlands of the Central Valley. White-tailed kites nest in riparian and oak woodlands and forage in nearby grasslands, pastures, agricultural fields, and wetlands. Voles and mice are common prey species.

CNDDDB reports one record a white-tailed kite nest from 2003 located in Olivehurst, approximately 0.5 mile west of the study area. Riparian corridors and wooded areas in the study area provide suitable nesting habitat and annual grasslands, rice fields, and grain fields provide foraging habitat for white-tailed kite. This species is known to occur and was observed foraging in the study area during focused wildlife surveys.

Northern harrier (*Circus cyaneus*) is a California species of special concern. Occupied nests and eggs of northern harrier are protected under MBTA. This raptor breeds in the Central Valley and foothills of the Sierra Nevada. Although the breeding population is reduced through much of the historic range, northern

harrier can be locally abundant where suitable habitat remains undisturbed by agriculture or development. Northern harriers nest on the ground in shrubby vegetation, usually near a marsh or other wetland but may also nest in grasslands or grain fields. Five records of nesting northern harrier have been reported from within 10 miles of the study area, most of which are located within Beale Air Force Base (CNDDDB 2008). This species is known to occur in the study area and was observed foraging in adjacent fields during focused wildlife surveys.

Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*A. striatus*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*B. lineatus*), American kestrel (*Falco sparverius*), turkey vulture (*Cathartes aura*), barn owl (*Tyto alba*), and great-horned owl (*Bubo virginianus*) are other migratory raptor species that are known to occur in the study area. Occupied nests and eggs of each of these bird species are protected under MBTA. A sharp-shinned hawk was observed foraging near the study area, south of the Yuba River, during focused wildlife surveys. The breeding season for most birds is generally from March 1 to August 15. Concentrations of potential raptor nests were observed primarily in the northern one-third of the study area and in the riparian corridors associated with Bear River, Yuba River, and Honcut Creeks.

Bats

Three special-status bat species were identified as potentially occurring in the study area: Pallid bat (*Antrozous pallidus*), Western red bat (*Lasiurus blossevillii*), and Western mastiff bat (*Eumops perotis californicus*). All are California species of special concern that occur throughout lower elevation areas of California. Bridges, buildings are used for day roosts and can be used by females for maternity roosts. Pallid and Western red bats will also roost in tree cavities and often use roosting habitat located close to riparian corridors. Western mastiff bats and western red bats have been documented to occur within 10 miles of the study area (CNDDDB 2008). Bridges, road crossings, railroad trestles, and trees in the study area could provide potential roosting habitat for special-status bats.

Special-Status Fish Species

Green Sturgeon

Green sturgeon (*Acipenser medirostris*) is listed as threatened under ESA and is a California species of special concern. A Federal Register notice was published on September 8, 2008, to designate critical habitat for green sturgeon (73 FR 52084) and includes the Feather and Yuba Rivers. Although green sturgeon is an anadromous species, it is the most marine-oriented species of sturgeon and individuals are found in nearshore marine waters from Mexico to the Bering Sea (70 FR 17386). In fresh water, green sturgeon occurs in the lower reaches of large rivers from British Columbia south to San Francisco Bay. The southernmost spawning population of green sturgeon occurs in the Sacramento River system (Moyle 2002).

Green sturgeon has been divided into two distinct population segments: northern and southern. The northern distinct population segment consists of green

sturgeon populations extending from the Eel River northward. The southern distinct population segment includes populations extending from south of the Eel River to the Sacramento River. However, spawning populations have been confirmed only in the Rogue (Oregon), Klamath, and Sacramento Rivers (70 FR 17386).

In the Central Valley, spawning occurs in the Sacramento River upstream of Hamilton City, perhaps as far upstream as Keswick Dam (Adams et al. 2002), and possibly in the lower Feather River (Moyle 2002). Adults migrate upstream into rivers between late February and late July, and spawn between March and July, when the water temperature is 46–57° F. Peak spawning occurs from mid-April to mid-June. After hatching, young green sturgeon rear for several months in the Sacramento River as they migrate downstream.

Trapping records indicate that larvae and juveniles spend the first one to two months in the Sacramento River between Hamilton City and Keswick Dam (National Marine Fisheries Service 2006a). Laboratory studies of migration, foraging, and wintering behavior of green sturgeon from the Klamath River (Kynard et al. 2005) indicate that larvae and juveniles migrate at night and remain in the river downstream of spawning areas through their first winter.

At seven months of age, juvenile sturgeon are able to survive 32 ppt salinity (Allen et al 2003). As green sturgeon mature further, they are able to tolerate a wide range of salinities. The diet of adult green sturgeon seems to be mostly benthic invertebrates and small fish (Ganssle 1966). Juveniles in the Delta feed on opossum shrimp and amphipods (Radtke 1966).

Adults would be expected in the Feather River between late February and July with spawning occurring between March and July. Green sturgeon do not occur in Wyandotte Creek (CalFish 2008). Downstream juvenile migration may occur from June through September. The number of green sturgeon in the Feather and Yuba Rivers is unknown.

Steelhead, Central Valley

Central Valley steelhead (*Oncorhynchus mykiss irideus*) is listed as threatened under ESA. Critical habitat is designated for steelhead in the Feather, Bear, and Yuba Rivers (70 FR 52596, September 2, 2005). Steelhead, an anadromous variant of rainbow trout, is closely related to Pacific salmon. The species was once abundant in California coastal and Central Valley drainages; however, population numbers in the tributaries of the Sacramento River have declined significantly in recent years.

Steelhead typically spend one year or more in fresh water before migrating to marine habitats. In the marine environment, they typically mature for one to three years, then return to their natal stream to spawn as three- or four-year-olds. Unlike other Pacific salmon, steelhead are capable of spawning more than once before they die. The steelhead spawning season typically stretches from December through April. After several months, fry emerge from the gravel and begin to feed. Juveniles rear in freshwater from one to four years (usually two years), then migrate to the ocean as smolts.

Adult steelhead may occur in the lower Feather, Yuba and Bear Rivers, Honcut Creek and Wyandotte Creek from July through March, with peak abundance during November–March. Juvenile steelhead may occur any time of year, although peak abundance generally occurs from November through May. No population estimates for steelhead are available from the study area. The Feather River steelhead population may be comprised of mostly hatchery fish. During the 2003-2004 spawning season, a survey for steelhead redds in the Feather River estimated the population of naturally-spawning steelhead at 163 fish. Although the contribution of hatchery fish to the naturally spawning population is not known, it is likely that the majority of spawning steelhead in the Yuba River are of hatchery origin (Battle Creek Watershed Conservancy 2008). In the Yuba and Bear Rivers, the number of steelhead is unknown.

Chinook salmon

Four distinct runs of Chinook salmon (*Oncorhynchus tshawytscha*) occur in the Central Valley: winter-run, spring-run, fall-run, and late fall–run. Chinook salmon are anadromous fish, meaning that adults live in marine environments and return to their natal freshwater streams to spawn. Juveniles rear in freshwater for a period of up to a year until smolting (the migratory transition from fresh to salt water) and subsequent ocean residence. Only spring- and fall-/late fall–run Chinook salmon occur in the study area and are discussed below.

Spring-Run

The Central Valley spring-run Chinook salmon evolutionarily significant unit (ESU), which includes populations spawning in the Sacramento River and its tributaries, is listed as threatened under ESA and CESA. Spring-run Chinook salmon historically occurred from the upper tributaries of the Sacramento River to the upper tributaries of the San Joaquin River; however, they have been extirpated from the San Joaquin River system.

The only streams in the Central Valley with remaining wild spring-run Chinook salmon populations are the Sacramento River and its tributaries, including the Yuba River, Mill Creek, Deer Creek, and Butte Creek. Feather River spring-run Chinook salmon are primarily hatchery fish, raised at the Feather River Hatchery. Critical habitat is designated for spring-run Chinook salmon in the Feather River up to Lake Oroville, the lower Yuba River, and the lower Bear River (70 FR 52598, September 2, 2005).

Spring-run Chinook salmon enter the Sacramento River from late March through September (Reynolds et al. 1993), but peak abundance of immigrating adults in the Delta and lower Sacramento River occurs from April through June. Adult spring-run Chinook salmon remain in deep-water habitats downstream of spawning areas during summer until their eggs fully develop and become ready for spawning. This is the primary characteristic that distinguishes spring-run Chinook salmon from the other runs. Spring-run Chinook salmon spawn primarily upstream of the Red Bluff Diversion Dam and in the aforementioned tributaries. Spawning occurs from mid-August through early October (Reynolds et al. 1993). A small portion of an annual year-class may emigrate as post-emergent fry (less than 1.8 inches long) and reside in the Delta undergoing smoltification. However, most are believed to rear in the upper river and

tributaries during winter and spring, emigrating as juveniles (more than 1.8 inches long). The timing of juvenile emigration from the spawning and rearing reaches can vary depending on tributary of origin and can occur from November through June.

Adult spring-run Chinook salmon may occur in the lower Feather River and consequently the Bear and Yuba Rivers, and Honcut Creek from March through September. They do not occur in Wyandotte Creek (CalFish 2008). Juveniles may occur any time of year, although peak abundance generally occurs from November through March. In 2007, the Pacific Fishery Management Council estimated the total population of spring-run Chinook salmon was 2,752 fish, whereas the estimated total in 2003 was 8,373 fish (2008). The number of spring-run Chinook salmon occurring in the Bear and Yuba Rivers and other tributary creeks is unknown.

Fall- /Late-Fall Run

Central Valley fall-run and late fall-run Chinook salmon are commercially and recreationally important. Because the fall-run Chinook salmon is currently the largest run of Chinook salmon in the Sacramento River system, it continues to support commercial and recreational fisheries of significant economic importance.

In general, adult fall-run Chinook salmon migrate into the Sacramento River and its tributaries from July through December, with immigration peaking from mid-October through November. Fall-run Chinook salmon spawn in numerous tributaries of the Sacramento River, including the lower American River, lower Yuba River, Feather River, and tributaries of the upper Sacramento River. Most mainstream Sacramento River spawning occurs between Keswick Dam and the Red Bluff Diversion Dam. A greater extent of fall-run spawning, relative to the other three runs, occurs below the Red Bluff Diversion Dam, with limited spawning potentially occurring as far downstream as Tehama (River Mile [RM] 220) (Yoshiyama et al. 1996). Spawning generally occurs from October through December, with fry emergence typically beginning in late December and January. Fall-run Chinook salmon emigrate as post-emergent fry, juveniles, and smolts after rearing in their natal streams for up to 6 months. Consequently, fall-run emigrants may be present in the lower Sacramento River from January through June (Reynolds et al. 1993) and remain in the Delta for variable lengths of time before ocean entry.

Adult immigration of late fall-run Chinook salmon into the Sacramento River generally begins in October, peaks in December, and ends in April (Moyle et al. 1995). Primary spawning areas for late fall-run Chinook salmon are located in tributaries of the upper Sacramento River (e.g., Battle Creek, Cottonwood Creek, Clear Creek, Mill Creek), although late fall-run Chinook salmon are believed to return to the Feather and Yuba Rivers as well (Moyle et al. 1995). Spawning in the mainstem Sacramento River occurs primarily from Keswick Dam (RM 302) to the Red Bluff Diversion Dam (RM 258), generally from January through April (Moyle et al. 1995). Juveniles emigrate through the lower Sacramento River primarily from October through April.

Adult fall-run Chinook salmon pass through the Feather River, Yuba River, lower Bear River, and Honcut Creek from August through December as they migrate upstream to spawn. No Chinook salmon are found on Wyandotte Creek (CalFish 2008). Juvenile fall-run Chinook salmon rear in the lower Bear River, Yuba River, and Feather River, and pass through as they move downstream from January through June. Surveys in 2007 recorded a total of 21,862 fall-run fish in the Feather River and 2,559 fish in the Yuba River. Both of these population estimates are at an all time low (Pacific Fishery Management Council 2008).

Non-Special-Status Wildlife Species

A variety of common and non-special status wildlife species occur in the study area. Native vegetation communities in the study area such as mixed riparian forest, oak woodland, and foothill pine-oak woodland generally support a relatively diverse assemblage of native wildlife species. Examples of wildlife commonly occurring in woodlands are red-tailed hawk, great-horned owl, mallard duck, wood duck, red-shafted flicker, acorn woodpecker, American crow, yellow-billed magpie, scrub jay, yellow finch, oak tit-mouse, Pacific tree frog, garter snake, raccoon, grey squirrel, white-tailed deer, red fox, and coyote.

Undeveloped portions of the study area that are dominated by non-native vegetation also support a relatively diverse group of common wildlife species. Non-native annual grasslands are used by wildlife species like short-eared owl, western meadowlark, horned lark, western kingbird, western toad, western fence lizard, western skink, gopher snake, California vole, California ground squirrel, black-tailed jackrabbit, and coyote. Irrigated pasture often supports wildlife species similar to non-native annual grasslands.

Wetland and wetland vegetation in the study area (i.e. streams, vegetated ditches, freshwater marsh, vernal pools, seasonal wetlands, open water, and rice) provide important habitat for a variety of non-special status birds, fish, and mammals that provide considerable recreational and economic value to the region. Marshes, seasonal wetlands, vernal pools and vegetated ditches commonly support great blue heron, greater egret, red-winged black birds, many song birds, Pacific tree frog, bullfrog, western toad, garter snake, and muskrat. Several fallow rice and grain fields along the study area, such as those between Lower and Middle Honcut Creeks, support vegetation most similar to that of marsh or seasonal wetland and provide suitable sites for large groups of over-wintering water fowl. Numerous migratory bird species were observed in wetlands and rice fields near the study area, including greater egret, snowy egret, black-faced ibis, snow goose, Aleutian Canada goose, mallard duck, canvasback duck, northern pintail, cinnamon teal, pied-billed grebe, western grebe, American coot, American bittern, killdeer, double-crested cormorant, white pelican, cliff swallows, and barn swallows.

Row crops, other agricultural areas, and rural land cover types provide limited value to common wildlife species. In some cases within the study area, row crops and fallow fields provide low quality nesting or breeding habitat and provide important dispersal corridors for wildlife, including reptiles and mammals that

occur in adjacent annual grasslands, seasonal wetlands, or vegetated ditches. Several common wildlife species are also adapted to rural, rural residential, and urban settings such as barn owl, American crow, Brewer's blackbird, European starling, house finch, house sparrow, and raccoon, which are common residents of rural and urban areas.

Environmental Effects

Significance Criteria

For this analysis, an impact on biological resources was considered significant under CEQA if the project would result in any of the following environmental effects; these criteria are based on professional practice and Appendix G of the State CEQA Guidelines:

- Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations—or by DFG or USFWS;
- Have a substantial adverse effect on wetlands (including marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridor, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan (HCP); natural communities conservation plan (NCCP); or other approved local, regional, or state HCP.

Environmental Commitments

As part of PG&E's standard construction practices, the following conservation measures will be incorporated into the project design and will be implemented to avoid or minimize impacts to biological resources:

- An environmental awareness education program will be conducted for construction crews prior to initiating construction. The program will be conducted for new crew members throughout the duration of the project. The education program will include information about the federal and state Endangered Species Acts, the consequences for noncompliance with environmental laws, identification of special-status plant and wildlife species and wetland habitats, and review of conservation measures.

- Vehicles will be restricted to established roadways and approved access routes and staging areas.
- An environmental monitor will be onsite during any construction activity near sensitive habitat to ensure implementation of, and compliance with, conservation measures. The monitor will have authority to stop construction activities and determine alternative work practices, in consultation with construction personnel and resources agencies, if construction activities are likely to impact special-status species, wetlands or other sensitive biological resources.
- Staging areas will be set back at least 50 feet from streams, creeks, or other water bodies to avoid impacts to sensitive habitat. If grading takes place near wetlands, riparian habitat, or special-status plant or wildlife habitat, a biological monitor (a trained professional biologist) will approve the type and placement of environmental protections and will be present during grading activities. A SWPPP will also be prepared as part of the general construction permit that will include erosion and sediment control measures to be implemented for the project.
- If special-status species are observed prior to or during construction activities, construction personnel will contact the environmental monitor. If the environmental monitor determines that mitigation measures are not adequate to protect special-status species, the monitor will notify the PG&E Project Representative; PG&E will notify and consult with USFWS and/or DFG regarding appropriate avoidance and mitigation measures.
- Photographic documentation of preconstruction habitat conditions will occur at all construction locations within sensitive habitats prior to the start of construction and immediately after construction activities.
- Construction personnel will not bring firearms or pets to the project site and will not leave trash on the project site during construction.

Additional measures (identified below) to avoid, minimize, and/or mitigate specific potential impacts to biological resources will be implemented as necessary to reduce potentially significant impacts. In some cases, conducting preconstruction surveys to determine the presence or absence of special-status plant and wildlife species within the project area will reduce the potential for significant impacts on those species by identifying the need for avoidance or additional mitigation. Based on the results of biological surveys to date, the proximity to records of occurrence reported in CNDDB, and the presence of suitable habitat, specific components of the proposed project will affect areas where special-status species are presumed to be present.

Impacts and Mitigation Measures

Construction Impacts

Impact BIO-1: Impacts on upland and riparian vegetation types—less than significant

The proposed project will impact upland vegetation during the establishment of work areas and access roads. Additionally, creation or maintenance of stream crossings may impact a small amount of riparian vegetation. Impacts will be permanent (as in the construction of new towers) or temporary (as in the location of temporary access roads and work areas). The approximate impacts to upland or riparian vegetation types in the project area are listed in Table 4.4-3. Impacts were calculated for permanent impacts based on overlap of mapped vegetation communities with a 7.5 foot diameter circle for new towers (0.001 acre per tower). Direct temporary impacts were calculated for vegetation communities that have been mapped within work areas and temporary access roads (16 foot width).

The upland vegetation types in the project area are considered common in the project vicinity and the surrounding region, and impacts do not appear to be significant in that context. However, habitat preservation is proposed to mitigate for potential effects to upland habitat for giant garter snake, foraging and nesting habitat for western burrowing owl, and foraging habitat for nesting raptors. Mitigation proposed for these species will preserve upland habitat, primarily annual grassland, and will offset the project-related loss or disturbance of upland habitat. Consequently, this impact is considered less than significant, and no additional mitigation is recommended.

Impact BIO-2: Potential impacts on protected trees—less than significant

The proposed project will require removal and trimming of several trees during construction of temporary access roads, and maintenance of existing access roads. Some tree trimming or removal also may be required at some work areas in order to remove old tower structures. PG&E will implement APM BIO-1 to ensure that potential impacts on trees protected by county ordinances will be less than significant.

APM BIO-1: Conduct a preconstruction tree survey and avoid or compensate for tree removal

Prior to construction, PG&E will conduct a tree survey to map and identify any protected trees in the project area that may be affected by the project. If feasible, the identified trees will be avoided during construction. If avoidance is not feasible, trees will be replaced or compensation will be provided, as stipulated in applicable local regulations.

Table 4.4-3 Permanent and Temporary Impacts to Upland and Riparian Vegetation Types (acres)

Impact Type	Interior Live Oak Woodland	Non-Native Grassland	Foothill Pine-Oak Woodland	Valley Oak Woodland	Great Valley Mixed Riparian Forest	Great Valley Willow Riparian Scrub	Irrigated Pasture	Orchard	Rice	Row Crops	Rural Residential	Urban	Urban Park	Total Acres
Permanent Impacts														
New tower footprint	0	0.143	0	0.001	0.006	0.002	0.003	0.032	0.043	0.006	0.012	0.009	0.004	0.261
Total Permanent Impacts	0	0.143	0	0.001	0.006	0.002	0.003	0.032	0.043	0.006	0.012	0.009	0.004	0.261
Temporary Impacts														
Direct Temporary Impacts in Work Areas	0.033	49.366	0.843	0.447	0.987	0.731	0.374	5.228	22.578	2.679	6.822	7.901	1.166	99.15
Direct Temporary Impacts under temporary roads	0.027	11.668	0.102	0.107	0.070	0.086	0.725	0.469	2.214	3.073	0.411	0.507	0.111	19.57
Total Temporary Impacts	0.060	61.034	0.945	0.554	1.056	0.818	1.100	5.694	24.792	5.752	7.233	8.408	1.277	118.72

Impact BIO-3: Potential impacts on waters of the United States, Including wetlands—potentially significant

The project area contains 101.93 acres of wetlands and other waters that could be impacted as part of the proposed project (See Table 4.4-4). As practical, PG&E has committed to establishing 50-foot setbacks from work areas for streams, creeks, and other water bodies to avoid impacts to these resources (see *Environmental Commitments*, above). This commitment will avoid and minimize impacts to most wetlands and other waters of the United States in the project area. PG&E will span intermittent stream crossings outside the location of the ordinary high water mark so these areas will not be considered to be impacted.

Permanent impacts will occur where 14 new structure footings are placed in wetland or other waters, which are five valley freshwater marsh features, 8 seasonal wetlands, and one vernal pool. The extent of the permanent impacts on wetlands and other waters will vary among the new structure footing sites located within wetlands and other waters, but the maximum extent of the permanent impact acreage, per new structure location, is estimated to be a 7.5 foot diameter circle of 0.001 acres.

Temporary impacts to wetlands and other waters are classified based on their location for the analysis. Wetlands and other waters located within work areas and within temporary road widths (16 feet) are classified as *direct* temporary impacts, while those located outside work areas or roads and inside the 50 foot work area buffers are classified as *indirect* temporary impacts. Direct temporary impacts will also occur where existing towers that already occur within wetlands or other waters are removed. The indirect wetlands and other waters that occur within the 50 foot buffer area adjacent to project roads and work areas are potentially avoidable if the Environmental Commitments listed above are followed. All potentially jurisdictional wetlands and other waters were identified in the wetland delineations prepared for the project (North State Resources 2008; ICF Jones & Stokes). Each wetland feature identified in the delineation report is assigned an impact category: Permanent Impact (new structure), Direct Temporary Impact (wetland within work area or temporary road) or Indirect Temporary Impact (wetland occurring outside work area and within 50-foot project buffer).

The direct removal, filling, and hydrological interruption of wetlands and other waters in the project area and buffer zones would constitute a potentially significant impact. PG&E will implement the following measures, APM BIO-2, APM BIO-3, APM BIO-4, APM BIO-5, APM BIO-6, and APM BIO-7, to ensure that potential impacts will be less than significant. Additionally, AMP HYDRO-1 will include implementation of a SWPP to prevent construction-related erosion and sediments from entering nearby waterways.

APM BIO-2: Implement general protection measures for wetlands and other waters

During construction, PG&E will implement the following general measures to minimize or avoid impacts on wetlands and other waters:

- Establish exclusion zones and minimize the amount of area disturbed to the minimum amount necessary to complete the work.
- Restrict travel to established and temporary roads and work areas.
- Restrict construction personnel and equipment from entering fenced protected areas.
- Conduct all fueling of vehicles at least 100 feet from wetlands and other water bodies.
- To the extent feasible, complete road construction in wetlands and other waters in the dry season, generally from June 1 to October 15. If it is not feasible to complete road construction work during the dry season, appropriate erosion control measures for the site will be used.

Additionally, PG&E or its contractor will prepare and implement a SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP will include a list of BMPs to be implemented in areas with potential to drain to any water body in Butte, Yuba, or Sutter Counties. These BMPs will be selected to achieve maximum sediment removal and represent the best available technology (BAT) that is economically achievable. (See APM HYDRO-1).

APM BIO-3: Conduct mandatory contractor/worker awareness training for construction personnel

Before the start of construction activities, PG&E shall ensure that a qualified biologist will conduct mandatory contractor/worker awareness training for construction personnel. The awareness training will be provided to all construction personnel to brief them on the need to avoid impacts on wetlands and on the penalties for not complying with biological mitigation requirements. If new construction personnel are added to the project, the contractor will ensure that the personnel receive the mandatory training before starting work.

APM BIO-4: Install construction barrier fencing to protect wetlands and other waters adjacent to the project area

PG&E or its contractor will install construction barrier fencing that clearly identifies wetlands that are to be avoided. Wetlands located within work areas will be fenced off to avoid disturbance in these areas. Before construction, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the barrier fencing and will place stakes around the wetland areas to indicate their locations. The protected area will be designated an environmentally sensitive area and clearly identified on the construction specifications. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer.

Table 4.4-4. Potential Permanent and Temporary Impacts to Potential Waters of the US (acres)

Impact Type	Intermittent Stream	Irrigation Canal	Vegetated Ditch	Agricultural Wetland	Freshwater Marsh	Seasonal Wetland	Vernal Pool	Vernal Swale	Total Acres
Permanent Impacts									
New structure footprint	0	0	0.001	0.041	0.005	0.005	0.001	0	0.053
Total Permanent Impacts	0	0	0.001	0.041	0.005	0.005	0.001	0	0.053
Temporary Impacts									
Direct Temporary Impacts within work areas	0.001	0.007	0.605	21.828	2.476	5.146	0.505	0	30.568
Indirect Temporary Impacts outside work areas and within 50 foot work area buffers	0.171	0.012	2.624	30.543	6.743	10.737	2.554	0.096	53.480
Direct Temporary Impact under access roads	0.001	0	0.178	1.752	0.004	0.252	0	0.020	2.207
Indirect Temporary Impacts outside temporary access roads and inside 50 foot buffer	0.007	0	0.844	10.815	0.513	2.767	0.624	0.056	15.626
Total Temporary Impacts	0.180	0.019	4.251	64.938	9.736	18.902	3.683	0.172	101.88

APM BIO-5: Restore temporarily impacted wetlands and other waters to pre-construction condition

- Minimize ground disturbance wherever possible
- Remove construction materials
- Save and replace topsoil and re-grade where necessary to pre-construction topographic contours
- Re-seed with native local weed-free seed source in highly disturbed areas

APM BIO-6: Monitor during and after disturbance in wetlands and other waters

- Monitor to avoid travel through wetlands and other waters wherever possible
- Monitor to assure that restoration to pre-construction condition is completed
- Monitor to make sure no noxious weed species are introduced. A Noxious Weed Survey was conducted prior to project initiation which contains a list of pre-existing weeds of concern. If weeds are introduced or spread initiate a treatment plan.

APM BIO-7: Compensate for permanent impacts on wetlands and other waters caused by new structures

Within the project study area there will be 14 new structures placed in wetlands and other waters. The placement of the new structures will result in a total of 0.012 acres of permanent impacts on wetlands and other waters. PG&E will compensate for permanent impacts on wetlands and other waters to ensure no net loss of wetland habitat functions and values. The compensation will be provided at a minimum ratio of 1:1 (1 acre restored or created for every acre filled), but final compensation ratios will be based on site-specific information and determined through coordination with state and federal agencies as part of the permitting process for the project.

Compensation may be a combination of onsite restoration and creation, off-site restoration, and mitigation credits. PG&E will retain an environmental consultant with the appropriate design/engineering experience (e.g., restoration ecologist, hydrologic engineer, landscape architect) as needed to evaluate the project study area and determine if onsite wetland habitat restoration/creation is feasible.

Impact BIO-4: Potential temporary and permanent impacts on special-status plants—potentially significant

Surveys for special-status plants have been conducted for the 2005 project area; they have not been completed for the 2008 project area which is mostly permanent and temporary access roads. At least one special-status plant, brown

fox sedge, is known to occur in the project area near the intersection of Ramirez Road and the Western Pacific railroad line in Yuba County (see Appendix B-1). The distribution and extent of other special-status plants in the 2008 project area are not known at this time.

Impacts on special-status plants may result from new tower installation, vegetation clearing, grading, or access road construction. Impacts may be temporary or permanent, depending on the type of activity proposed. PG&E will implement the following measures, APM BIO-8, APM BIO-9, APM BIO-10, and APM BIO-11, to ensure that potential impacts on special status plant species will be less than significant.

APM BIO-8: Complete spring surveys for special-status plants in all disturbance areas

Prior to construction, a qualified botanist will complete spring surveys during individual blooming timeframes to identify special-status plants at all locations not covered in 2005 surveys to determine the presence or absence of special-status plants. No construction activities shall occur in the 2008 project area until surveys for potentially occurring special-status plants have been performed. If surveys determine that no special-status plants are present then no further mitigation is required. If special-status plants are found to be present then measures APM BIO-9 (Avoid Impacts on Special-Status Plants), APM BIO-10 (Minimize impacts on special-status plants) and APM BIO-11 (Compensate for the loss of special-status plants) will be implemented.

APM BIO-9: Avoid impacts on special-status plants

Wherever possible, the project components will be redesigned to avoid impacts to special-status plants. PG&E will, under the direction of a qualified botanist and to the extent possible, adjust the location of work areas, access roads, and other project components to completely avoid impacts on brown fox sedge and other special-status plants that may be located within the study area prior to construction. If this avoidance measure is not feasible, the applicant will implement APM BIO-10 (Minimize impacts on special-status plants) and APM BIO-11 (Compensate for the loss of special-status plants).

APM BIO-10: Minimize impacts on special-status plants

If full avoidance of fox sedge and other special-status plants identified in the project area is not possible during construction, PG&E shall minimize impacts by limiting the work area to the smallest area necessary to complete the work and shall establish avoidance areas. Avoidance areas shall be clearly staked and flagged in the field by a qualified botanist prior to construction.

Where temporary disturbance is necessary, PG&E shall conduct project activities and necessary ground disturbance in a manner that is consistent with the successful reestablishment of the species to the extent feasible. A list of specific actions necessary to ensure successful reestablishment of the species following temporary disturbance, and the locations where

these actions will be implemented, will be prepared by a qualified botanist prior to construction and implemented during construction. The environmental awareness education program should include information on the location of special-status plants in the project area and the measures that will be implemented to avoid or minimize impacts on the plants.

APM BIO-11: Restore habitat for special-status plants disturbed during construction

If impacts on special-status plants are unavoidable, PG&E will develop a special status plant restoration plan in consultation with DFG (and USFWS in the event that a federally listed plant is found). No impacts to special-status plants shall be allowed until agency requirements are determined and implemented. The specific actions necessary will depend on the biology of the species in question and the type of impact; however, the actions will be designed to ensure successful reestablishment of the species following disturbance. The plan will be prepared by a qualified botanist prior to construction and will indicate when and where the actions will be implemented during construction. The plan will include a restoration and reseeding plan specific to the special-status plant habitat which is disturbed.

Impact BIO-5: Potential introduction or spread of invasive species—potentially significant

Ground-disturbing activities are some of the principal vectors for the introduction or spread of invasive species. Construction of staging areas, temporary access roads, and other ground-disturbing activities may introduce noxious weeds into previously un-infested areas. Noxious weeds are known to result in negative effects on the abundance of native species and are known to result in modifications to habitats, which ultimately may cause an area to become unsuitable for common and special-status species. PG&E will implement APM BIO-12 to ensure that potential impacts related to the introduction or spread of invasive species will be less than significant.

APM BIO-12: Implement management practices to control the introduction and spread of invasive plants

Prior to construction, PG&E will identify the location of noxious weed species of concern within areas that will be disturbed as part of the project. Appropriate management practices will be designed by a botanist and implemented during construction to reduce the likelihood of spreading already established weeds into new areas or increasing their abundance, and of introducing new weed species to the project area. The SWPPP to be prepared for the project will include best management practices such as using construction equipment that has been cleaned of soil and plant parts, including seeds, before entering the project area; using weed-free straw for erosion control, weed free gravel or fill for road construction, and revegetating with appropriate seed mixes that may include native species and/or sterile nurse crops. A post-construction survey for new weeds in areas that were disturbed during construction

will also be conducted. If weed populations not previously found adjacent to project-disturbed areas are found following construction, they will be controlled using the most effective and least environmentally harmful methods. Implementing the management practices described above will reduce potentially significant impacts from invasive plants to a less-than-significant level.

Impact BIO-6: Temporary and permanent loss of habitat for valley elderberry longhorn beetle and potential direct loss of valley elderberry longhorn beetles—potentially significant

Construction activities will potentially impact 26 elderberry shrubs or clumps of elderberry shrubs that provide suitable habitat for VELB. Eight shrubs or clumps, including greater than 200 stems, are located within the proposed project area and will be removed or trimmed for construction or to maintain the existing utility corridor. Eighteen other shrubs or clumps are located within 20 feet of the proposed project area and have potential to be indirectly impacted by the project. Several elderberry shrubs are located directly beneath or inside of existing tower structures. Table 4.4-5 and Appendix B-1 provide a summary of suitable VELB habitat identified in the study area.

In addition, 44 elderberry shrubs occur in the study area where their drip-lines are located within 100 feet of the proposed project area but greater than 20 feet from the project boundary. Potential impacts to these shrubs include indirect effects such as altered hydrology or water table, increased air-borne dust or disease, and herbicide application.

Permanent loss of eight elderberry shrubs or clusters of shrubs that provide suitable habitat for VELB and temporary disturbance of additional habitat could result in a significant impact to the species. However, none of the shrubs observed in the study area had evidence of VELB occupation and many are isolated shrubs that are not associated with an occupied riparian corridor. The loss of habitat is not likely to substantially reduce the availability of suitable habitat in the project region; If an occupied shrub is effected, the direct loss of a VELB would constitute a potentially significant impact. PG&E will implement the following measures, APM BIO-13 and APM BIO-14, to ensure that potential impacts on VELB will be less than significant.

APM BIO-13: Avoid or minimize effects on valley elderberry longhorn beetle during construction

Direct impacts to VELB will be avoided when feasible by minimizing the amount of suitable habitat that will be trimmed or removed. Suitable habitat is considered all elderberry stems greater than one-inch in diameter when measured at ground-level. Work areas and structure locations will be designed or selected such that elderberry shrubs are avoided whenever possible. The transmission line and construction area will avoid potential impacts by spanning riparian forest vegetation along the Yuba River and Bear River where many of the elderberry shrubs in

Table 4.4-5. Suitable Habitat for Valley Elderberry Longhorn Beetle in the Study Area and Potential Project Impacts

Elderberry Shrub or Cluster		Stems Greater than 1-inch Diameter			Impact*
Number	Description	Diameter 1- to 3-inches	Diameter 3- to 5-inches	Diameter more than 5-inches	
1	Under Tower	28	17	8	Direct
2		21	11	6	Indirect
3	Under Tower	15	13	9	Direct
4	Under Tower	8	12	6	Indirect
5	Under Tower	12	6	2	Direct
6	Under Tower	12	0	5	Direct
7	Under Tower	7	8	6	Indirect
8	Under Tower	11	7	6	Indirect
9	Under Tower	15	9	6	Direct
10	Under Tower	6	7	8	Direct
11	Under Tower	27	7	2	Direct
12		Unknown			Indirect
24		6	2	2	Indirect
26	Under Tower, possibly dead	1	1	1	Indirect
27	Adjacent to road	0	0	1	Indirect
32		5	0	1	Indirect
52		4	3	0	Indirect
55	Under Tower 57	0	1	2	Indirect
56		5	0	0	Indirect
58		Unknown			Indirect
60		Unknown			Indirect
62		Unknown			Direct
64		Unknown			Indirect
66		Unknown			Indirect
67		Unknown			Indirect
69		Unknown			Indirect

*Direct Impact= Drip-line of Elderberry Shrub or Cluster is in Proposed Project Area/Indirect Impact= Drip-line of Elderberry Shrub or Cluster is within 20-feet of Proposed Project Area

the study area are located. Additional shrubs within the study area are separated from potential project effects by a distinct barrier, such as a railroad or canal.

Potential impacts to 44 elderberry shrubs located within 100 feet of the proposed project area but greater than 20 feet from the project area will be avoided through project design and implementation of best management practices. These shrubs are subject to potential indirect impacts from project construction; however, reconstruction and maintenance activities will not require ground disturbance within 20 feet of the drip-lines of these shrubs. PG&E does not expect impacts to VELB habitat located greater than 20 feet from the transmission facilities or project access routes.

Potential impacts to 26 elderberry shrubs located within 20 feet of the project area will be minimized through implementation of these measures and as detailed in the Valley Elderberry Longhorn Beetle Conservation Program (Pacific Gas and Electric Company 2003):

- A qualified biologist will survey for the presence of elderberry plants within 20 feet of the work area and mark the minimum set-back distance with construction flagging;
- Field workers will be briefed on the location of elderberry plants in or near the work area and will review the appropriate avoidance, protection, and minimization measures;
- Ground disturbing activities will include erosion control measures that prevent soil from leaving the work area or encroaching on an elderberry shrub;
- A qualified biologist will survey all project access roads prior to conducting routine road maintenance or road grading; and
- Construction vehicles will avoid traveling near elderberry shrubs that are located within 20 feet of an existing or temporary access road.

Shrub numbers 1, 3-11, 26, and 55 are located directly beneath existing transmission towers. Most of these shrubs are greater than 25 feet in height, having grown up through and around portions of the tower structures. To avoid potential impacts from traditional demolition, these towers will be dismantled and removed only to ground level where feasible. Where the elderberry shrub has grown into or is entwined with the tower to the extent where the tower cannot be removed completely without trimming the shrub, that portion of the tower will be left in place. In order to protect public safety, PG&E's best management practices call for removal of non-functional facilities. Therefore, this measure will be implemented to the extent feasible without jeopardizing public safety. In general, metal tower structures will be dismantled and removed from the site while concrete footings will remain in place or be dismantled to ground-level.

APM BIO-14: Compensate for loss of valley elderberry longhorn beetle habitat and potential loss of individuals

PG&E will compensate for permanent and temporary loss of habitat and potential loss of individual VELB through participation in the Valley Elderberry Longhorn Beetle Conservation Program (Pacific Gas and Electric Company 2003). The program was developed to compensate for trimming approximately 250 elderberry plants and removing approximately 20 plants per year.

PG&E will continue to fund the recovery of VELB and increase habitat through acquisition, restoration, or protection of lands in areas that provide the greatest conservation to the species. Habitat locations identified during technical studies for the project will be added to the PG&E database or VELB habitat. Elderberry shrub locations and project activities will be incorporated in PG&E's biennial monitoring report.

Impact BIO-7: Temporary and permanent effects on habitat for vernal pool species and potential loss of individual vernal pool fairy shrimp and vernal pool tadpole shrimp—potentially significant

More than 425 vernal pools, seasonal wetlands, and other features that provide potential habitat for vernal pool species occur within 250 feet of the proposed project area (Appendix B-2). Construction activities, such as staging, grading, and excavation, are likely to result in temporary or permanent impacts to suitable habitat. Construction activities in staging areas, pull sites, and temporary access roads will result in temporary direct impacts or potential indirect impacts to 7.90 acres of suitable habitat within 50 feet of the project area. Construction of new structures and poles will result in permanent direct impacts of 0.368 acres of suitable habitat and potential indirect impacts to 6.40 acres of suitable habitat. The project will avoid potential impacts to an additional 12.0 acres of suitable habitat located within 250 feet of the project area. The estimated loss of habitat due to temporary or permanent impacts is presented in Table 4.4-6.

The direct removal, filling, and hydrological interruption of vernal pools, seasonal wetlands, and other suitable habitat or the surrounding uplands would constitute a potentially significant impact. PG&E will implement the following measures, APM BIO-16 and APM BIO-17, to ensure that potential impacts will be less than-significant.

Table 4.4-6. Potential Permanent and Temporary Impacts to Potential Habitat for Listed Vernal Pool Species

Impact Type	Potential Habitat for Vernal Pool Fairy Shrimp or Vernal Pool Tadpole Shrimp	
	Number of Features	Habitat Area (acres)
Permanent Impacts		
Direct, Structure located in habitat	4	0.368
Indirect, Structure located within 50 feet	67	6.40
Total Permanent Impacts	71	6.77
Temporary Impacts		
Work Area or New Access Road located within 50 feet	177	7.90
Structure, Work Area, or New Access Road located between 50 and 250 feet	179	12.0
Total Temporary Impacts	356	19.9

APM BIO-15: Avoid or minimize impacts on habitat for vernal pool species during construction

PG&E will implement measures that would substantially reduce the risk of incidental take of vernal pool fairy shrimp, vernal pool tadpole shrimp, and western spadefoot in the project area. Prior to and during construction, PG&E will perform the following actions:

- Where feasible, the project will be designed to avoid direct and permanent impacts to vernal pool species and their habitat; new structures will be located outside of suitable habitat features; and work areas and access routes will be designed to avoid vernal pool habitats.
- Where existing towers are located within a suitable habitat feature, the removal of those towers will be conducted in a way that minimizes potential ground disturbance. Lattice towers will be removed from habitat using a helicopter or crane lift so that construction equipment will not enter the habitat area. Existing foundations proposed to be removed from habitat will be demolished only to ground level to avoid unnecessary ground disturbances.
- Temporary construction disturbances to vernal pools, seasonal wetlands, and ponds will be minimized to the extent practicable. All project-related vehicle traffic will be restricted to established roads, temporary access roads, or designated construction areas.
- Ground-disturbing activities within 250 feet of suitable aquatic habitat will be conducted during the dry season (generally May 1 to October 15).
- If construction activities occur during the wet season, temporary silt fencing should be installed at the limits of the affected work areas to prevent amphibians from moving into the work areas. The location of the fencing would be determined by the environmental monitor and the construction supervisor.

- An environmental monitor will monitor construction activities within 250 feet of suitable aquatic habitat for vernal pool species.
- Plastic mono-filament netting (erosion control matting) or similar material will not be used for erosion control or other purposes in the construction area because amphibians may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or hydro-seeding.
- PG&E will implement BMPs to prevent sediment from entering aquatic habitat near the work areas. Measures include silt fencing, sterile hay bales, no cleaning of equipment in drainages or other wetlands, and temporary sediment disposal.
- Within 1 week of completion of the project, all habitats subject to temporary ground disturbances will be re-contoured, if appropriate in the opinion of the onsite biologist, and re-vegetated to promote restoration of the area to natural conditions.

APM BIO-16: Compensate for impacts to habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp

PG&E will preserve a compensatory amount of land supporting vernal pools and associated upland habitat supporting vernal pool species, or acquire mitigation credits at a USFWS-approved conservation area that supports vernal pool tadpole shrimp or vernal pool fairy shrimp. The typical compensation ratio implemented for direct impacts to vernal pool habitat is 3 acres preserved and 2 acres created at a USFWS-approved site, or 5 acre-credits if purchasing from an approved mitigation bank.

However, the potential impacts associated with the project are substantially different from most projects that involve filling or trenching through vernal pool habitat. Due to the artificial habitat conditions present in the project area, the existing utility operation and maintenance practices, and type of construction activities proposed, the vast majority of potential habitat features located in the study area will continue to provide the same ecologic value to listed vernal pool species as they do prior to the project.

Therefore, a reasonable compensation ratio for potential impacts resulting from this project is 1 acre preserved and 1 acre created for each acre impacted, or 2 acre-credits purchased at an approved mitigation bank. Potential impacts to 6.77 acres of potential habitat for listed vernal pool species located within 50 feet of ground disturbing activities will be compensated through either preservation of 6.77 acres and creation of 6.77 acres of vernal pool habitat, or through the purchase of 13.54 acres of habitat. Potential direct and indirect impacts to 7.90 acres of potential habitat located within 50 feet of work areas and access roads will be avoided where possible; however, unavoidable indirect impacts will be compensated for at a similar ratio of 2 acres conserved per acre of impact. Impacts to 12.0 acres of potential habitat located greater than 50 feet from potential ground disturbances will be avoided. A summary of

potential impacts to vernal pool habitat and proposed compensation is provided in Table 4.4-6.

If on-site preservation or creation is proposed to compensate for impacts to vernal pool habitat, adequate funding, monitoring, and adaptive measures will be incorporated into the compensation program that will ensure the protected habitat remains undisturbed in perpetuity.

Impact BIO-8: Potential disturbance to green sturgeon, Central Valley steelhead, spring-run Chinook salmon, and fall-/late-fall-run Chinook salmon—less than significant

Construction activities could temporarily disturb habitat for special-status fish species that occur in the Yuba River, Bear River, Honcut Creeks, and Wyandotte Creek because the existing and proposed transmission lines span these waterways. However, proposed construction activities will not occur within the existing banks of these rivers and waterways. Best management practices and APM BIO-2, APM BIO-3, and APM BIO-4 will significantly reduce the potential for disturbance to special-status fish species. This potential impact is considered less than significant with implementation of these APMs because it will not result in a substantial reduction of these species in the project area.

Impact BIO-9: Potential temporary and permanent loss of aquatic and upland habitat for western spadefoot and potential disruption of movement during the breeding season—potentially significant

Annual grasslands in the study area provide potential upland habitat for refuge and dispersal by western spadefoot. Vernal pool and seasonal wetlands in the study area provide suitable breeding habitat for spadefoot. If western spadefoot are present within upland habitats in the construction area, construction activities could result in direct loss of individuals and disruption of movement during the breeding season. Impacts to wetlands in the study area could result in temporary loss of habitat for western spadefoot.

Temporary and permanent loss of aquatic and upland habitat, potential loss of individuals and disruption of movement during the breeding season would be considered a significant impact because it would result in a substantial adverse effect on this amphibian species. PG&E will implement APM BIO-2, APM BIO-5, APM BIO-6, APM BIO-16, and APM BIO-17 to ensure that potential impacts will be less than significant.

Impact BIO-10: Temporary loss of aquatic and upland habitat for giant garter snake, potential loss of individual giant garter snakes, and potential disruption of movement during the breeding season—potentially significant impact

Construction activities associated with the proposed project (i.e., staging, grading, and excavation) could result in the loss of giant garter snake, a state and federally threatened species, and removal of suitable giant garter snake aquatic and upland habitat. Almost all of the impacts to suitable giant garter snake habitat would be temporary (one season) and would include 5.216 acres of non-agricultural lands for staging areas, pull sites, and temporary access roads. An additional 298.4 acres of agricultural land (agricultural rice) would be temporarily disturbed (fallowed/dewatered). A small quantity, 0.01429 acre, of permanent impact would occur from the placement of new structures and poles within suitable aquatic habitat (freshwater marsh habitat) and 0.07092 acre of suitable upland habitat for giant garter snake. A similar quantity of suitable habitat will be restored as a result of dismantling or removing existing towers. Construction activities could indirectly disturb approximately 105.5 acres of suitable aquatic habitat and 169.7 acres of upland habitat that is located within 200 feet of project work areas. A summary of suitable giant garter snake habitat and potential project impacts is provided in Table 4.4-7. Acreage calculations for upland habitat (annual grasslands and agricultural lands) were determined using a 200 foot zone around suitable aquatic habitat. If giant garter snakes are present in aquatic habitat or foraging in upland habitats within the construction area, construction activities could result in direct loss of individuals and disruption of movement during the breeding season.

Temporary and permanent loss of aquatic and upland habitat, potential loss of individuals and disruption of movement during the breeding season would be considered a significant impact because it would result in a substantial adverse effect on these federally listed species. Implementation of environmental commitments, APM BIO-9, APM BIO-18, and APM BIO-19 will reduce the impact to a less-than-significant level.

Because the project could result in take of giant garter snake, a federally listed species, USFWS would be consulted to obtain an incidental take authorization under Section 7 of the ESA.

Table 4.4-7. Potential Permanent and Temporary Impacts to Potential Habitat for Giant Garter Snake

Impact Type	Potential Habitat (acres)		
	Aquatic	Rice	Upland
Permanent Structures	0.01429	0.04185	0.07092
Work Areas and Temporary Access Roads	5.202	24.77	19.24
Temporary Disturbance–Work Area within 200 feet (approximately 3 weeks)	105.5	217.3	169.74
Total Impacts	110.7	242.1	189.0
Rice Temporarily Removed from Production (approximately 1 year)	–	298.4	–

APM BIO-17: Minimize potential impacts on giant garter snake during construction within suitable habitat

To avoid and minimize impacts on giant garter snake, PG&E will implement the following measures:

- As feasible, construction activity within giant garter snake aquatic and upland habitat in and around agricultural ditches will be conducted within the active period for giant garter snakes (between May 1 and October 1). Depending on weather conditions and consultation with USFWS and DFG, it may be possible to extend the construction period into mid or late October. This would reduce direct impacts on the species because the snakes would be active and may respond to construction activities by moving out of the way.
- Prior to any construction within suitable giant garter snake aquatic habitat (agricultural ditches), the habitat will be dewatered and must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of dewatered habitat.
- A USFWS-approved biologist will conduct a preconstruction survey in suitable habitat no more than 24 hours before construction and will be onsite during construction activity in potential aquatic and upland habitat. The construction area will be resurveyed whenever there is a lapse in construction activity of two weeks or more.
- If a giant garter snake is encountered within the construction work area, construction activities must cease until the snake moves out of the work area unassisted. Capture and relocation of trapped or injured individuals can only be attempted by USFWS-permitted personnel. The applicant or its contractors will notify USFWS within 24 hours and submit a report, including dates, locations, habitat description, and any corrective measures taken to protect the snake(s) encountered. For each giant garter snake encountered, the biologist will submit a completed CNDDDB field survey form (or equivalent) to DFG no more than 90 days after completing the last field visit to the project site.

- Construction personnel will participate in a USFWS-approved worker environmental awareness program. A qualified biologist will inform all construction personnel about the life history of giant garter snake and the terms and conditions of the BO. Proof of this instruction will be submitted to USFWS Sacramento field office.
- To ensure that construction equipment and personnel do not affect giant garter snake aquatic habitat outside the construction work area, orange barrier fencing will be erected to clearly delineate the aquatic habitat to be avoided.
- A post-construction compliance report prepared by a qualified biologist will be forwarded to the chief of the Endangered Species Division of USFWS Sacramento field office within 60 days after completion of the Project. This report will include dates that construction occurred, pertinent information about the applicant's success in implementing project mitigation measures, an explanation of any failures to implement mitigation measures, any known project impacts on federally listed species, any occurrences of incidental take of federally listed species, and any other pertinent information.

APM BIO-18: Compensate for loss of aquatic and upland habitat for giant garter snake

To compensate for the permanent loss of suitable aquatic habitat for giant garter snake, PG&E will create habitat within the project site and purchase off-site giant garter snake habitat credits from a USFWS-approved conservation area servicing the project area (Table 4.4-7). Onsite restoration of aquatic habitat will include the removal of the old lattice tower structures that will be replaced with new structures. The new structures have a smaller permanent footprint than the old lattice towers. The area of the old towers will be restored to surrounding habitat function and value.

An approved mitigation bank for giant garter snake within the project area is Westervelt Inc.'s property located in Sutter County. Permanent impacts will be compensated at a minimum ratio of 3:1. All temporary impacts to upland non-agricultural and agricultural habitat will be restored back to the pre-project condition within one year from the completion of the project. Disturbance to suitable habitat within 200 feet of a work area will be compensated for at a ratio appropriate for the duration of disturbance.

To comply with the federal Endangered Species Act, final compensation requirements and mitigation ratios for the proposed project will be determined through consultation with USFWS (including preparation of a biological opinion) before the issuance of grading permits for the affected area.

Impact BIO-11: Potential disturbance to and potential loss of individual western pond turtles—less than significant

Suitable habitat for western pond turtles occurs in the Yuba River, Bear River, Wyandotte Creek, Honcut Creek, and several sloughs and drainages crossed by the project alignment. Construction activities in annual grassland within 1,300 feet of suitable aquatic habitat could crush western pond turtles or pond turtle nests containing eggs or young. Further, indirect impacts could occur if sediments or hazardous materials enter suitable pond turtle aquatic habitat.

PG&E will implement APM BIO-20 to ensure that potential impacts on western pond turtles will be less than significant.

APM BIO-19: Conduct a preconstruction survey for western pond turtles and monitor construction activities within suitable aquatic and upland habitat

To avoid construction-related impacts on northwestern pond turtles, PG&E will retain a qualified wildlife biologist to conduct a preconstruction survey for western pond turtles no more than 48 hours before the start of construction in work areas that are within suitable upland habitat (grasslands within 1,300 feet of aquatic habitats). The preconstruction survey will be conducted in conjunction with giant garter snake and western spadefoot surveys. The wildlife biologist will look for adult pond turtles, in addition to nests containing pond turtle hatchlings and eggs. If an adult western pond turtle is located in the construction area, the biologist will move the turtle to a suitable aquatic site, outside the construction area. If an active pond turtle nest containing either pond turtle hatchlings or eggs is found, PG&E will consult DFG to determine and implement appropriate avoidance measures, which may include a no-disturbance buffer around the nest site until the hatchlings have moved to a nearby aquatic site.

Impact BIO-12: Temporary loss of potential burrowing owl nesting and foraging habitat during construction—less than significant

Construction activities (i.e., staging, grading, and excavation) associated with the project could result in temporary and permanent impacts on burrowing owl nesting and foraging habitat. If burrowing owls are using burrows within 250 feet of the construction right-of-way, grading and excavation activities could result in removal of an occupied breeding or wintering burrow site and loss of adults, young, or eggs. This potential impact is considered significant because construction could result in a substantial adverse effect on a special-status species and would violate the MBTA and California Fish and Game Code Section 3503.5.

Implementation of APM BIO-21 and APM BIO-22, if necessary, as described below will reduce the potential impact to a less-than-significant level.

APM BIO-20: Conduct preconstruction surveys for active burrowing owl burrows

DFG (1995) recommends that preconstruction surveys be conducted at all construction sites (except paved areas) in the project study area and in a 250-foot-wide buffer zone around the construction site to locate active burrowing owl burrows. PG&E will retain a qualified biologist to conduct preconstruction surveys for active burrows according to the DFG guidelines. Surveys typically include a nesting season survey and a wintering season survey. The surveys will cover all affected areas, including the transmission line route, staging areas, pull sites, and areas of access road improvements where ground disturbance is required. If no burrowing owls are detected, no further mitigation is required. If active burrowing owl burrows are detected, PG&E will implement APM BIO-22 (Implement DFG guidelines for burrowing owl mitigation, if necessary).

APM BIO-21: Implement DFG (1995) guidelines for burrowing owl mitigation, if necessary

PG&E will implement the following measures based on DFG Guidelines if active owl burrows are located within 250 feet of the project area.

- Occupied burrows will not be disturbed during the nesting season (February 1–August 31). PG&E will consult with DFG to determine the appropriate no disturbance buffer around active burrows, if owls are located near the project area.
- When destruction of an occupied burrow is unavoidable during the non-breeding season (September 1–January 31), unsuitable burrows will be enhanced (enlarged or cleared of debris) or new burrows created by installing artificial burrows at a ratio of 2:1 on protected lands approved by DFG. Newly created burrows will follow guidelines established by DFG.
- If owls must be moved away from the project construction area, passive relocation techniques, such as installing one-way doors at the burrow entrance, will be used instead of trapping the owls. At least 1 week will be necessary to accomplish the passive relocation and allow the owls to acclimate to alternative burrows.
- If active burrowing owl burrows are found and the owls must be relocated, PG&E will offset the loss of foraging and burrow habitat in the project construction area by acquiring and permanently protecting a minimum of 6.5 acres of foraging habitat per occupied burrow identified in the project construction area. The protected lands should be located adjacent to the occupied burrowing owl habitat in the project construction area or at another occupied site near the project construction area. The location of the protected lands will be determined in coordination with DFG. PG&E also will prepare a monitoring plan and provide long-term management and monitoring of the protected lands. The monitoring plan will specify success criteria, identify remedial measures, and require an annual report to be submitted to DFG.

- Avoidance will be the preferred method of addressing potential impacts. Avoidance will involve preventing disturbance within 160 feet of occupied burrows during the nonbreeding season (September 1–January 31) or within 250 feet during the breeding season. Avoidance also requires that at least 6.5 acres of foraging habitat (calculated based on an approximately 300-foot foraging radius around an occupied burrow), contiguous with occupied burrow sites, be permanently preserved for each pair of breeding burrowing owls or single unpaired resident bird. The configuration of the protected site will be submitted to DFG for approval.

Impact BIO-13: Disturbance of nesting raptors, special-status birds, and migratory birds—potentially significant

Construction activities such as tree and shrub removal and trimming, modification to or removal of existing towers, excavation and grading, and use of helicopters within or directly adjacent to the project area could result in direct impacts on nesting special-status and non-special-status raptors and migratory birds. These activities have the potential to cause nesting birds to flush from their nests, possibly resulting in loss of eggs and fledglings. Project activities resulting in abandonment of active nests would violate the MBTA and California Fish and Game Code, and would be considered a significant impact.

PG&E will implement the following measures, APM-BIO-23, APM-BIO-24, and APM-BIO-25, to ensure that potential impacts on nesting raptors, special-status birds, and migratory birds will be less than significant.

APM BIO-22: Conduct tree trimming, vegetation removal, and, if possible, tower removal during the non-breeding season

To avoid removal of active nests, tree trimming, vegetation removal, and removal of towers with active nests or in close proximity to areas with active nest sites, should be conducted during the non-breeding season (generally August 16 through February 28).

APM BIO-23: Conduct preconstruction surveys for active special-status and non-special-status raptors and migratory birds

Construction activities are anticipated to occur mainly during the nesting season for migratory birds and raptors (March 1–August 15). PG&E will retain a qualified wildlife biologist to conduct preconstruction surveys for nesting birds, for all construction activities that occur within or near suitable breeding habitat. Due to the long linear nature of the project, construction activities will be conducted in distinct sections of the transmission line. The preconstruction surveys will be conducted for each section no more than 1 week prior to the start of construction activities in that section. Surveys will cover all affected areas, which is the transmission line route, staging areas, pull sites, and areas of access road improvements where ground disturbance or vegetation clearing is required. Preconstruction surveys will be repeated if construction activities are dormant in a section for longer than 1 week.

If surveys indicate that migratory bird or raptor nests occur in areas that will be directly affected by construction activities, a no-disturbance buffer will be established around the nest site to avoid disturbance or destruction of the nest site until after the breeding season or until a wildlife biologist determines that the young have fledged. Generally, the buffer zones are 50–100 feet for nesting passerine birds, 300 feet for nesting raptors, and 500 feet for golden eagles. However, the extent of these buffers will be determined through coordination with DFG and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors will be analyzed to make an appropriate decision on buffer distances. All active nests occurring in or near the project area will be monitored during construction by the onsite monitor for signs of stress. If the onsite monitor determines that birds on the nest are stressed, construction will be halted and PG&E will contact DFG to determine a further course of action.

APM BIO-24: Avoid disturbance of active nests by helicopter use

Use of helicopters will be restricted to necessary trips to install and remove poles, install transmission lines, and deliver and remove equipment to areas lacking vehicle access. If active nests occur under planned helicopter flight paths, coordination with DFG will be required to determine whether modification of the flight path is necessary to avoid disturbance of active nests.

Impact BIO-14: Potential disturbance of nesting Swainson's hawk—potentially significant

Tree trimming, helicopter or construction noise, or increased human activity associated with the project could result in the disturbance of nesting Swainson's hawks if active nests are present within or near the study area. These disturbances could cause nest abandonment and death of young or loss of reproductive potential at active nests. Through loss of eggs or young, the proposed project could result in a substantial adverse effect on a species listed as threatened under the CESA and would be a significant effect. Implementation of avoidance and minimization efforts described above for disturbance of nesting raptors would ensure no take of Swainson's hawk eggs or young, and would reduce the effect on Swainson's hawk to less than significant.

Disturbance of nesting Swainson's hawk would be considered a significant impact. PG&E will implement APM BIO-23, APM BIO-24, and APM BIO-25 described above to ensure that potential impacts on nesting Swainson's hawk will be less than significant.

Impact BIO-15: Temporary disturbance to nesting habitat for tri-colored blackbird—less than significant

Tri-colored blackbird have potential to nest in stands of dense cattails or tules, willow thickets, blackberry, and California wild rose located near the project area. Construction traffic and use of a helicopter could result in direct loss of individual tri-colored blackbirds. Nesting habitat could be disturbed by increased traffic, human activity, and noise associated with proposed construction activities; however, the proposed project will not require removal of suitable nesting habitat for this species. Potential disturbance is considered temporary because suitable nesting habitat is abundant in the project region and tri-colored blackbird colonies will readily relocate to nearby suitable nesting locations. This potential impact would not result in a substantial reduction of the species in the region and is considered less than significant.

Impact BIO-16: Potential disturbance of roosting bats—less than significant

Bats have the potential to roost in trees, bridges, and train trestles near the project area. Potential disturbances to roosting bats include increased noise and vibrations associated with construction activities. The project is not expected to directly affect roosting bats because construction does not involve modification of trees, bridges, or train trestles suitable for roosting habitat. The potential noise and vibration disturbance associated with the project would be temporary and less than existing disturbances associated with the highway overpass structures, railroad corridor structures, or residential buildings that provide potential roosting habitat in the project area. This impact is considered less than significant and no mitigation is required.

Impact BIO-17: Temporary and permanent loss of habitat and potential loss of common wildlife species—less than significant

Construction activities throughout the project study area could temporarily disturb habitat for many common wildlife species. Construction activities also would remove a small amount of habitat for common wildlife species. Common wildlife species occur anywhere that is unpaved. The amount of habitat that would be disturbed is small relative to the amount of habitat available to these common species in the project region. In addition, many species would move out of the project sites and into nearby habitat areas when construction activities start.

This loss of individual animals would not result in a significant impact on common wildlife species because it would not lead to a substantial reduction or elimination of species diversity or abundance in the project region. This impact is less than significant and no mitigation is required.

Operations Impacts

Impact BIO-18: Potential impacts on special-status species, vegetation, and wetlands from maintenance activities—no impact

Vegetation trimming and clearing are required in the vicinity of transmission lines and transmission poles during the fire season. Tree trimming may affect some trees in riparian corridors. Impacts on special-status species or wetlands could occur if maintenance vehicles leave established access roads and drive through stream, seasonal, or perennial wetlands. Ongoing operations and maintenance activities along the existing transmission corridor are conducted in accordance with standard PG&E procedures to protect environmental resources. Operation and maintenance activities for the Palermo to East Nicolaus 115kV transmission line will be consistent with ongoing inspection and maintenance activities for all of PG&E facilities. Because there is no change to the existing environmental baseline, and no new impacts are anticipated, no impact is associated with operations and maintenance activities associated with the proposed project.

Impact BIO-19: Potential impacts on nesting birds from maintenance activities—no impact

Maintenance activities such as vegetation trimming and line repair could affect nesting birds if these activities occur during the nesting season. PG&E operating standards specify that, unless an active nest presents an immediate safety or operating hazard, it shall be left undisturbed. For situations where an active nest presents an immediate hazard the PG&E Bird Protection Program Manager or Terrestrial Biology Supervisor will be contacted before disturbing the nest in order to obtain necessary permission from the USFWS Migratory Bird Permit Office. If nest removal or relocation is necessary before permission can be obtained, appropriate action will be taken to correct the safety or operating hazard, and the PG&E Bird Protection Program Manager or Terrestrial Biology Supervisor will be notified within 72 hours. This is an ongoing program implemented as part of operations and maintenance procedures for the existing transmission line. There is no change to the environmental baseline and no new impacts are anticipated; therefore, no impact on nesting birds is associated with operations of the proposed project.

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Introduction

This section describes existing cultural resources in the project area. *Cultural resource* is a general term that encompasses CEQA's *historical resource* and *unique archaeological resource*, as well as the National Historic Preservation Act's *historic property*. Cultural resources are defined as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance (*14 CCR 15064.5[a][3]*). According to guidance published by the Office of Historic Preservation (1995:2), any "physical evidence of human activities over 45 years old may be recorded for purposes of inclusion in the [Office of Historic Preservation's] filing system." Therefore, this analysis considers any physical evidence of human activities more than 45 years old as a cultural resource. The analysis concludes that there will be no impact on known significant cultural resources and recommends mitigation in the event that unknown resources are uncovered during construction.

Existing Conditions

Regulatory Setting

Federal

Antiquities Act

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

National Environmental Policy Act

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

Section 106 of the National Historic Preservation Act

Portions of the proposed project would cross or result in fill being placed in wetland features, requiring PG&E to apply to the U.S. Army Corps of Engineers (USACE) for a permit under Section 404 of the Clean Water Act. The requirement of a permit from a federal agency qualifies PG&E's proposed project as a federal undertaking, obligating the Corps to comply with Section 106 of the National Historic Preservation Act (Section 106). Specific regulations regarding compliance with Section 106 state that, although the tasks necessary to comply with Section 106 may be delegated to others, the federal agency is ultimately responsible for ensuring that the Section 106 process is completed according to statute (*36 CFR 800*). The Section 106 process is a consultation process that involves the State Historic Preservation Officer (SHPO) throughout; the process also calls for including Indian Tribes and interested members of the public, as appropriate, throughout the process. Implementing regulations for Section 106 (*36 CFR 800*) detail the following five basic steps.

1. Initiate the Section 106 process.
2. Identify and evaluate historic properties.
3. Assess the effects of the undertaking on historic properties within the project's area of potential effects (APE).
4. If historic properties are subject to adverse effects, USACE, the SHPO, and any other consulting parties (including Indian Tribes) continue consultation to seek ways to avoid, minimize, or mitigate the adverse effect. A memorandum of agreement (MOA) is usually developed to document the measures agreed upon to resolve the adverse effects.
5. Proceed in accordance with the terms of the MOA.

State of California

California Environmental Quality Act (CEQA)

CEQA (CEQA) requires that public agencies (in this case, the CPUC) that finance or approve public or private projects must assess the impacts of the project on cultural resources. CEQA requires that alternative plans or mitigation

measures be considered if a project would result in significant impacts on important cultural resources. However, only impacts on significant cultural resources need to be addressed. Therefore, prior to the development of mitigation measures, the importance of cultural resources must be determined. The steps that normally are taken in a cultural resources investigation for CEQA compliance are listed below.

1. Identify cultural resources.
2. Evaluate the significance of resources.
3. Evaluate the impacts of a project on all resources.
4. Develop and implement measures to mitigate the impacts of the project only on significant resources, namely historical resources and *unique archaeological resources* (see below).

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

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

A cultural resource may be eligible for inclusion in the CRHR if:

- It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- It is associated with the lives of persons important in our past.
- It embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of an important creative individual; or possesses high artistic values.
- It has yielded, or may be likely to yield, information important in prehistory or history.

In addition, CEQA distinguishes between two classes of archaeological resources: archaeological resources that meet the definition of an historical resource as above, and *unique archaeological resources*. An archaeological resource is considered unique if:

- It is associated with an event or person of recognized significance in California or American history or of recognized scientific importance in prehistory.

- It can provide information that is of demonstrable public interest and is useful in addressing scientifically consequential and reasonable research questions.
- It has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind. (*PRC 21083.2.*)

Local Regulations

Although PG&E is not subject to local land-use regulations, the following overview of local regulations relating to cultural resources is provided for informational purposes. PG&E's project will comply with County standards in this area.

Butte County

Butte County General Plan

The Land Use Element of the Butte County General Plan (Butte County 2000:LUE-43) contains three policies concerning cultural resources. The County of Butte is in the process of updating its General Plan (year 2030 update), but has not completed the update at the time of this writing (Butte County 2008a, 2008b). Therefore, the policies contained in the 2000 update are discussed below.

Policy 6.7a: Identify and evaluate all cultural resources impacted [by] proposed projects before approval and development.

Policy 6.7b: Preserve significant sites or require their detailed investigation by competent archaeologists.

Policy 6.8a: Encourage preservation of significant historical sites.

City of Oroville General Plan

Goals and policies in the City of Oroville General Plan (City of Oroville 1995:6-36, 6.37) related to cultural resources are as follows:

Objective 6.15a: Protect archaeological [sic], historic, and paleontological [sic] resources for their aesthetic, scientific, and cultural values.

Policy 6.15b: Consult with the California Archaeological Inventory (CAI) and continue to conduct a records search as part of review of proposed development projects to determine whether the site contains known prehistoric or historic cultural resources and/or to determine the potential for discovery of additional cultural resources.

Policy 6.15c: Require that applicants for projects identified by the [CAI] as potentially affecting sensitive resource sites hire a consulting archaeologist to develop an archaeological resource mitigation plan; monitor the project to ensure that mitigation measures are implemented.

Policy 6.15d: Require that areas found during construction to contain significant historic or prehistoric archaeological [sic] artifacts be examined by

a qualified consulting archaeologist or historian for appropriate protection and preservation.

Policy 6.15e: For projects involving Federal land, or requiring Federal permission (including review by the [USACE]) or funding, work with applicants to meet appropriate criteria for archaeological [sic] resource review, prior to commencement of work.

Yuba County

Yuba County General Plan

Goals and polices in the Yuba County General Plan (Yuba County 1996:7-51–7.54) related to cultural resources are as follows.

12-OSCG. Preserve and Restore Cultural Resources, Including Historic Sites and Buildings.

40-OSCO. Attention during Development Project Review and Construction to the Potential for Cultural Resources to Occur on Development Sites.

185-OSCP: Prior to final action on any development project, the project shall be carefully reviewed against available information, including a records search at the California Archaeological Inventory, North Central Information Center, California State University, Sacramento, for impact on cultural and historical resources.

186-OSCP: When deemed appropriate by the Information Center, and particularly in the lower foothill zone, archaeological surveys shall be required for potential development sites.

187-OSCP: Only those archaeologists recognized as qualified by the North Central Information Center, California State University, Sacramento shall be permitted to conduct surveys and document findings for proposed development projects under review by the County.

188-OSCP: Where historic and prehistoric cultural resources have been identified, the County shall require that development projects be designed to protect such resources from damage, destruction, or defacement whenever possible. Whenever such resources cannot be avoided, appropriate mitigation measures shall be incorporated into the project as recommended by a recognized archaeologist, historian or paleontologist, depending on the type of expertise required.

41-OSCO: Public Awareness and Appreciation of Historic and Cultural Resources.

191-OSCP: Areas of known unique historical or cultural value within the County shall be preserved for educational, scientific, and aesthetic purposes.

192-OSCP: Native American groups shall be consulted whenever actions are proposed that may impact sites containing cultural resources of significance to Native Americans.

42-OSCO: Identification of Historically Significant structures and Sites.

194-OSCP: An inventory of historically significant structures and sites shall be maintained by the County and used to update Volume I of this General Plan from time-to-time.

195-OSCP: All historic resources appearing in the inventory shall be protected from incompatible development projects and other potentially adverse effects caused by discretionary development projects.

43-OSCO: Protection of Known Archaeologic [sic] and Historic Sites from Vandalism, Unauthorized Excavation or Destruction.

196-OSCP: The County shall assist in maintaining the confidentiality of archaeological site information.

Implementation Strategies

37-OSCI: Maintain a development project review process which documents compliance with the various objectives and policies for cultural resources for each development project or other development related action taken by the County. Lead Agencies: Planning Department, Public Works Department.

East Linda Specific Plan

Goals and polices in the East Linda Specific Plan (Yuba County 1990:5-13) related to cultural resources are as follows.

5.7.1. Historic/Cultural Resource Protection Policy

Where test excavations or any excavation or grading work results in discovery of cultural, archaeological or anthropological resources or artifacts, all work shall halt immediately for a distance of 100 feet from the discovery site, a qualified archaeologist shall be consulted for on-site excavation, and the SHPO shall be notified.

Plumas Lake Specific Plan

Goals and polices in the Plumas Lake Specific Plan/Zoning (Yuba County 1992:4) related to land cultural resources are as follows:

New Development Goal

It shall be the goal of Yuba County to ensure that new development is planned and occurs in a manner that will minimize...encroachment onto archaeological, historical or rare and endangered species sites.

Policy 4: Significant historical and archaeological sites shall be preserved and protected.

Sutter County

Sutter County General Plan

Goals and polices in the Sutter County General Plan (Sutter County 1996:55) related to cultural resources are as follows.

Goal 5.B: To identify, protect and enhance Sutter County's important historical, archeological and cultural sites.

Policies

5.B-1: The County shall encourage the preservation of historic sites, buildings, structures, and objects in addition to points of historical interest as identified in the Background Report.

5.B-2: The County should promote the registration of historic sites, buildings, structures and objects in the National Register of Historic Places, and inclusion in the California State Office of Historic Preservation's California Points of Interest and California Inventory of Historic Resources.

5.B-3: The County shall solicit the views of the local Native American community in the cases where development may result in disturbance to sites containing evidence of Native American activity and/or tombsites of cultural importance.

Implementation Programs

5.2: The County shall require that an archeological reconnaissance be conducted and a report be prepared for development projects located in areas of high archeological sensitivity. Responsibility: Community Services Department.

5.3: The County shall encourage the use of an architectural historian or other qualified expert to evaluate buildings, structures, and objects for development projects in areas with potential historic significance. Responsibility: Community Services Department.

5.4: The County should strive to maintain its inventory of historic sites, buildings, structures and objects of local or County-wide historic significance and include them in the next Comprehensive General Plan Update. Responsibility: Community Services Department.

Environmental Setting

This section discusses the cultural resources setting for the project area vicinity, including a brief summary of the prehistory, ethnographic information pertaining to the local Native American population, and a general history of the region—beginning with Spanish settlement.

Prehistoric Context

Palermo Vicinity

The earliest known evidence of human occupation in the Palermo vicinity dates to about 5000 years before the present (BP; conventionally AD 1950) (Selverston et al. 2005:45). By approximately 5000 BP, people possibly from the Great Basin were seasonally hunting and gathering in the higher elevations and apparently also extended well into the Sacramento Valley. Their material culture has been termed Martis, after the Martis Valley, where they were first recognized.

The northern foothill area, roughly corresponding to the ethnographically known Maidu area, includes four recognized prehistoric archeological phases typical of

this subregion, defined by the following complexes: the Mesilla, Bidwell, Sweetwater, and Oroville (Moratto 1984:297–300, Figure 7.6; Selverston et al. 2005:46–47).

Dating from approximately 3000–2000 BP, the Mesilla Complex is characterized by atlatl (a dart- or spear-throwing device) points, bowl mortars, various shell beads, charm stones, and bone implements. Sites defining this phase apparently reflect seasonal forays into the foothills for hunting and gathering and appear to indicate Martis influence.

Dating from approximately 2000–1200 BP, the Bidwell Complex is recognized by milling stones, wooden mortars (inferred), large slate and basalt points, steatite vessels, and flexed burials. The settlement/subsistence pattern appears to have included permanent villages with surrounding task-specific locations (e.g., hunting, fishing, and food processing).

The Sweetwater Complex has been identified as dating from approximately 1200 to 500 BP. Traits include certain shell, bead, and ornament forms; steatite cups and other implements; small projectile points (Eastgate, Rose Spring, and Gunther Barbed types); and extended or semi-extended burials.

The Oroville Complex, ca. 500–150 BP, is identified by numerous bedrock mortars, incised bird-bone tubes, gorge hooks, gaming bones, clamshell disk beads, circular dance houses, and tightly flexed burials. This phase ended with the malaria epidemic of 1833, which greatly reduced the Maidu population.

Valley Prehistory

Pleistocene/Holocene Transition: 12,000–8000 BP

Archaeological evidence for human use of the Central Valley during the late Pleistocene and early Holocene epochs is scarce. At the end of the Pleistocene, circa 12,000–8000 BP, parts of the Sierra Nevada adjacent to the Central Valley were covered with large glaciers, and the valley provided a major transportation route for animals and people. This transportation corridor, perhaps rivaled only by maritime coastal travel, was undoubtedly used heavily by early Californians.

Although rare, the archaeological remains of these activities have been identified in the Central Valley (Moratto 1984:62–64). Johnson (1967:283–284) presents evidence for some use of the Mokelumne River area, under what is now Camanche Reservoir, during the late Pleistocene. These archaeological remains have been grouped into what has been called the Farmington Complex (Treganza and Heizer 1953:28). Recent archaeological investigations at CA-Sta-69 (in the vicinity of Farmington Complex type site CA-Sta-44), however, indicate that the Farmington Complex assemblage at the site is contained completely within Holocene-age alluvial terrace deposits, not Pleistocene-age glacial outwash deposits. These findings raise the question of whether reinvestigation of other Farmington Complex assemblages will reveal a Holocene-age assemblage rather than a terminal Pleistocene age as has been assumed. (Rosenthal et al. 2007:151.)

Early Horizon: 8000–4000 BP

A generalized subsistence strategy worked well for the inhabitants of the Central Valley for many millennia. During the Early Horizon, beginning at approximately 6000 BP, change in the subsistence strategy begins to take place. The beginnings of this intensification can be seen in what has been identified as the Windmill Pattern and is based on the assemblage at the Windmill site (CA-Sac-107).

Artifacts and faunal remains at Windmill sites indicate that a diverse range of resources was exploited, including seeds, a variety of small game, and fish. The material culture assemblage includes trident fish spears; at least two types of fishhooks; quartz crystals and numerous charm stone styles; and a baked-clay assemblage that included net sinkers, pecan-shaped fish-line sinkers, and cooking balls. Ground stone items included mortars and pestles. The bone tool industry appears minimal but includes awls, needles, and flakers.

People with a Windmill adaptation buried their dead in formal cemeteries, both within and separate from their villages, in a ritual context that included the use of red ochre, often rich grave offerings, and ventral extension with a predominantly western orientation (although other burial positions, such as dorsal extension and flexed, and cremations are also known). While the Windmill pattern is identified with the Sacramento–San Joaquin River Delta (Delta), work at Camanche Reservoir has identified sites with Windmill assemblages, indicating that other valley settings were also used by people exhibiting these adaptations. (Moratto 1984:201–207.)

Middle Horizon: 4000–1500 BP

The adaptive pattern that is found most frequently during the Middle Horizon is called the Berkeley Pattern and is based on the assemblage of CA-Ala-307. Sites displaying Windmill Pattern assemblages, however, are also found in the Middle Horizon. The Windmill Pattern sites in this period seem to occur with more frequency in or near the Delta, while Berkeley Pattern sites tend to be prevalent farther north.

The Berkeley Pattern differs primarily in its greater emphasis on the exploitation of the acorn as a staple. This distinction is reflected in the more numerous and varied mortars and pestles. This complex is also noted for its especially well-developed bone industry and such technological innovations as ribbon flaking of chipped stone artifacts. During this era, flexed burials replaced extended burials, and the use of grave goods generally declined. (Moratto 1984:207–211.)

Late Horizon: 1500–150 BP

The predominant generalized subsistence pattern during the Late Horizon is called the Augustine Pattern. Archaeological sites representing the Augustine Pattern show a high degree of technological specialization. Artifacts in this period include artifacts of composite materials, developed reductive technologies such as stone and shell work, and highly specialized adaptive technologies including basketwork and ceramic production.

Other notable elements of the material culture assemblage include flanged tubular smoking pipes; harpoons; ceramic figurines and vessels (Cosumnes Brownware); clam-shell disk beads; and small projectile point types such as the Gunther Barber series. These small projectile points may indicate the use of the bow and arrow. Complex social and economic institutions are also represented by different access to wealth, the implementation of a shell money system, and the maintenance of extensive exchange networks. (Moratto 1984:211–214.)

Ethnographic Context

Konkow Maidu

Ethnographically, the Konkow Maidu occupied the area northwest of their Nisenan neighbors, in the foothills east of Chico and Oroville, as well as a portion of the Sacramento Valley (Riddell 1978:Figure 1). Konkow is one of three languages comprising the Maidu language family of the Penutian linguistic stock. Several dialects of Konkow were spoken from the lower extent of the Feather River Canyon, to the surrounding hills and in the adjacent parts of the Sacramento Valley. (Riddell 1978:370; Shipley 1978:83.)

The Konkow lived in village communities of three to five villages, in round semi-subterranean houses covered with earth. It is estimated that a typical village consisted of about 35 people during ethnographic times. Villages were made up of smaller groups. Family units were usually of comprised two to five people. A major village with a large assembly and subterranean ceremonial lodge served as the central ceremonial and political focus for affiliated villages in the vicinity.

This central village was not necessarily the most populous village, but likely served as the residence of the chief, who lived in the ceremonial lodge. The chief's primary roles were those of advisor and spokesman. The individual villages were self sufficient, not under the control of a headman. (Riddell 1978:373, 379.)

In winter, the Konkow settled in widely dispersed patterns along river canyons, usually on ridges high above rivers and generally on small flats on the crest of the ridge, or half-way down the canyon side. A village-community owned and defended a known territory, which served as a communal hunting and fishing ground. Some villages were strategically located atop isolated knolls in regard to attack and defense considerations.

The Konkow followed an annual gathering cycle that made it necessary for them to leave their winter settlements on the river ridges. In the summer, they traveled into the mountains to hunt. In the spring, they ventured into the valley areas to collect grass seeds. (Riddell 1978:373–374.)

The Konkow economy was a mixture of hunting, fishing, and gathering. They managed their food resources skillfully, which made it possible for them to have a surplus during the non-harvest times. During harvest times, families gathered

greens, tubers, roots, seeds, nuts, and berries. Although wildrye was common in their diet and pine nuts were highly valued, the most important of the harvested foods were acorns, particularly from black oak.

The Konkow managed their environment with a method of burning that enhanced favorable ecozones. The Feather River provided a wealth of fish resources, mainly in the seasonal salmon runs. Lamprey eel were also abundant and favored by the Konkow in ethnographic times. Hunting was also an important source of food for the Konkow. Deer were the main game animal, but others included elk, rabbits, squirrels, and birds such as quail, pigeons, and ducks. (Riddell 1978:373–375.)

Because the Konkow had no complex political organization, the shaman was an important figure in their society. With his mysterious powers and spiritual communication, he provided a sense of unity among the village community. He functioned in ceremonies and festivals, and served as a medical doctor. The office of shaman was an inherited one, falling to their sons after their death. (Riddell 1978:384.)

The Konkow held an annual mourning ceremony, the Keruk, for the recently deceased, which re-enacted the death of the creator, Kukumat. For this ceremony a male and female effigy were created, clothed, and burned. Other things such as food, money, and blankets were also given to the god by burning.

The Maidu participated in the Kuksu cult, also practiced by the Patwin, Pomo, northern Costanoans, and the Coast and Sierra Miwok. Kuksu, “the South God,” renews the world each year. The ritual was celebrated in round dance houses by dancers with elaborate costumes including large feather headdresses. (Riddell 1978:383–384.)

Konkow life was little affected by European contact until the Gold Rush in 1849, which was particularly devastating for them. The Feather River and surrounding foothills were abundant in gold, which lured hordes of miners to the area. The miners brought diseases, which were deadly to the native peoples, decimating the population. These miners also destroyed the landscape with their mining techniques, and violently drove the surviving Konkow from their lands.

When the mining craze was over, the miners settled in the area and turned large tracts of land into agricultural fields. Because the miners wanted their land, the Konkow were driven off their traditional lands twice. In 1853, the Konkow were rounded up along with other Native American groups and sent to the Nome Lackee reservation in Tehama County. Nome Lackee was not a successful reservation and most of the families returned to their original lands.

In 1863 the Konkow were again rounded up by the militia and driven in what is now remembered as the “Death March” across the Coast Range to the Round Valley Reservation in northern Mendocino County. Many of these families remain in Round Valley today. Around the turn of the twentieth century several small rancherias were created, finally establishing a legal land base for them and formalizing their tribal status with the federal government. Today the Konkow

are very active in cultural preservation in and around the Palermo/Feather River area. (Riddell 1978:385–386.)

Valley Nisenan

The proposed undertaking is also located within the lands occupied and used by the Nisenan, or Southern Maidu. The language of the Nisenan, which includes several dialects, is classified within the Maidu family of the Penutian linguistic stock. (ShIPLEY 1978:83.) The western boundary of Nisenan territory was the western bank of the Sacramento River. The eastern boundary was the crest of the Sierra Nevada. (Wilson and Towne 1978:387.)

Nisenan settlement locations depended primarily on elevation, exposure, and proximity to water and other resources. Permanent villages were usually located on low rises along major watercourses. Village size ranged from three houses to 40 or 50. Houses were domed structures covered with earth and tule or grass and measured 3.0–4.6 meters in diameter. Brush shelters were used in the summer and at temporary camps during food-gathering rounds.

Larger villages often had semi-subterranean dance houses that were covered in earth and tule or brush and had a central smokehole at the top and an east-facing entrance. Another common village structure was a granary used for storing acorns. A Nisenan village, Holloh, was located 2.4 kilometers west of the proposed project's crossing of the Bear River. (Wilson and Towne 1978:388–389, Figure 1.)

The Nisenan occupied permanent settlements from which specific task groups set out to harvest the seasonal bounty of flora and fauna that the rich valley environment provided. The Valley Nisenan economy involved riparian resources, in contrast to the Hill Nisenan, whose resource base consisted primarily of acorn and game procurement. The only domestic plant was native tobacco, but many wild species were closely husbanded.

The acorn crop from the blue oak and black oak was so carefully managed that its management served as the equivalent of agriculture. Acorns could be stored in anticipation of winter shortfalls in resource abundance. Deer, rabbit, and salmon were the chief sources of animal protein in the aboriginal diet, but many other insect and animal species were taken when available. (Wilson and Towne 1978:389–390.)

Religion played an important role in Nisenan life. The Nisenan believe that all natural objects were endowed with supernatural powers. Two kinds of shamans existed: curing shamans and religious shamans. Curing shamans had limited contact with the spirit world and diagnosed and healed illnesses. Religious shamans gained control over the spirits through dreams and esoteric experiences. The usual mode of burial was cremation. (Wilson and Towne 1978:393–396.)

Historical Context

Early History

The history of the project vicinity involves the histories of southeastern Butte County, western Yuba County, and southeastern Sutter County. Gabriel Moraga initiated Spanish expeditions of the region in 1808. Moraga named one of the area's rivers "Rio de las Uvas," which came to be known as the Yuba River. Hudson's Bay Company trappers traveled through the region in the 1830s, followed by the John C. Fremont expedition in 1846. Sutter County received its name from John A. Sutter, who established Sutter's Fort in Sacramento during the early 1840s, and whose Hock Farm and New Helvetia lands included areas of Yuba and Sutter counties.

This region exploded with mining activity during the Gold Rush, which attracted both American migrants and Chinese immigrants. In 1856 the Sutter County seat was moved north to Yuba City from Nicolaus. Located at the ferry crossing established by German-born Nicolaus Allgeier, the town of Nicolaus grew rapidly thanks in part to plot sales generated by an advertising campaign. But the town went into decline in the early 1850s, when newcomers realized that the Feather River at that location was not consistently navigable.

Butte County was founded in 1850 and Oroville became the County seat in 1856. Yuba County was founded in 1850 with Marysville as its seat. (Hoover et al. 1990:35, 492–494, 538; Rawls and Bean 2003:78–79; Williams et al. 2002:5-34–35, 5-52.)

During the 1850s and 1860s, the region attracted significant capital investment in construction of increasingly large-scale water conveyance and storage systems for hydraulic mining operations. By 1865, Butte and Yuba Counties had 104 kilometers and 241 kilometers of mining ditches, respectively. By the 1870s, 644 kilometers of ditch and flume conducted water from the Sierra Nevada to foothill placer mining sites.

Generating wealth, hydraulic mining altered the environment in ways that caused disastrous flooding and made waterways un-navigable. The industry went into decline after 1884, when the U.S. circuit court outlawed mining debris in rivers. Gold excavation in the region was revived with dredge mining operations around Oroville and Honcut after 1900. (Rawls and Bean 2003:112, 208; Williams et al. 2002:5-34–35.)

Transportation

Before 1850, mule trains served as the primary form of transportation in much of Sutter, Yuba, and Butte Counties. The Beckwourth emigrant trail ran through the region from present-day Oroville to Marysville. After 1850, stage lines increasingly linked Marysville to nearby towns such as Parks Bar, Downieville, Auburn, and Nevada City. Formed in 1854, the California Stage Company,

which won a U.S. mail contract in 1860, ran stages between Oroville and Quincy. (Williams et al. 2002:5-37–38.)

Railroads arrived in the region by 1858. That year, the California Central Railroad, which was owned by the Yuba Railroad Company, began operating between Folsom and Marysville. The California Northern Railroad completed an alignment linking Marysville and Oroville in 1864. By the early 1870s, the Central Pacific Railroad Company (CPRC) had acquired these and other railroads in the consolidation campaign undertaken by its owners following its completion of the transcontinental railroad in 1869.

The Western Pacific Railroad, incorporated in 1903, constructed a line through the Feather River Canyon in 1906. During the era of railroad development, Marysville became a major hub of regional rail traffic. Spurred in part by railroad shipping, agriculture became an increasingly important component of the region's economy. (Rawls and Bean 2003:177–178, 180–182; Williams et al. 2002:5-38–39, 55.)

The Northern Electric Railway and the Sacramento Northern Railway

As enthusiasm for commuter-oriented electric rail travel grew, several electric lines were developed in the Sacramento Valley region. The Northern Electric Company was established as an electric interurban railway in 1905. That year, railroad engineer Henry Butters purchased the Chico Electric Railway Company, which opened a line in 1906 that ran from Chico to Oroville. Later that year, services were extended to Marysville, and in 1907 construction began to connect Marysville with Sacramento, a line which would include a stop at East Nicolaus.

That same year the company was renamed the Northern Electric Railway Company. After developing or acquiring several additional lines, the company experienced financial difficulties. In 1918 the Northern Electric Railway was sold to the Sacramento Northern Railway, which incorporated all of the electric lines in the Sacramento Valley. In 1921, the company was purchased once more, this time by the Western Pacific Railway Company.

The depression of the 1930s and regional increases in automobile use brought financial difficulties to the company. In 1940, the company began phasing out its service lines, and, in 1945, the State Railroad Commission declared electric railways illegal for safety reasons, forcing the company to switch to diesel fuels. The rails were eventually pulled up, and portions have been paved over. (Rawls and Bean 2003:210; Swett et al. 1981:11–20, 33, 199–200.)

Agriculture and Irrigation

Settlers raised wheat and vegetables in the Marysville/Yuba City area as early as the 1840s. Small-scale hop farming was introduced to the area in 1859. Domesticated cattle and sheep arrived from the Midwest in the early 1850s and multiplied prodigiously, creating the basis for construction of the Marysville Woolen Mills in 1876. Agriculture made gains in the region during the 1860s,

but in Butte County mining activity increased at the expense of agriculture during the next decade.

Not until the 1880s did the agricultural economy increase markedly, due to two factors. First, the conversion of hydraulic-mining water conduits to irrigation systems, a process dominated by private companies in this region of California, introduced the possibility of transforming otherwise poor growing land into highly productive land. Second, the railroad and, by the late 1880s, the refrigerated rail car, encouraged local farmers' participation in a wider range of markets. (Rawls and Bean 2003:2008-09; Williams et al. 2002:40-46, 49-51.)

Fruit production became a major element of the regional economy—and settlement—during the last two decades of the nineteenth century. Citrus colonies were organized in Butte County between 1886 and 1895, the most prominent of which were Thermalito, Palermo, and Rio Bonito. (Frederich 1974:13.)

Palermo Colony

Economic and settlement patterns in the Palermo vicinity from the 1850s to the late 1880s followed trends typical of foothill Butte County and other areas similarly situated throughout what became the northern California citrus belt. The main industries of the Palermo vicinity between the 1850s and 1870 were grain agriculture and cattle raising.

The increase of settlement of the region constrained ranchers' ability to obtain the vast tracts of land requisite for grazing cattle, however. Better suited for smaller scales of land use, sheep were brought to the Palermo area by ranchers and raised profitably for wool production. Sheep ranchers took increasing control of former cattle-grazing land, becoming the dominant industry until February of 1888. (Rutherford 1890:6-7.)

Two phenomena favorable to the eventual development of Palermo transpired between 1865 and 1882. First, in 1865, the land encompassing present-day Palermo was surveyed and opened for entry. Second, the California Northern Railroad (now the Southern Pacific Railroad) constructed a line to the present site of Palermo in 1882 and was for a time the line's terminus. (Rutherford 1890:6.) The presence of the railroad linked the Palermo area directly to wider markets and doubtlessly made the prospect of an agricultural colony viable.

The Palermo Colony was incorporated on January 7, 1888 as a citrus tract. Prior to incorporation, most of Palermo belonged to Daniel Abby, who had purchased the land from the California Northern Railroad, homesteaders, and the federal government. By November 24, 1887, the Oroville-based company of D. K. Perkins and Wise purchased Abby's land and a further 1,000 acres of Wendall Grubs' land, as well as a water feature later called Palermo Ditch (the ditch drew water from the South Fork of the Feather River and was built in 1856 to support mining operations).

D. K. Perkins and Wise formed the Palermo Land and Water Company with the McAfee brothers of San Francisco in 1888. (Frederich 1974:13; Mansfield

1918:303–304.) Eventually acquiring an interest in the Palermo holdings, San Francisco publisher George C. Hearst recruited Midwesterners to establish olive and citrus orchards at the colony, and built a home there for his wife Phoebe, who named the area after an Italian city she had visited (Williams et al. 2002:5-40–46, 49–51).

In February 1888, surveyors laid out a town with main avenues, cross avenues, town lots, and villa lots, all located east of the Southern Pacific Railroad. A few houses were built, some town lots cleared, a railroad depot built, and orchard trees planted between February and March that year. Altogether, about 235 acres of land was planted, primarily with oranges.

More than 13 kilometers of roads were graded, forming several streets in present-day Palermo: North Villa, Gibraltar, Railroad, Louis, and Irwin avenues. By April 1888, ditches had been built from “the head dam” near the South Fork of the Feather River to Palermo (some 39 kilometers) to bring water to the colony. (Rutherford 1890:7.)

In May 1888, the Palermo Land and Water Company subdivided the land west of the Southern Pacific Railroad and graded a few streets, forming a second subdivision in the colony. Additionally, a blacksmith’s shop, business block, planing mill, general store, schoolhouse, and the Palermo Telegraph Line were built at this time.

A Wells Fargo & Co. express office and a post office were opened in July and August the same year, respectively. The summer of 1888 witnessed the laying out of a third subdivision, from which then-U.S. Senator George W. Hearst bought 700 acres and planted orchards. By January 1889, a total of 23 buildings had been erected in Palermo. (Rutherford 1890:7–8.)

The Palermo Land and Water Company paid to have the streets laid out and a water system built. The water system consisted of irrigation ditches and a distribution pipeline for town, which was operational beginning July 4, 1889. (Rutherford 1890:8.) These expenditures proved a worthwhile investment for the Palermo Land and Water Company: by August 1889 the company had sold 2,350 acres of land with receipts totaling \$190,000 on \$50,000 expended on street and water system construction. The company sold another 1,635 acres by May 1890. (Frederich 1974:14.)

Nearly 50 percent of the orchards consisted of oranges. By the close of 1889, 1,200 acres of vines and trees had been planted and irrigation ditches dug in all directions. Some 1,800 acres of oranges, olives, figs, prunes, pears, peaches, apricots, and grapes had been planted by October 1890. At this time, the number of buildings in Palermo, exclusive of outbuildings, reached 54 with 49 families in residence. (Rutherford 1890:8–11res.)

A total of 6,000 ac of land had been subdivided by 1890 and 241 kilometers of irrigation ditches built (Frederich 1974:14; Rutherford 1890:8–11). Two years later, Palermo had a population of 500 persons, 75 residences, and a weekly newspaper *The Progress* (Frederich 1974:14). Historical sources predating 1920

indicate that the early ditches in Palermo were of earthen construction (University of California 1915:358–359).

In terms of agricultural production, Palermo Colony commenced in 1888 with the planting of 22,000 orchard trees. By 1889 the number of trees rose to 41,000 and to 160,000 by 1892. The Palermo orange harvest alone in 1895 filled more than 40 railroad cars, representing only a partial sale of this crop and not including other fruit and nut crops from the area.

By 1900, Palermo constituted a fruit-producing community, but operated through the agency of numerous individual sellers rather than as a cohesive colony under the Palermo Land and Water Company. The Palermo Land and Water Company continued to operate as a corporation—principally selling water to irrigators—until 1945, at which time it dissolved, having commenced sale of public utility property and water rights to entities such as the Oroville-Wyandotte Irrigation District as early as 1929. (Frederich 1974:14, 16; University of California 1929:116–117.)

Settlement—Marysville

Euro-Americans settled present-day Yuba County intensively during the California Gold Rush. Beginning in 1849, prospectors and entrepreneurs overran the streams of the Sierra Nevada, including the Yuba River, in search of riches. Placer miners initially established claims and settlements on watercourses, then gradually worked back from the flats adjacent to streams to ridges and hillsides. The flood of 1850 encouraged miners to work areas located above the high-water mark of the Yuba River. By 1857, hydraulic mining began to replace the placer methods. Debris from hydraulic operations destroyed or buried many of the older mining camps. (Hoover et al. 1966:589–590.)

Agriculture and stock raising were the primary industries in the present-day Yuba County region during the historic period. Regional ranching originated on the New Helvetia and Johnson's ranchos in the early 1840s. The Gold Rush precipitated growth in agriculture and ranching, as ranchers and farmers realized handsome returns from supplying food and other goods to miners. Frequent floods, however, plagued the residents of the Feather–Bear River floodplain and posed a significant threat to the viability of agricultural interests and further settlement of Yuba County.

Initial efforts at flood control were usually an uncoordinated effort consisting of small levees and drains constructed by individual landowners. These efforts proved insufficient to protect cultivated land and much land east of the Feather River remained marshland that was unsuitable for agriculture (U.S. Geological Survey 1910, 1911).

In 1861, the state legislature created the State Board of Swampland Commissioners to effect reclamation of swamp and overflow lands. The Board established 32 districts that attempted to enclose large areas with natural levees. Lack of cooperation among landowners within the districts led to chronic

financial crisis. When the legislature terminated the State Board of Swampland Commissioners in 1866, responsibility for swamp and overflow land fell to the individual counties.

Many counties offered incentives to landowners for reclaiming agriculturally unproductive land. If a landowner could certify that they had spent at least two dollars per acre in reclamation, the county would refund the purchase price of the property to the owner. Speculators took advantage of this program and a period of opportunistic and often-irrational levee building followed. (McGowan 1961; Thompson 1958.)

In 1908, residents of Yuba County had formed Reclamation District 784 (RD 784). The district was formed partially in response to the flood of 1907. At the time of its formation, RD 784 encompassed 22,762 acres of land between Marysville and the community of Rio Oso, much of which was owned by the Farm Land Investment Company. RD 784 built substantial levee and drainage systems to restrain floodwaters from the Bear and Feather Rivers and incorporated levees built by the Farm Land Investment Company and other landowners.

In 1911, the newly established State Reclamation Board took jurisdiction over reclamation districts including RD 784. That year, with approval from the state, the Sacramento Flood Control Plan was implemented. The plan proposed an ambitious program of construction of levees, weirs, and bypasses along the river.

In 1920, RD 784 voters approved a plan to improve levees along the Yuba, Bear, and Feather Rivers and to improve drainage in the vicinity of Messick Lake, Plumas Lake, and other backwater marshes along the Feather River. The Corps assisted RD 784 with the construction of a levee system at the eastern boundary of the district. Reclamation efforts in RD 784 promoted settlement and development of the land between Rio Oso and Marysville. (JRP Historical Consulting Services 1994a:6–12.)

A large portion of Yuba County was originally included in John A. Sutter's New Helvetia land grant established in 1841. In 1842, Sutter leased the land that would include the City of Marysville to Theodor Cordua, a settler from Mecklenburg, Germany. Cordua raised livestock on the land and in 1843 built an adobe residence and trading post at what is now the southern end of D Street. Although Cordua called his settlement "New Mecklenburg," it was more commonly known as "Cordua's Ranch." Because of its location on the California-Oregon Trail through the Sacramento Valley, it soon became an important waystation for emigrants and hunters. (Hoover et al. 1990:538–539; Laney n.d.:46–47; Yuba County Historical Commission 1976:11–13.)

In 1848, Charles Covillaud, an immigrant from France and a former employee of Cordua, was one of the first in California to strike it rich in the gold fields. That same year he purchased half of Cordua's holdings with his new found wealth. The following year, Michael C. Nye and William Foster, brothers-in-law of Covillaud's wife Mary Murphy, purchased the other half.

The settlement then became known for a time as Nye's Ranch. In September 1849, Nye and Foster sold their interest to Covillaud. The next month, Covillaud sold three-fourths of the rancho to Jose Ramirez, John Sampson, and Theodore Sicard. The prosperity of the newly founded nearby towns of Yuba City, Vernon, and Linda inspired the partners to survey a town at the site of Nye's Ranch and sell lots. In 1850, they hired French surveyor Augustus Le Plongeon to create a master plan for a town.

Le Plongeon's original plan for the town apparently featured streets radiating out from a central hub. This sophisticated plan was scrapped in favor of a typical grid plan embellished with several large parks and plazas. It also included a broad plaza or embarcadero on the Feather River and a broad boulevard (E Street) that extended from the river north for 20 blocks to the city limits. (Hoover et al. 1990:538–539; Laney n.d.:46–47; Yuba County Historical Commission 1976:11–13.)

Nye's Ranch soon became the head of navigation on the Feather River and the point of debarkation for riverboats from San Francisco and Sacramento filled with miners on their way to northern mines. Pack trains loaded with supplies headed out from the town up the canyons to Downieville and other mountain mining towns. The settlement's ideal location soon led to phenomenal growth and economic superiority over other towns in the region.

By 1850, the permanent population reached about 500. During the winter of that year, the town's leaders formed a committee to draw up official incorporation papers to present to the new state legislature that was set to convene in January 1851. The committee also discussed a variety of names for the new city, including Yubaville, Sicardville, Scardoro, and Circumdoro, before they settled on Marysville, in honor of Mary Murphy Covillaud. In January 1851, the new California legislature approved the charter for the City of Maryville with the official incorporation occurring the following month.

Over the next decade, Marysville grew rapidly and the population increased steadily. Between 1851 and 1855, nearly 140 brick buildings were erected in the commercial area of town. By 1853, the city was the third largest in the state. Gold remained the center of the economy and in 1857 alone, more than \$10 million in gold was shipped from Marysville's banks to the U.S. mint in San Francisco. The population reached nearly 4,000 permanent residents by the end of the decade. (Laney n.d.:46–47; Yuba County Historical Commission 1976:11–13.)

For the remainder of the nineteenth century, as gold production declined, Marysville's economic base shifted to agriculture. As was true in most regions of the state, wheat became the most profitable and therefore most popular crop during the 1860s and 1870s. The arrival of the Southern Pacific Railroad in the mid-1860s diverted traffic from the river and made transportation of goods to market easier and more reliable.

During this time, the population of Marysville changed in character with women and children replacing single men. Although the city's population rose to nearly

5,000 in 1870, repeated flooding and the depression that followed the collapse of the international wheat market resulted in a slow decrease in population during the 1880s and 1890s. (Laney n.d.:46–47; Yuba County Historical Commission 1976:11–13.)

The construction of large-scale irrigation projects created a boom in Marysville's economy during the early part of the twentieth century. Dry-farmed wheat gave way to irrigated orchard crops as farmers subdivided their large former wheat tracts into 20- to 40-acre parcels on which to grow a variety of fruits, including peaches, prunes, and raisins. Other profitable crops included beans and rice. By the 1920s, Marysville was once more the vital economic hub for the region. The Western Pacific and Sacramento Northern railroads established links to serve Marysville. Several large corporations, including Pacific Gas and Electric Company and Standard Oil, established regional headquarters in the city.

The revitalized economy led to a 65 percent increase to Marysville's population between 1900 and 1930. It was also during this period of expansion that many of Marysville most recognizable architectural landmarks were constructed. During the late 1920s, more than 20 major new buildings, valued at well over one million dollars, were erected in the city. Two of the most notable are the seven-story Hart Building and the Marysville Hotel. (Laney n.d.:46–47; Yuba County Historical Commission 1976:11–13.)

Hydroelectricity and Transmission Development

Hydraulic mining left a legacy of water conveyance infrastructure readily adaptable not only to irrigation, but also to development of hydroelectric power-generating facilities. From 1879 through the 1890s, numerous mining and milling operations in the Sierra Nevada developed small hydroelectric generators for production of light and for powering equipment. California's population centers to the west were resource poor in terms of wood and coal, the combustible materials utilized in the steam-generating plants that powered the first street-lighting systems. Although Sierra Nevada watersheds offered a potentially renewable source of energy production, early transmission technology did not allow for conduction of electricity from the state's eastern mountains to its westerly population centers. (Williams 1997:172–173.)

Necessity drove invention when it came to the potential promise of hydroelectricity in California and the immediate problem of long-range electricity transmission. Promoted in the east by Edison Electric Light Company, direct current (DC) could not be transmitted over five miles. Single-phase alternating current (AC), by comparison, could be transmitted over longer distances to power lights but not motors. However, the development of multi-phase AC technology by Nicola Tesla, George Westinghouse, and the General Electric Company created new possibilities for long-distance transmission.

In 1891, engineer Almerian Decker migrated from Cleveland, Ohio, to Southern California for health reasons, bringing with him knowledge of multi-phase AC technology. After building several long-distance single-phase AC transmission

systems, Decker helped develop the three-phase AC transmission technology utilized by the Mill Creek hydroelectric plant, which began operations in 1893.

Two years later, General Electric's James Lighthipe utilized this technology to begin transmitting 11,000 volts over a distance of 21 miles from the new Folsom Powerhouse on the American River to Sacramento. This important event marked the arrival of long-distance hydroelectricity transmission in Northern California. Over the next three decades, increasingly larger hydroelectric facilities, with increasingly lengthy and powerful transmission systems, proliferated throughout the Sierra Nevada Mountains and adjacent foothills. (Williams 1997:172–176.)

Great Western Power Company

One of the largest of the early hydroelectric systems that spread across the Sierra Nevada Mountains and foothills was constructed in Plumas and Butte Counties by the Great Western Power Company (GWPC), incorporated in 1906. GWPC's first hydroelectric project on the Feather River at Big Bend utilized facilities acquired from the Big Bend Tunnel and Mining, the Eocene Placer Mining, Sprague Electric, and Eureka Power Companies during the last two decades of the nineteenth century.

In 1909, when GWPC completed renovations of the Big Bend facilities, the new Las Plumas Powerhouse began 40,000-kilowatt AC operations. Upgrades boosted the facility's capacity to 65,000-kilovolt amperes by 1916, giving Las Plumas the highest generating capacity of any hydroelectric facility in California at the time. Two years earlier, GWPC completed the hydraulic-fill Big Meadows Dam, which created Lake Almanor. In 1921, GWPC added its newly operational Caribou hydroelectric facilities to its system. (Teisch 2001:223, 241–242, 249).

Pacific Gas & Electric Company

Pacific Gas and Electric Company (PG&E), the product of several hydroelectric development projects undertaken by Eugene J. de Sabla and John Martin, as well as a series of acquisitions and mergers involving numerous companies, was incorporated in 1905. At the time of its incorporation, PG&E had several hydroelectric facilities and transmission systems operating in Butte, Yuba, and Sutter Counties. De Sabla and Martin built the Colgate Powerhouse on the Middle Fork of the Yuba River in Brown's Valley in 1899.

A year later, Colgate and other Brown's Valley powerhouses began transmitting 40,000 volts over a 142-mile line to Oakland, a record-setting transmission distance. Transmission capacity on this line was increased to 60,000 volts by 1903. Utilizing the waters of Butte Creek and a branch of the Feather River, De Sabla and Martin also constructed the De Sabla Powerhouse. Power from De Sabla and the company's Centerville Plant (completed in 1900) was delivered at 66,000 volts over 242 miles to Marin County in 1904, a world record that stood for a year until PG&E transmitted electricity from the same plant 378 miles to Calaveras County.

By 1911, a transmission line extending from the De Sabla and Centerville Plants split off into separate lines several miles south of Centerville, with one branch

extending to Yuba City, where it linked to PG&E's main Bay Lines, and the other branch running through Chico and stretching on to Nicolaus through Marysville. (Pacific Gas and Electric Company 1911:72; Williams 1997:180–182.)

In 1930, PG&E acquired GWPC, which had added a third major hydroelectric development, the Bucks Creek Plant, to its power generating facilities in 1928 (Coleman 1952:291–298). PG&E proceeded to integrate the GWPC system into its increasingly interconnected central and northern California power network. As part of the improvements and interconnection efforts PG&E undertook during the next three decades, the company constructed numerous substations, including the East Nicolaus and Palermo Substations.

Palermo-East Nicolaus Transmission Line

The Palermo-East Nicolaus Transmission Line and supporting alignment of steel lattice towers originally served as a segment of GWPC's Las Plumas Transmission Line, constructed in 1908. In 1909, GWPC began transmitting 100,000 volts of electricity over the double-circuit 155-mile Las Plumas line, which extended from its Big Bend hydroelectric facility to its Oakland Substation. The line's 1200 original steel lattice towers were positioned 750 feet apart.

Forty-seven special towers were installed at large rivers, other areas with soft soil, and locations requiring suspension across longer distances. This original transmission system included substations at Sacramento, Brighton (slightly east of Sacramento), Clayton (Contra Costa County), and Oakland. (Fowler 1923:382–385; Jackson Research Projects 1986:110; Teisch 2001:242.)

The towers of the Las Plumas transmission line were supported by steel plates sunk as deep as six feet. During the winter of 1909, heavy storms damaged or destroyed miles of tower in the Delta and in the Honcut Creek area of Yuba County. GWPC responded by adding concrete footings to towers located in areas with soft soil. By 1920, the original long-range GWPC transmission line utilized 1,044 standard towers, 42 transposition towers, 78 angle towers, four anchor towers, and 17 special towers. The standard towers were 76 feet, three inches high with three cross arms. Their lower portions were battered from a spread of 17 feet at the ground to 25 and one-half inches at the cross arm, with reinforcing triangular shapes. From their lowest cross arms to their third and highest cross arms, the towers' shapes were rectangular, with latticed sides and pyramid shapes at the top. (Fowler 1923:383–384; Great Western Power Company 1912:6–7; Koontz 1921:58.)

Because GWPC undertook its Big Bend development before securing a ready market for its electricity, the company initially sold power to Pacific Gas & Electric Company (PG&E). GWPC acquired its own San Francisco market in 1911 by purchasing City Electric Company. In 1912 the company began selling power to San Francisco residents, which was transmitted from Oakland across the Bay via underwater cable. This additional market extended the length of its Big Bend hydroelectric transmission capacity to 165 miles.

After it secured a large urban market of its own, and while it continued selling its power to other utility companies, GWPC moved to develop additional hydroelectric facilities in the northern Sierra region. (Jackson Research Projects 1986:116–118; Teisch 2001:251.) PG&E acquired GWPC in 1930 (Coleman 1952:291–298.) At an unknown point in time after its 1930 acquisition of GWPC, PG&E re-designated the Las Plumas line the Big Bend-Oakland line. PG&E continues to own and utilize this transmission line and tower alignment, the Palermo to Trowbridge/East Nicolaus segment of which was re-designated the Palermo-East Nicolaus 115-kV double-circuit line at an unknown point in time.

Palermo-Rio Oso No. 2 Transmission Line

The tower alignment of PG&E's single-circuit 115,000 kV Palermo-Rio Oso No. 2 Transmission Line originally served as a segment of GWPC's 186-mile Caribou Transmission line, constructed in the late summer and fall of 1919. GWPC built the Caribou Line as part of its Caribou hydroelectricity project. Between the Caribou hydroelectric site on the Feather River and Sacramento, GWPC crews erected the tower alignment of this new transmission line along a right of way shared by its previously constructed Las Plumas line.

Through the region of Butte, Yuba, and Sutter Counties, the towers of the Caribou line were erected at points parallel to the towers of the Las Plumas line. The Las Plumas line (now the Palermo-East Nicolaus tower line) occupied the east side of the right-of-way alignment. The Caribou line was constructed on the alignment's western side. (Jackson Research Projects 1986:304, 317; Journal of Electricity 1919:233.)

The Caribou tower line stretched from the Caribou facility to the new Valona Substation near Carquinez Straits. The line and the Caribou hydroelectric facility initiated operations in January of 1921. Delivering as much as 165,000 volts, GWPC's Caribou circuit transmitted more voltage than any other long-distance transmission line in the world at the time. In the Sacramento Valley portion of the Caribou line, engineers utilized a triangular circuit configuration, with two wires running on the west side of the towers and one line running on the east side at a height midway between the two westerly wires. This design allowed GWPC engineers to make use of smaller towers, which had the economic advantage of requiring less steel than the earlier Las Plumas line tower alignment adjacent to the Caribou line. (Jackson Research Projects 1986:31; Koontz 1921:58.)

GWPC's Caribou line maintained the distinction of being the highest capacity transmission line in the world for a relatively brief period of 20 months. In September of 1922, PG&E's Pit River Transmission Line began operating with a capacity to deliver 220,000 volts at a distance of 202 miles. (Journal of Electricity and Western Industry 1922:296.) After PG&E acquired GWPC in 1930, the company re-designated the Caribou line the Caribou-Golden Gate Transmission Line at an unknown date. The segment extending from Palermo to southeastern Sutter County was subsequently re-designated the Palermo-Rio Oso No. 2 Transmission Line at an unknown date.

East Nicolaus Substation

By 1911, PG&E was transmitting electricity to the Nicolaus area along a transmission line running through Marysville and Chico from the company's Colgate hydroelectric facilities. It is likely that this line served the Northern Electric Railway's Substation No. 8, located in East Nicolaus. In 1918, the Northern Electric was acquired by the Sacramento Northern Railroad Company (SNRC), and by 1920, the Sacramento Northern Substation No. 8 was being operated by PG&E as one of the 28 substations located in its Marysville District. It appears that this substation was located west of present-day Highway 70 along the former Northern Pacific/ SNRC alignment through East Nicolaus. (Mulvany 1972:14; Pacific Gas and Electric Company 1911:82; Swett et al. 1981.)

In 1930 PG&E first sought to acquire a parcel adjacent to and east of present-day Highway 70 for the purposes of locating additional electrical transmission equipment there. Between April, 1941 and May, 1942, the current East Nicolaus Substation was constructed at this parcel, located at the southeast corner of Nicolaus Avenue and State Route 70 (El Centro Boulevard). Building plans and specifications on file at the PG&E Records Center credit E. F. Kuhn, L. Sideman, and I. C. Frickstod with the substation's architectural work. PG&E contracted the firm of MacDonald and Kahn, Inc. to construct the substation buildings and other structures. (Pacific Gas and Electric Company 1940, 1941a, 1941b, 1941c.)

Palermo Substation

In 1959 PG&E began acquiring property and rights of way for a substation and transmission lines northwest of Palermo, Butte County. This activity appears to have been prompted by PG&E's plans to transmit and incorporate into its distribution system the electricity that would be generated by the Oroville-Wyandotte Irrigation District's (OWID's) hydroelectric projects at Woodleaf and Forbestown. (Pacific Gas and Electric Company 1959a, 1959b, 1959c, 1961.) The Palermo Substation and substation building were constructed ca. 1960. The Woodleaf-Palermo transmission line, extending 19 miles from OWID's new Woodleaf hydroelectric facility to PG&E's Palermo Substation, was in operation by January of 1963. (Butte County Department of Development Services 2008:14–20; Pacific Gas and Electric Company 1961, 1965, 1999.)

Study Methods

The cultural resources inventory of the proposed project focused on the project's area of potential effects (APE), which corresponds to the limits of ground disturbance, construction staging, and access. The APE generally comprised a corridor 50 feet wide along most of the transmission line alignment, although staging areas, access roads, and turning points in the line necessitated wider survey.

Correspondence with Native Americans

On May 4, 2006, ICF Jones & Stokes requested that the Native American Heritage Commission (NAHC) search its Sacred Lands File for the presence of cultural resources in the APE that are of interest to Native Americans, and to provide a list of local Native American representatives that might have information or concerns regarding the project. The NAHC indicated on May 16, 2006 that the Sacred Lands File contained no record of cultural resources in the APE, and provided contact information for 22 Native American representatives.

ICF Jones & Stokes sent letters to those representatives listed on May 23, 2006. The letters included a brief project description and a map of the project area and requested that the recipient respond with any information or concerns. A second set of letters was mailed by ICF Jones and Stokes on May 22, 2008. As of June 20, 2008, ICF Jones & Stokes has received five replies from Native American representatives.

Two of the replies came from Ren Reynolds, EPA Planner and Site Monitor for the Enterprise Rancheria Estom Yumeka Maidu Tribe. These letters were received in June 2006 and May 30, 2008. Mr. Reynolds requested that work be ceased if any cultural materials were uncovered during ground-disturbing activities and that examination of the site and materials be conducted by a qualified archaeologist and a tribal site monitor. He also requested that if human remains are unearthed, the human remains provisions of the California Health and Safety Code shall be enforced and adhered to.

A letter from Arlene Ward, Cultural Coordinator for the Mechoopda Indian Tribe of Chico Rancheria, dated May 31, 2008, indicated that her organization was not aware of cultural resources near to or potentially impacted by the project, but requested that prior to ground-disturbing activities, mitigation measures be considered for unanticipated discoveries and/or human remains, as well as compliance with the California Native American Graves Protection and Repatriation Act, CEQA, and other relevant laws. If discoveries are made, she requests that ground-disturbing activities cease and appropriate tribes be contacted for consultation.

A reply dated June 5 2008 from Michael D. DeSpain, Environmental Director, Greenville Rancheria, indicated that the organization was not aware of any archaeological or cultural sites in the project area, but requested that if cultural resources are located, any operations that would disturb the location should cease until the organization has had an opportunity to visit and record the site.

A response dated June 7 2008 from Greg Baker, Tribal Administrator for the United Auburn Indian Community of the Auburn Rancheria, requested copies of any cultural resources reports that are generated as a result of the project, and also requested consultation regarding avoidance or potential mitigation measures.

Correspondence with Historical Societies and Local Governments

Through online searches, ICF Jones & Stokes identified several historical societies and local government planning divisions with which to initiate consultation.

- Planning Division, Community Services Department, County of Sutter.
- Association for Northern California Records and Research.
- Butte County Historical Society.
- Planning Division, Butte County Development Services.
- Cherokee Museum and Cherokee Museum Association.
- Chico Museum.
- Mary Aaron Memorial Museum Association.
- Butte County Pioneer Memorial Museum.
- Sutter County Historical Society.
- Community Memorial Museum of Sutter County.
- Forbestown Museum/Yuba-Feather Historical Association.

ICF Jones & Stokes mailed letters describing the proposed undertaking to each of the organizations listed above on May 25, 2006 and May 22, 2008. The letters requested information about local-area cultural resources and provided an overview map of the proposed undertaking.

Records Search and Literature Review

Records searches were conducted at the Northeast Information Center (NEIC) of the California Historical Resources Information System (CHRIS) for portions of the APE in Butte and Sutter counties, whereas records searches were conducted at the North Central Information Center (NCIC) of CHRIS for portions of the APE in Yuba County. Staff researchers at the NCIC conducted a records search for the undertaking on behalf of PG&E on July 1, 2004 (NCIC File No. YUB-04-27); Jones & Stokes conducted a records search update at the NCIC on May 25, 2006.

Staff researchers at the NEIC conducted a records search on behalf of PG&E on July 26, 2004 and provided an updated records search to Jones & Stokes on June 1, 2006 (I.C. File # D06-61). The records searches consulted the CHRIS base maps of previous cultural resources studies and recorded cultural resources for the APE. Additional literature, historic maps, and historic resource inventories were also consulted; material relevant to the proposed project area cited in Prehistoric Context, Ethnographic Context, and Historical Context of this Section and in the discussions for identified cultural resources below.

The records searches indicate that a total of 39 previous cultural resource studies have been conducted in the APE (Amaglio 2004; Atchley 2001; Bayham 1987, Berg et al. 1995; Billat 2001; Bouey 1990a, 1990b; California Department of Transportation 2000; Deitz 1999; Dwyer 2005; Furlong Archaeological Consulting 2005; Furlong and Tremaine 2001; Gallaway Consulting 2005; Gilreath et al. 1990; Hope 2002, 2005; Jensen 2004a, 2004b; Jones & Stokes 2001, 2004; Jones & Stokes Associates 1996; JRP Historical Consulting Services 1994a, 1994b; Lindström 1986; Manning 1981, 1985; Mikesell 1995; Nelson et al. 2000; Offermann 1992; Peak & Associates 2005; Sprengeler 2005; Stoll and Thompson 1961; Storm 1976; Wee et al. 1994; Williams 2002a, 2002b; Williams et al. 2002; Williams and Hope 2002; Yuba County 1979).

The records search indicates that five previously recorded cultural resources are located in the APE.

- P-58-1284/CA-YUB-1240-H (Abandoned Southern Pacific Railroad Segment).
- P-58-1618/CA-YUB-1441-H (Browns Valley Grade Levee).
- P-58-1372 (Western Pacific Railroad Segment).
- P-51-81/CA-SUT-81-H (Rio Oso Brick Company Kiln).
- Isolate KH-6.

Field Survey Methods

ICF Jones & Stokes archaeologists and historians surveyed the APE on July 24–28 and August 1 and 2, 2006 as well as May 29 and 30, 2008. The survey was conducted by walking parallel transects spaced no further than 90 ft between surveyors. Identified cultural resources were documented on aerial photographs, topographic maps, and Department of Parks and Recreation (DPR) 523 forms. The locations were also mapped using a hand-held global position system unit.

Identified Cultural Resources

A total of eight cultural resources have been identified in the APE.

Palermo–East Nicolaus Transmission Line

The double-circuit Palermo–East Nicolaus Transmission Line, built in 1908, is supported by steel lattice towers. It extends approximately 38 miles on a predominately north-south alignment between PG&E's Palermo and East Nicolaus Substations. The tower alignment of this double-circuit line parallels the single-circuit Palermo–Rio Oso No. 2 transmission line from Palermo south to Trowbridge. Additional history and descriptive information concerning the Palermo–East Nicolaus Transmission Line is provided in *Historic Context* and in Appendix C, which contains non-confidential DPR 523 forms for the resource.

Significance Evaluation

The Palermo–East Nicolaus Transmission Line does not appear to be an historical resource for the purposes of CEQA or an historic property for the purposes of Section 106. The full significance evaluation of this resource is included in Appendix C of this PEA and summarized here.

- The former segment of the Las Plumas Transmission Line—the Palermo–East Nicolaus Transmission Line—is not associated with events that have made a significant contribution to the history of the local area, region, state or nation (NRHP Criterion A, CRHR Criterion 1).
- Research indicates that this linear resource is not directly associated with a person who made significant contributions to local, state, or national history (NRHP Criterion B, CRHR Criterion 2).
- The resource did not markedly shape or change the course of technological history as it pertains to long-distance electrical transmission. The tower alignment and transmission line do not embody characteristics of a historically significant type, period, region, or method of construction. They are not the works of a master and do not possess high engineering value (NRHP Criterion C, CRHR Criterion 3).
- Although buildings and structures can provide information about historical methods of construction (NRHP Criterion D, CRHR Criterion 4), the tower alignment does not stand to yield significant historical information and therefore does not serve as a primary source in this regard.

Palermo–Rio Oso No. 2 Transmission Line

This transmission line, built in 1919, stretches from the PG&E Palermo Substation, northwest of Palermo, Butte County, in a predominantly southerly direction (much of it paralleling the Western Pacific Railroad alignment). The tower alignment of this single-circuit line parallels the double-circuit Palermo–East Nicolaus line from Palermo south to Trowbridge, in Sutter County. Additional history and descriptive information concerning the Palermo–Rio Oso No. 2 Transmission Line is provided in the Historic Context and in Appendix D, which contains non-confidential DPR 523 forms for the resource.

Evaluation

The Palermo–Rio Oso No. 2 Transmission Line does not appear to be an historical resource for the purposes of CEQA or an historic property for the purposes of Section 106. The full significance evaluation of this resource is included in Appendix D of this PEA and summarized here.

- As a former segment of the Caribou Transmission Line (also known as the Caribou–Golden Gate Transmission Line), the Palermo–Rio Oso No. 2 Transmission line is not associated with events that have made a significant contribution to the history of the local area, region, state, or nation (Criterion A and 1).
- The Palermo–East Nicolaus No. 2 Transmission Line does not appear to be eligible under other criteria. Research has indicated that this linear resource

is not associated with a person who made significant contributions to local, state, or national history (Criterion B and 2).

- During the period from 1895 to 1922, construction of GWPC's Las Plumas Transmission Line did not markedly shape or change the course of this technological history. The tower alignment and transmission line do not embody characteristics of an historically significant type, period, region, or method of construction. They are not the works of a master and do not possess high engineering value under NRHP Criterion C and CRHR Criterion 3.
- Although buildings and structures can provide information about historical methods of construction (Criterion D and 4), the tower alignment does not stand to yield significant information and therefore does not serve as a primary source in this regard.

Palermo-ICF J&S-01-H (Palermo Irrigation Ditches)

Palermo-ICF J&S-01-H consists of portions of two concrete ditches. The resource includes a north-south oriented ditch that extends from 98 meters north of existing Tower 3/26 to 113 meters south of existing Tower 3/28 (total length = 616 meters, or 2,020 ft). The second ditch extends west from the first ditch immediately north of existing Tower 3/28 (total length within APE = 31 meters or 100 feet). This second ditch is carried via culvert under the Southern Pacific Railroad and extends further west, outside the APE. The ditches are 46 centimeters deep with eight-centimeter-thick walls made from coarse-grained, board-formed concrete. They are 46 centimeters wide. A nearly continuous scatter of recent or temporally non-diagnostic bottle glass, ceramics, and metal fragments was observed along the north-south-oriented ditch.

Palermo-ICF J&S-01-H is not depicted on historic topographic maps of the Palermo area (U.S. Geological Survey 1912b, 1952), although this omission might be a function of mapping scale and limitations of aerial photography rather than an indication of the absence of the ditches between 1910 and 1949. During this interval, the same maps indicate that the location of Palermo-ICF J&S-01-H was flanked by two historic railroads: the Western Pacific Railroad on the west and the Southern Pacific Railroad on the east.

The north-south-oriented ditch passes through the proposed work areas at Towers 3/26, 3/27, and 3/28. The second ditch does not intersect any components of the undertaking. Both ditches were dry at the time of recordation.

Evaluation

Palermo-ICF J&S-01-H is evaluated here under the NRHP significance criteria and the CRHR significance criteria, with a period of significance from January 7 1888 to the year 1900 (the effective start and end dates for the Palermo Colony). The two ditches are irrigation features associated with the Palermo Colony, which was incorporated on January 7, 1888 (Frederich 1974:13; Mansfield 1918:303-304). The first portion of Palermo Colony to be subdivided and developed was a 235-acre tract of land east of and partially abutting the Southern

Pacific Railroad. A network of ditches had been built to irrigate this land by April 1888. Palermo–ICF J&S-01-H are clearly part of this network of ditches.

The Palermo Colony has been referred to as the “most successful of the citrus colonies in Butte County”, although the Thermalito citrus colony was established earlier, ca. 1886 (Frederich 1974:13; Mansfield 1918:302). The chronological priority of Thermalito Colony over Palermo Colony has little import in evaluating the significance of the Palermo Colony in that both colonies were outgrowths of the spate of agricultural (specifically citrus) colony development in southern California. As such, chronological priority among Butte County agricultural enterprises does not equate to innovation or originality of fruit-growing methods, which were experimented with and refined earlier in southern California. (Frederich 1974:13.) In addition, Thermalito Colony was considerably smaller than the Palermo Colony in their 1890s heydays, the former comprising in 1892 some 90,000 orange trees and 9,000 almond trees. Palermo Colony, on the other hand, boasted in 1892 a total of 160,000 orange and olive trees, which far exceeds the size of other, contemporaneous citrus orchards in Butte County—namely Rio Bonito, Oroville, and Wyandotte. Palermo Colony achieved impressive production levels in the 1890s in an industry important to the Butte County economy. As such, Palermo Colony appears to be associated with events important in regional history and would be eligible for listing in the NRHP under Criterion A, and as significant under CRHR Criterion 1.

The extant ditches, Palermo–ICF J&S-01-H, however, are concrete structures built over the original earthen ditches after 1900 and do not date to the Palermo Colony’s period of significance. Palermo–ICF J&S-01-H lacks integrity of materials, design, and workmanship due to the replacement of earthen ditches with concrete ones. Furthermore, the lack of citrus orchards in the vicinity of the ditches compromises the resource’s integrity of setting, association, and feeling. The ditches retain their original location. Retaining only one of seven aspects of integrity, Palermo–ICF J&S-01-H does not convey the significance of Palermo Colony and therefore does not constitute an historic property under Section 106 or an historical resource for the purposes of CEQA.

P-58-1284/CA-Yub-1240-H (Abandoned Southern Pacific Railroad Segment)

P-58-1284 (also P-04-1694/CA-BUT-1694-H in Butte County) is a remnant of the abandoned Southern Pacific Railroad, originally the California Northern Railroad. The segment within the APE consists solely of an elevated embankment railroad grade, extending for some 244 meters (800 ft). The rails and ties have been removed from this segment of the railroad. Williams et al. (2002:7-2) recorded P-58-1284 from Marysville north through Palermo, inclusive of the segment within the APE.

ICF Jones & Stokes archaeologists reexamined the subject segment of P-58-1284 on May 29, 2008 and found the condition of the resource unchanged from that reported by Williams et al. (2002).

Evaluation

Although doubtless a piece of infrastructure important to the development of California's transportation system and economy in the Central Valley, P-58-1284 represents an isolated segment (800 feet long) of a resource considerably greater in extent. The rails, ties, and other appurtenant structures have long been removed, leaving only the embankment (Williams et al. 2002:7-2). This portion of P-58-1284 therefore retains only its historic location and otherwise lacks historical integrity. As such, the resource cannot convey the significance of the Southern Pacific Railroad and does not constitute a historic property under Section 106 or an historical resource for the purposes of CEQA.

P-58-1618/CA-Yub-1441-H (Browns Valley Grade Levee)

A portion of the recorded segment of P-58-1618 is located in the APE. PG&E proposes to use the existing access road on the crown of P-58-1618 to access Tower 22/173. P-58-1618, the Browns Valley Grade Levee, was initially built by Marysville-area landowners for flood protection in 1868. P-58-1618 was repaired and rebuilt several times since 1868 in response to damages incurred as a result of levee breaches in 1876, 1878, 1879, 1880, 1884, 1907, and 1940. Levee-raising produced the levee's present-day dimensions. (Kraft 2002:5.) Kraft and White (2002) recorded a 6.8-kilometer (4.2-mile) stretch of Browns Valley Grade Levee, from the intersection of the Marysville City Levee with Browns Valley Grade Levee on the west to Hallwood Boulevard on the east.

Evaluation

Kraft (2002:5) recommended that P-58-1618 was ineligible for listing on the NRHP because it lacked historical significance "outside the context of the pattern of a levees [sic] role in flood control for Yuba County." In addition, Kraft (2002:5) noted that numerous repairs, widening, and levee-raising has compromised the integrity of the levee, particularly materials and workmanship. P-58-1618 was determined ineligible for listing in the NRHP by a consensus determination through a previous Section 106 consultation (California Office of Historic Preservation 2006b:11).

P-58-1372 (Western Pacific Railroad Segment)

Western Pacific Railroad Company (WPRR) was organized in February 1903 as a connecting link between Oakland, California and Salt Lake City, Utah, forming the seventh transcontinental railroad route. The California portion of the line extended from Oakland to Niles, thence to Stockton, Sacramento, Marysville, Oroville, and eastward over the Sierra Nevada. The railroad company was incorporated in 1903; construction began in Oakland in 1906, and the line was completed in November 1909. The railroad line opened for freight transport a month later, but the first passenger train did not run until August 1911. The Western Pacific Railroad merged with the Union Pacific Railroad Company on December 22, 1982. (Fickewirth 1992:164; Robertson 1998:299-300.)

Evaluation

Jones & Stokes (2001:6–7) recommended the WPRR eligible for listing in the NRHP. The SHPO concurred with the recommendation on June 20, 2001 (California Office of Historic Preservation 2001). As an NRHP-eligible property, P-58-1372 is also considered an historical resource for the purposes of CEQA. The railroad is considered significant under NRHP Criterion A and CRHR Criterion 1 because of its association with California's industrial transportation expansion and the central role it played in the economic development of the Central Valley (Jones & Stokes 2001:6–7).

P-51-81/CA-Sut-81-H (Rio Oso Brick Company Kiln)

P-51-81 is the remains of the Rio Oso Brick Company Kiln, which operated for a few months in 1922. Berg (1994) recorded the site as a small concentration of waster bricks (melted or deformed bricks), at the edge of a prune orchard north of Kempton Road. P-51-81 encompassed an area 49 meters (160 feet) north–south by 110 meters (360 feet) east–west. The bricks were apparently fired in an updraft kiln of the open kiln or field-kiln type, which are built by forming brick-and-daub walls around the bricks to be fired; the walls are torn down to remove the fired bricks: hence the open or field kiln is an ephemeral structure destroyed upon completion of each firing. (Berg 1994:1–3, 7.)

The Rio Oso Brick Company incorporated in April 1922 to produce standard building bricks for the proposed California Hemp Industries, Inc. manufacturing plant in Rio Oso. The Rio Oso Brick Company used alluvial sediments from the southern Bear River floodplain for brick making. The kilns produced the company's first batch of fired bricks in July 1922 and continued its output until the failure of the hemp crop in the fall of 1922. When California Hemp Industries, Inc. sold its interests in the Rio Oso town site and abandoned the hemp manufacturing project, the Rio Oso Brick Company likewise closed its operations in the area. (Berg 1994:3–4.)

ICF Jones & Stokes archaeologists reexamined the location of P-51-81 on August 4, 2006 and May 29, 2008. No archaeological materials or structural remnants associated with the site were observed, the bricks having been removed since the site's 1994 recordation. The lack of archaeological materials during the 2006 and 2008 reexaminations of the site and its ephemeral nature render remote the likelihood of additional, buried archaeological materials associated with P-51-81 being present in the APE.

Evaluation

P-51-81 was determined ineligible for listing in the NRHP by consensus determination through the Section 106 process for a previous undertaking (California Office of Historic Preservation 2006a:234; Berg 1994:5; Berg et al. 1995:32–33). The present study provides no information to contradict the previous determination of ineligibility for P-51-81. P-51-81 is therefore not considered an historic property for the purposes of Section 106 and is not an historical resource or unique archaeological resource for the purposes of CEQA.

Nicolaus–ICF J&S-01-H (Historic Ranch Remnants)

Nicolaus–ICF J&S-01-H comprises the remains of an historic-era ranch. The site is located between Towers 37/287 and 37/290, between Ping Slough and the Western Pacific Railroad (P-58-1372). The site consists of five features.

- **Feature A:** Concrete pump house remnants.
- **Feature B:** A concrete-lined well and concrete box, the latter not in situ.
- **Feature C:** A corral and concrete slab.
- **Feature D:** An earthen dam and road over Ping Slough.
- **Feature E:** A dirt road trace.

Non-feature constituents consist of discarded tires (some in association with Features A and B), three discarded concrete culvert pipes, and a trailer frame. The entire site is covered in tall, dry, nonnative grasses.

The northern boundary of Nicolaus-ICF J&S-01-H is set approximately at the location of Features A and B, as well as the discarded tires in the vicinity of the features. The western boundary is along Ping Slough, whereas the Western Pacific Railroad (P-58-1372) forms the eastern boundary of the site. The southern boundary is formed by the earthen dam and road (Feature D).

Feature A is the remnant of a pump house, consisting of a 99-inch-by-103-inch concrete structure set about 64 inches below ground surface. Four threaded bolts protrude skyward from near the corners of the structure. The feature is filled with vulcanized rubber tires.

Feature B consists of a moved concrete box and a partially subterranean concrete structure. The moved concrete box is not set into the ground and measures 56 inches square. A 12-inch-diameter galvanized pipe extends from one side of the box. The box may have functioned as a cistern for watering cattle. The concrete structure measures 100 inches by 87 inches and is at least 34 inches deep. Four threaded bolts protrude from near the corners of the structure, as at Feature A. The structure also has an upright railroad tie set at each corner, the function of which is unknown, although perhaps they once supported fencing. The structure has been partially filled with vulcanized rubber tires and wooden debris.

Feature C is a corral situated south of Features A and B. The corral consists of a metal-tube fencing set between upright railroad ties on the northern, eastern, and southern sides of the corral. The western side of the corral consists of tubular metal fencing set into an 18-inch tall concrete footing. The concrete footing is part of a concrete slab that extends westward 11 feet from the western corral fence. The overall dimensions of Feature C are 115 feet north–south, 57 feet east–west, inclusive of the concrete slab.

Feature D is an earthen dam and road over Ping Slough. The dam is about 38 feet wide as it blocks Ping Slough and is about 75 feet long. The dam is set at an oblique angle that trends northwest–southeast. A dirt road extends over the dam

and continues eastward to the WPRR right-of-way, where the road terminates just short of a barbed-wire-and-post gate. The gate marks a former railroad crossing. Feature E is a dirt road trace running parallel to Feature D, between Ping Slough and the WPRR. Feature E also terminates at the aforementioned gate. It is unknown whether this feature preceded Feature D or was built subsequent to it.

Site History

Nicolaus–ICF J&S-01-H is located in that area called in the middle- to late-nineteenth century “Nicolaus Township.” The earliest recorded use of the site vicinity dates to between 1850 and 1860. An 1860 survey plat depicts “Smith’s House” approximately within the APE at the location of Nicolaus-ICF J&S-01-H. This “Smith” is identifiable as W. H. Smith on later historic maps and in a local Sutter County history (Chamberlain and Wells 1974:93; Pennington 1873).

Chamberlain and Wells (1974:93) write that a W. H. Smith settled on the Bear River northwest of Section 28, in Section 15, on lands later owned by Joseph Muel from 1873 to 1895. They further write that W. H. Smith was “still a resident of the township,” a statement that strongly suggests W. H. Smith moved or obtained additional property between 1850 and 1873, though not far (Chamberlain and Wells 1974:93). The vicinity of Nicolaus-ICF J&S-01-H is a good candidate for Smith’s relocation, given its proximity to his former landholdings and its correspondence with “Smith’s house” on General Land Office (1860d).

Smith’s house was situated in the middle of a bend in a road originating at Jopson’s house 1.6 km to the northwest and extending east of Smith’s house toward Johnson’s Rancho. Along this road, between Jopson’s and Smith’s homes was Berry’s house (Section 21). East of Smith’s house was a tilled field, along the eastern boundary of Section 28. This field likely extended further west into Section 28 because all fields mapped on the survey plat for Township 13 North, Range 4 East were mapped only along section lines. In addition, features such as Ping Slough were not mapped except where they traversed section lines, indicating that intra-section details are generally neglected on the plat. (General Land Office 1860d.)

In 1873 it appears that one W. H. Smith owned 160 acres of land in Section 28. The southern part of Nicolaus–ICF J&S-01-H is located on Smith’s 1873 holdings. At this time, Smith still owned a house in the same location as depicted by General Land Office (1860d). By 1873, one C. P. Berry (Campbell P. Berry) acquired 80 acres of Smith’s property at the very northern extent of Smith’s holdings. (Pennington 1873; see also Chamberlain and Wells 1974:110.)

In 1895 the northern portion of Nicolaus–ICF J&S-01-H was situated on land owned by Campbell P. Berry and R. A. Berry (likely C. P. Berry’s son—see Chamberlain and Wells [1974:110]). The remainder of the site is situated on W. [H.] Smith’s 160 acres. (Punnett Bros. 1895.) This map does not depict the locations of any residences in Sutter County, unlike the previously cited maps.

A 1902 map of Sutter County indicates that W. H. Smith owned the entire eastern half of Section 28, lands totaling 320 acres. Adam Krieg and J. Gardner each held a quarter section in the western half of Section 28 at this time. The lands immediately north, west, and south of Section 28 were held by R. C. and J. M. Berry. (Carlton & Garcia 1902.) This map does not depict the locations of any residence in Sutter County, similar to Punnett Bros. (1895).

Williams and Williams (1910) indicate that the very northern portion of Section 28 within the APE, in addition to lands northward to Bear River (previously held by the Berry family), were owned by Cline Bull. The southern portion of Nicolaus-ICF J&S-01-H is situated on lands once belonging to McClelland (first name unknown, but probably H. T. McClelland—see below); McClelland held 160 acres total within Section 28. The WPRR is mapped through this section also. (Williams and Williams 1910.)

In 1912, the northern portion of Nicolaus-ICF J&S-01-H was located on lands of Natomas Consolidated, whereas the southern portion was in lands of H. T. McClelland, a 160-acre holding identical to the 1910 McClelland holding. The WPRR is mapped through Section 28. (Green and Williams 1912.) Agricultural use of the property on which Nicolaus-ICF J&S-01-H is located continues to the present day.

Evaluation

Nicolaus-ICF J&S-01-H is the remnant of a historic ranch of indeterminate age. No construction methods or materials are evident at the site and historic maps do not depict structures at the location of the ranch site, thwarting efforts to place the resource in time. Based on the Site History provided above, Nicolaus-ICF J&S-01-H appears to constitute the remains of a cattle ranching operation, a land use historically common in Nicolaus Township.

The historic record does not bear out an association with events important in history, arguing against eligibility under NRHP Criterion A and CRHR Criterion 1. Similarly, the roster of landowners does not impress in terms of direct connections to historically significant persons, other than incidental land ownership. Significance under NRHP Criterion B and CRHR Criterion 2 is therefore unsupported. The ranch remnants are not distinctive in their manner of construction or layout and do not argue for significance under NRHP Criterion C or CRHR Criterion 3.

Finally, no archaeological features such as privies and wells have been identified at the site, neither are any expected due to the resource's remove from mapped former historic residences. Nicolaus-ICF J&S-01-H therefore does not have the potential to yield information important to the study of history and is not significant under NRHP Criterion D or CRHR Criterion 4. The resource therefore does not qualify as a historic property under Section 106 or as an historical resource or unique archaeological resource for the purposes of CEQA.

Impact Analysis

This section describes potential impacts relating to cultural resources within the APE. It lists the thresholds used to conclude whether an impact was considered significant; the criteria are based on Appendix G of the State CEQA Guidelines. Applicant-proposed measures to mitigate potentially significant impacts are described, as applicable.

Methods

Impact assessments for cultural resources focus on properties eligible for listing in the NRHP (historic properties), the CRHR, or those properties otherwise considered historical resources or unique archaeological resources under CEQA. The criteria described below are used to determine whether the impacts of the proposed plan/project on cultural resources are significant.

Significance Criteria

Federal

According to *36 CFR 800.5*, an undertaking would have an adverse effect on historic properties if the effect alters the characteristics¹ that make a property eligible for inclusion in the NRHP. Such effects would also be considered significant under NEPA. Adverse effects can occur when prehistoric or historic archaeological sites, structures, or objects listed in or eligible for listing in the NRHP are subjected to the following phenomena.

1. Physical destruction of or damage to all or part of the property.
2. Alteration of the property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the *Secretary of the Interior's Standards for the Treatment of Historic Properties (36 CFR 68)* and applicable guidelines.
3. Removal of the property from its historic location.
4. Change in the character of the property's use or of physical features within the property's setting that contribute to its historic significance.
5. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.

¹ Cultural resource managers often refer to these characteristics as character-defining elements or features. Character-defining features are those characteristics of a historic property, historical resource, or unique archaeological resource that convey its significance; the loss of character-defining elements impedes a property's ability to convey its historical significance. The importance of character-defining elements in cultural resource assessments is made clear in National Register Bulletin 15, which mentions "character" in this context 42 times (Andrus and Shrimpton 1997).

6. Neglect of the property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization.
7. Transfer, lease, or sale of the property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

State

This analysis uses criteria from *14 CCR 15064.5(b)(1)* and *(2)* that identify a significant impact as one with the potential to cause a substantial adverse change in the significance of an historical resource or unique archaeological resource. Substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired. The significance of an historical resource is materially impaired when a project results in demolition or material alteration in an adverse manner of those physical characteristics of a resource that:

- Convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR.
- Account for its inclusion in a local register of historical resources pursuant to *PRC 5020.1(k)* or its identification in an historical resources survey meeting the requirements of *PRC 5024.1(g)*, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant.
- Convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

Local

County and city environmental regulations cited in the Regulatory Setting of this section do not contain significance thresholds.

Impacts and Mitigation Measures

Although the cultural resources inventory for the proposed project identified eight cultural resources in the APE, only P-58-1372 (Western Pacific Railroad Segment) constitutes an historic property under Section 106 and an historical resource for the purposes of CEQA. Effects on the following cultural resources, which are not historic properties, historical resources, or unique archaeological resources, would result in no impact and will not be discussed further in this section.

- Palermo–East Nicolaus Transmission Line.

- Palermo–Rio Oso No. 2 Transmission Line.
- Palermo-ICF J&S-01-H (Palermo Irrigation Ditches).
- P-58-1284/CA-Yub-1240-H (Abandoned Southern Pacific Railroad Segment).
- P-58-1618/CA-Yub-1441-H (Browns Valley Grade Levee).
- P-58-81/CA-Sut-81-H (Rio Oso Brick Company Kiln).
- Nicolaus-ICF J&S-01-H (Historic Ranch Remnants).

Impact CR-1: Damage to or destruction of a portion of P-58-1372 as a result of construction activities—no impact

Construction of the proposed undertaking would require construction vehicles to cross P-58-1372 at paved crossings that are in current use such as at Kempton Road. The crossing would require no modification to the WPRR and therefore would not result in effects on P-58-1372. No mitigation is required.

Impact CR-2: Inadvertent damage to or destruction of as-yet-unidentified archaeological resources and human remains during construction—less than significant

Ground-disturbing activities associated with construction of the proposed project, such as access road grading, preparation of staging areas, and the excavation of footings for tower removal and installation, have the potential to damage or destroy archaeological resources and human remains that were not evident during the cultural resources survey of the APE. Such damage or destruction of archaeological resources or human remains would constitute an adverse effect under Section 106 and a significant impact under CEQA. Implementation of Applicant's Proposed Mitigation APM CR-1 and CR-2 would reduce this effect to a less-than-significant level.

APM CR-1: Stop work if previously unknown cultural resources are discovered

If buried cultural resources such as chipped or ground stone, historic debris, or building foundations are inadvertently discovered during site preparation or construction activities, work will stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with PG&E and other appropriate agencies. (With the archaeologist's approval, work may continue on other portions of the site.) PG&E will be responsible for ensuring that the archaeologist's recommendations for treatment are implemented.

APM CR-2: Stop work if human remains are discovered

If human remains are encountered during site preparation or construction, work will stop within a 100-foot radius of the find and the county coroner will be notified immediately, as required by state law (*California Health and Safety Code [CHSC]. 7050.5*). A qualified

archaeologist also will be notified immediately. If the county coroner determines that the remains are Native American, the coroner will contact the NAHC, pursuant to *CHSC 7050.5[c]*.

There will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie human remains until the county coroner has determined that (1) no investigation of the cause of death is required; and (2) if the remains are of Native American origin, the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of with appropriate dignity the human remains and any associated grave goods as provided in *PRC 5097.98*—unless the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 48 hours after being notified by the commission.

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NEPA	National Environmental Policy Act.....	4.5-2
NHRP	National Register of Historic Places.....	4.5-2
USACE	U.S. Army Corps of Engineers	4.5-2
SHPO	State Historic Preservation Officer	4.5-2
APE	Area of potential effects.....	4.5-2
MOA	Memorandum of agreement.....	4.5-2
CEQA	California Environmental Quality Act.....	4.5-2
CRHR	California Register of Historical Resources	4.5-3
CAI	California Archaeological Inventory	4.5-4
BP	Before the present.....	4.5-7
Delta	Sacramento–San Joaquin River Delta.....	4.5-9
CPRC	Central Pacific Railroad Company	4.5-14
RD 784	Yuba County Reclamation District 784.....	4.5-18
DC	Direct current	4.5-20
AC	Alternating current.....	4.5-20
GWPC	Great Western Power Company.....	4.5-21
SNRC	Sacramento Northern Railroad Company.....	4.5-24
OWID	Oroville-Wyandotte Irrigation District	4.5-24
NAHC	Native American Heritage Commission	4.5-25
NEIC	Northeast Information Center	4.5-26
CHRIS	California Historical Resources Information System	4.5-26
NCIC	North Central Information Center.....	4.5-26
WPRR	Western Pacific Railroad Company.....	4.5-31

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Geology, Soils, and Seismicity

Introduction

This chapter describes the environmental and regulatory setting for geology, soils, and seismicity; the impacts on geology, soils, and seismicity that would occur as a result of the project; and the mitigation measures that would reduce these impacts.

The project is located in a region that is not very seismically active, but is underlain by unconsolidated and poorly consolidated deposits. Geologic hazards with the greatest potential to impact the project include localized landslides in the vicinity of stream crossings; minor ground shaking; localized liquefaction; lateral spreading and differential settlement; and soil erosion. Potential geotechnical hazards include the presence of expansive soils as well as soft and loose soils.

Proper location of project components, design-level geotechnical investigations, and appropriate engineering and construction measures will avoid or reduce potential impacts of geologic hazards to a less than significant level.

Existing Conditions

Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (CWA) is discussed in detail in Section 4.8. Hydrology and Water Quality. However, because CWA 402 is directly relevant to excavation, additional information is provided below.

Amendments in 1987 to the CWA added Section 402p, which establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollution Discharge Elimination System (NPDES) program. The EPA has delegated to the State Water Board the authority for the NPDES program in California, which is implemented by the state's nine regional water

quality control boards (RWQCBs). Under the NPDES Phase II Rule, construction activity disturbing one acre or more must obtain coverage under the state's General Permit for Discharges of Storm Water Associated with Construction Activity (General Construction Permit). General Construction Permit applicants are required to prepare a Notice of Intent (NOI) and a Stormwater Pollution Prevention Plan (SWPPP). Applicants are also required to implement and maintain best management practices (BMPs) to avoid adverse effects on water quality as a result of construction activities, including earthwork.

Project construction activities would disturb more than one acre and therefore would be subject to NPDES requirements. The Central Valley RWQCB (CVRWQCB) administers the stormwater permit program in the project area.

State of California

Alquist-Priolo Earthquake Fault Zoning Act

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

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

Seismic Hazards Mapping Act

Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (*PRC 2690–2699.6*) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. Provisions of the Seismic Hazards Mapping Act are similar in concept to those of the Alquist-Priolo Act: The state is charged with identifying and mapping areas at risk of

strong ground shaking, liquefaction, landslides, and other corollary hazards; cities and counties are required to regulate development within mapped seismic hazard zones.

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

Environmental Setting

Butte, Yuba, and Sutter Counties

Regional Geology and Stratigraphy

This section addresses the regional and project alignment geology and topography. Quaternary sediments and geologic hazards pertaining to the project alignment are emphasized. The project is located in the Great Valley geomorphic province, discussed below.

Regional and Project Alignment Topography

The project is located within the Great Valley geomorphic provinces. The Great Valley of California, also called the Central Valley of California, is a nearly flat alluvial plain extending from the Tehachapi Mountains on the south to the Klamath Mountains on the north, and from the Sierra Nevada on the east to the Coast Ranges on the west. The valley is about 450 miles long and has an average width of about 50 miles. Elevations of the alluvial plain are generally just a few hundred feet above mean sea level (MSL), with extremes ranging from a few feet below MSL to about 1,000 feet above MSL (Hackel 1966).

The topography along the proposed alignment is mainly flat, with minimal rolling terrain near the base of the foothills in Butte County. Drainage within the three counties flows southwesterly from the Cascade and Sierra Nevada mountain ranges and foothill areas, toward the Sacramento Valley area in the west. Ultimately, whether by overland flow, tributary swales, or perennial streams, all surface drainage ultimately ends up in the Feather, Yuba, or Sacramento Rivers.

Regional and Project Alignment Geology

Geologically, the Great Valley geomorphic province is a large, elongated, northwest-trending asymmetric structural trough that has been filled with an extremely thick sequence of sediments ranging in age from Jurassic to Holocene. This asymmetric geosyncline has a long stable eastern shelf supported by the subsurface continuation of the granitic Sierran slope and a short western flank expressed by the upturned edges of the basin sediments (Hackel 1966).

The project alignment has been mapped by a number of geologists at a regional scale (Helley and Harwood 1985; Jennings 1977; Saucedo and Wagner 1992; Wagner et al. 1987). Jennings (1977), Saucedo and Wagner (1992), and Wagner et al. (1987) are compilation maps that reflect mapping by previous authors and accordingly portray geologic interpretations similar to Helley and Harwood (1985).

Helley and Harwood's (1985) mapping focused on Quaternary geologic units based on geomorphic surfaces and was performed at a scale of 1:62,500, making this mapping the most relevant information for engineering properties of near-surface deposits (Kleinfelder 2008). Helley and Harwood's (1985) mapping shows the project alignment crosses a number of Quaternary-age geologic units. From youngest to oldest, these include:

- **Stream Channel Deposits (map symbol Qsc):** Deposits of open, active stream, and river channels without permanent vegetation. These deposits are being transported under modern hydrologic conditions.
- **Tailings (map symbol t):** Tailings deposits are derived from dredge gold and gravel mining operations and consist of well sorted, unconsolidated silt, sand, gravel, and cobble, with lesser amounts of clay.
- **Alluvium (map symbol Qa):** Alluvium is mapped adjacent to active river or tributary channels and consists of Holocene age, high-energy fluvial deposits (i.e., sand and gravels) and overbank and fan deposits (i.e., sand, silt, and clay). These deposits are unconsolidated.
- **Basin Deposits (map symbol Qb):** Helley and Harwood (1985) differentiate basin deposits from alluvium (Qa) on the basis of composition including only those deposits that are finer grained and frequently organic rich and suggest these deposits were distal deposits where energy conditions were much lower.
- **Modesto Formation (map symbols Qmu and Qml):** A significant portion of the project alignment is mapped as being underlain by the Modesto Formation. The Modesto Formation is Upper Pleistocene in age and consists of unconsolidated to moderately cemented gravel, sand, silt, and clay. Dense clay has been encountered (typically in the upper five feet) in this formation (Kleinfelder 2008). The Modesto Formation commonly forms distinct alluvial terraces and fans and is divided into upper (Qmu) and lower (Qml) members.
- **Riverbank Formation (map symbols Qru and Qrl):** Similar to the Modesto Formation, the Riverbank Formation is mapped under a significant portion of the project alignment. The Riverbank Formation generally consists of compact to semi-consolidated, dark brown to red gravel, sand, and silt with some clay. The Riverbank Formation has been dated between 130,000 and 450,000 years before present (BP).
- **Laguna Formation (map symbol Tla):** The Laguna Formation is mapped at the northern end of the project alignment. This Pliocene-age formation is the oldest of the geologic units mapped at the surface along the proposed project alignment. The Laguna Formation consists of moderately to strongly cemented, interbedded alluvial gravel, sand, and silt. These soils were

deposited by the ancestral Feather, Yuba, Bear, and American Rivers (Shlemon 1972).

- **Buried Stream Channel Deposits:** In addition to the geologic units mapped by Helley and Harwood (1985), historical surveys, geologic, and soils maps of the project alignment show numerous stream channels crossing the proposed alignment that have since been buried and/or modified (Kleinfelder 2008).

Soils

The soils along the project alignment have been mapped by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) and are described in the Soil Survey of Butte Area, California, Parts of Butte and Plumas Counties (Burkett and Conlin 2006); the Soil Survey of Sutter County, California (Lytle 1988); and the Soil Survey of Yuba County, California (Lytle 1998). Table 4.6-1 describes the general soil map units occurring from north to south along the proposed alignment (Burkett and Conlin 2006; Lytle 1998; Lytle 1988).

Table 4.6-1. Soil Map Units along the Proposed Alignment

General Soil Map Unit	Soil Description
Dunstone-Loafercreek-Argonaut Taxadjunct	Shallow and moderately deep, nearly level to moderately steep, well-drained soils that formed in residuum and colluvium; on foothills.
Thompsonflat-Oroville-Vistarobles	Very deep, moderately deep, and shallow, nearly level to moderately steep, moderately well-drained and poorly drained soils that formed in alluvium; on intermediate and high fan terraces. Limited by slow permeability and a hazard of ponding in some areas.
Eastbiggs-Duric Xerarents-Kimball	Moderately deep, shallow, and very deep, nearly level, somewhat poorly drained and well-drained soils that formed in alluvium; on low terraces. Limited by slow permeability and a hazard of ponding in some areas.
Conejo-Kilaga	Very deep or deep, well-drained alluvial soils; on stream terraces. Few limitations except for slow permeability and a hazard of flooding in some areas.
San Joaquin	Moderately well-drained alluvial soils that are moderately deep to a hardpan and have a dense clay subsoil; on low fan terraces. Limited by very slow permeability.
Columbia-Holillipah-Shanghai	Very deep, somewhat poorly drained or somewhat excessively drained, alluvial soils; on floodplains. Limited by a hazard of flooding in some areas.
Shanghai-Nueva-Columbia	Very deep, level to nearly level, somewhat poorly drained silt loam, loam, and fine sandy loam; on floodplains. Limited by a hazard of flooding and a high water table in some areas.
Conejo-Tisdale	Moderately deep to very deep, level to nearly level, well drained loam and clay loam; on terraces. Limited by a restricted soil depth.
San Joaquin-Cometa	Moderately deep and very deep, level to nearly level, well drained sandy loam and loam; on terraces. Limited by very low to moderate water capacity and very slow permeability.
Clear Lake-Capay	Deep and very deep, level to nearly level, poorly drained and moderately well drained clay and silty clay; in basins and on basin rims. Limited by slow permeability.

Sources: Burkett and Conlin 2006; Lytle 1998; Lytle 1988

Anticipated Subsurface Conditions

Based on published geologic and NRCS maps, and professional judgment, Kleinfelder (2008) anticipates near-surface materials will include residual silt and clay soils overlying volcanic sediments and/or tuffs of Oroville, and/or interbedded clays, silts, sands, and gravels of the Tertiary Laguna Formation on the northern end of the proposed alignment.

The remainder of the proposed alignment to the south traverses older Quaternary alluvium including interbedded clays, silts, sands, and gravels of the Modesto and Riverbank Formations, and younger Quaternary silt, sand, and gravel river channel and overbank deposits, and organic rich, lean to dense clay basin deposits.

Soft and/or loose soils are generally expected to occur in various areas along the proposed alignment. Site-specific analyses should be performed where these deposits are mapped and/or encountered during the subsurface investigation(s).

Expansive Soils

Shrink-swell or expansive soil behavior is a condition in which soil reacts to changes in moisture content by expanding or contracting. Soil expansiveness (or shrink-swell potential) is expected to range from none to high along the proposed alignment. For Butte County, Figure 16-8 of the Butte County General Plan Technical Update (GPTU), Background Report (Butte County 2005) shows the distribution of expansive soils within Butte County.

Soils with no or low expansion potential occur along stream and river valleys and on steep mountain slopes. Soils of high expansion potential occur in the level areas of the Sacramento Valley, including around the population centers of Chico, Oroville, Biggs, and Gridley. In general, the proposed alignment occurs in areas with highly expansive soils (Butte County 2005).

For Yuba County, Exhibit GS-3 of the Yuba County General Plan, General Plan Update Background Report (Yuba County 2008) shows the distribution of expansive soils within Yuba County. Soils having high shrink-swell potential are more common on the western end of the county, where the proposed alignment would occur. Some soils with moderate shrink-swell potential are also located in valleys in the easternmost part of the county. In general, the proposed alignment occurs in areas with a low to high shrink-swell potential (Yuba County 2008).

For Sutter County, Figure 10.3-1 of Sutter County General Plan Background Report (Sutter County 1996) shows the distribution of expansive soils within Sutter County. The distribution of expansive soils within Sutter County is most likely to occur in basins and on basin rims. Soils with no or low expansion potential occur along the rivers and river valleys and on steep mountain slopes. The only area along the proposed alignment in Sutter County that has a high shrink-swell potential is the Clear Lake-Capay general soil map unit, which is where the southernmost portion of the proposed alignment would occur (Sutter County 1996).

Site-specific soil expansiveness analyses should be performed where these deposits are mapped and/or encountered during the subsurface investigation(s).

Erosion Hazard Potential

For Butte County, areas of differing erosion hazard potential are shown in Figure 16-5 of the Butte County GPTU, Background Report (Butte County 2005). The areas with the greatest erosion hazard potential generally occur in the foothills of Butte County. The proposed alignment generally traverses areas of moderate and slight erosion hazard potential. Moderate erosion hazard potential is defined as occurring on areas with slopes of nine to 30 percent with soils of no profile development to weak profile development and slopes of nine to 15 percent with moderate profile development. Slight erosion hazard potential is defined as occurring on areas with slopes of two to nine percent with permeability at least moderate with weak soil profile development (Butte County 2005).

For Yuba County, areas of differing erosion hazard potential are shown in Exhibit GS-2 of the Yuba County General Plan, General Plan Update Background Report (Yuba County 2008). The areas with the greatest erosion

hazard potential generally occur in the foothills and mountain areas in the central and eastern part of the county. The proposed alignment traverses areas of slight erosion hazard potential. Slight erosion hazard potential is defined as erosion unlikely to occur under ordinary climatic conditions (Yuba County 2008).

For Sutter County, areas with a moderate or high erosion hazard potential are not common. With the exception of moderate to high erosion hazard potential in the Sutter Buttes, the following factors make Sutter County an area of low erosion activity.

1. Sutter County's average annual precipitation is 15 to 20 inches.
2. Wind velocity is low in the winter (the time of highest precipitation).
3. With the exception of the Sutter Buttes, Sutter County does not have slopes in excess of nine percent.
4. The naturally erodible soil types are located in the Sutter Buttes (Sutter County 1996).

Site-specific erosion hazard potential analyses should be performed as necessary during the subsurface investigation(s).

Land Subsidence

Subsidence is the sinking of a large area of ground surface in which the material is displaced vertically downward, with little or no horizontal movement. Subsidence occurs in three ways: as a result of groundwater overdraft or oil and gas withdrawal, compaction and oxidation of peat soils, and hydrocompaction. Land subsidence as a result of groundwater overdraft is discussed in detail below. Land subsidence as a result of compaction and oxidation of peat soils and/or hydrocompaction are not significant concerns in the northern Sacramento Valley and are not discussed herein.

Groundwater overdraft occurs when groundwater extraction results in compression of a clay bed within an aquifer so much that it no longer expands to its original thickness after groundwater recharge. Clay beds often compress when wells pump groundwater and expand after pumping stops. Clay beds contain individual clay particles and small pores that fill with groundwater in saturated conditions. Groundwater maintains the pore space, expands the clay particles, and helps the bed maintain its thickness. A clay bed will yield a certain volume of groundwater without losing storage capacity, a state of *safe yield*.

If safe yield is not exceeded, the clay bed will compress and expand as the pores shrink and swell. This compression and expansion can lead to elastic land subsidence at the ground surface where elevation decreases when water is extracted then increases when water is recharged.

If the safe yield of a clay bed is exceeded, however, its pores collapse and the surrounding clay particles settle in their place. When the clay particles settle, the

clay bed is effectively thinned, resulting in permanent land subsidence at the ground surface.

The amount of subsidence caused by groundwater or oil and gas withdrawal depends on several factors, including:

1. The extent of water level decline.
2. The thickness of the water-bearing strata tapped.
3. The thickness and compressibility of silt-clay layers within the vertical sections where groundwater withdrawal occurs.
4. The duration of maintained groundwater level decline.
5. The number and magnitude of water withdrawals in a given area.
6. The general geology and geologic structure of the groundwater basin (Butte County 2005).

The damaging effects of subsidence include gradient changes in roads, streams, canals, drains, sewers, and dikes. Many such systems are constructed with slight gradients and may be significantly damaged by even small elevation changes. Other damaging effects include damage to water wells resulting from sediment compaction and increased likelihood of flooding of low lying areas (Butte County 2005).

Land subsidence is a potential hazard for the portions of Butte County located within the Sacramento Valley. Areas of potentially significant subsidence are shown in Figure 16-6 of the Butte County GPTU Background Report (Butte County 2005). The greatest potential subsidence areas are those where heavy groundwater withdrawal is occurring in gas-producing areas. According to investigations by the U.S. Geological Survey, the areas of heaviest groundwater withdrawal extend about two miles north and south of Chico and in a one-mile radius around Gridley—areas where the proposed alignment would occur. The amount of subsidence that could take place in the county depends primarily on the amount of groundwater withdrawal (Butte County 2005).

No information pertaining to land subsidence in Yuba County is readily available. However, based on Figure 16-6 of the Butte County GPTU Background Report (Butte County 2005), it appears that land subsidence is a potential hazard for the portions of Yuba County located within the Sacramento Valley.

Sutter County is not subject to high subsidence. A number of the previously described factors needed to cause subsidence do not exist in Sutter County. The factors contributing to the low subsidence potential are described below.

1. Although Sutter County contains several natural-gas withdrawal locations in the western and southern portions of the county, these gas fields are spread out over a large area (not producing concentrated drawdowns) and do not individually generate a high volume of gas.

2. Although Sutter County has groundwater drawdowns for domestic and agricultural water supply, the subsurface geology of the county has a significant recharge capability from the Sacramento River, the Feather River, and runoff from the Sierra Nevada snow melt.
3. A large portion of Sutter County households (in Yuba City and Live Oak) do not rely on groundwater. The public water supply is delivered from surface withdrawal off the Feather River.
4. Sutter County does not have oil withdrawal drawdowns.

Future potential for subsidence in Sutter County could result from prolonged periods of drought and a significant increase in natural gas withdrawal (Sutter County 1996).

Potential Geologic Hazards

Seismic Conditions

Seismic hazards are earthquake fault ground rupture and ground shaking (primary hazards), liquefaction, and earthquake-induced slope failure (secondary hazards). The project alignment is located within an area influenced by several major faults to the east and west. During the life of the proposed power line, it is probable that at least one moderate to severe earthquake will cause ground shaking in the project vicinity (Kleinfelder 2008).

Surface Rupture and Faulting

The purpose of the Alquist-Priolo Act is to regulate development near active faults to mitigate the hazard of surface rupture. Faults in an Alquist-Priolo Earthquake Fault Zone are typically active faults. As defined under the Alquist-Priolo Act, an active fault is one that has had surface displacement within Holocene time (about the last 11,000 years). An early Quaternary fault is one that has had surface displacement during Quaternary time (the last 1.6 million years). A pre-Quaternary fault is one that has had surface displacement before the Quaternary period.

There is no evidence of recent (Holocene) faulting within the project alignment vicinity and no faults are mapped to cut valley alluvium at or near the proposed alignment (Kleinfelder 2008). Furthermore, review of aerial photographs does not indicate the presence of lineations or other features that would suggest the presence of recent faulting on or trending towards the proposed alignment (Kleinfelder 2008).

However, the proposed alignment is subject to seismic hazards because of its proximity to active faults, fault systems, and fault complexes. Some of the officially recognized active faults (e.g., recognized by the State of California or Uniform Building Code [*UBC*]) are located within a 20-mile radius of the project area.

Active faults closest to the proposed alignment are the Dunnigan Hills Fault about 19 miles to the west, and the Cleveland Hill Fault¹ (western splay of the Foothills Fault System) as close as 2.5 miles east of the proposed alignment (Hart and Bryant 1997; International Conference of Building Officials 1997; Jennings 1994). All of these faults are in Alquist-Priolo Earthquake Fault Zones (Hart and Bryant 1997).

The closest fault to the proposed alignment is the Willows Fault Zone, located less than two miles from the southern end of the proposed alignment. This fault zone is mapped as a pre-Quaternary fault zone. However, according to Kleinfelder (2008), the Willows Fault Zone is defined as potentially capable of generating infrequent and moderate-magnitude earthquakes along its northern extent, north of the Sutter Buttes, and is mapped on the basis of offset, deep bedrock strata (i.e., 1,500 feet), and associated groundwater elevation anomalies in that region.

Ground-Shaking Hazard

The Project Area is located in *UBC* Seismic Hazard Zone 3. Structures must be designed to meet the regulations and standards associated with Zone 3 hazards. The *UBC* recognizes no active seismic sources in the immediate vicinity of the proposed alignment (International Conference of Building Officials 1997).

The measurement of the energy released at the point of origin, or epicenter, of an earthquake is referred to as the magnitude, which is generally expressed in the Richter Magnitude Scale or as moment magnitude. The Richter Magnitude Scale is logarithmic: each successively higher Richter magnitude reflects an increase in the energy of an earthquake of about 31.5 times. Moment magnitude is the estimation of an earthquake magnitude by using seismic moment, which is a measure of an earthquake size utilizing rock rigidity, amount of slip, and area of rupture.

The greater the energy released from the fault rupture, the higher the magnitude of the earthquake. Earthquake energy is most intense at the fault epicenter; the farther an area from an earthquake epicenter, the less likely it is that ground shaking will occur there. Geologic and soil units comprising unconsolidated, clay-free sands and silts can reach unstable conditions during ground shaking, which can result in extensive damage to structures built on them (see *Liquefaction and Related Hazards*, below).

Ground shaking is described by two methods: ground acceleration as a fraction of the acceleration of gravity (*g*) or the Modified Mercalli scale, which is a more descriptive method involving 12 levels of intensity denoted by Roman numerals. Modified Mercalli intensities range from I (shaking that is not felt) to XII (total damage).

¹ This fault was responsible for the 1975 Oroville earthquake of Richter magnitude 5.7, an event that produced surface displacement along about 2.2 miles of the fault. Ground motions corresponding to Modified Mercalli Intensity VIII were experienced at Gridley and Oroville. Significant structural damage occurred to unreinforced masonry buildings in Oroville. Geologic studies indicate that the total length of the Cleveland Hills fault is probably 11 to 15 miles. The maximum credible earthquake on this fault is probably about magnitude 6.5 to 6.7. An event of this magnitude would cause substantially more damage than the 1975 event (Butte County 2005).

The intensity of ground shaking that would occur along the proposed alignment as a result of a nearby earthquake is partly related to the size of the earthquake, its distance from the proposed alignment, and the response of the geologic materials within the proposed alignment. As a rule, the earthquake magnitude and the closer the fault rupture to the site, the greater the intensity of ground shaking. When various earthquake scenarios are considered, ground-shaking intensities will reflect both the effects of strong ground accelerations and the consequences of ground failure.

Estimates of Ground Shaking

The proposed alignment is located in a region of California characterized by a low ground-shaking hazard. Based on a probabilistic seismic hazard map that depicts the peak horizontal ground acceleration values exceeded at a 10 percent probability in 50 years (Cao et al. 2003; California Geological Survey 2006), the probabilistic peak horizontal ground acceleration values in the project area range from 0.1 to 0.2g, where one g equals the force of gravity, thus indicating that the ground-shaking hazard in the project area is low to moderate. Farther to the east and west, the ground-shaking hazard increases more, coinciding with the increase in abundance of associated faults and fault complexes (Cao et al. 2003; California Geological Survey 2006).

Liquefaction Hazard

Liquefaction is a phenomenon in which the strength and stiffness of unconsolidated sediments are reduced by earthquake shaking or other rapid loading. Poorly consolidated, water-saturated fine sands and silts having low plasticity and located within 50 feet of the ground surface are typically considered to be the most susceptible to liquefaction. Soils and sediments that are not water saturated and that consist of coarser or finer materials are generally less susceptible to liquefaction (California Division of Mines and Geology 1997).

Geologic mapping by Helley and Harwood (1985) shows significant portions of the proposed alignment to be underlain by basin and Holocene-age alluvial deposits. These units generally consist of unconsolidated gravel, sand, silt, and clay. Depending on groundwater levels² and the intensity of a seismic event, these units have the potential to liquefy during a seismic event.

In Butte County, areas paralleling the Sacramento River that contain clean sand layers with low relative densities are estimated to have generally high liquefaction potential. Granular layers underlying most of the remaining Sacramento Valley area of Butte County have higher relative densities and thus have moderate liquefaction potential. Clean layers of granular materials older than Holocene are of higher relative densities and are thus of low liquefaction potential. Figure 16-4 of the Butte County GPTU Background Report (Butte County 2005) shows that the proposed alignment generally traverses areas of moderate liquefaction potential.

² Groundwater is anticipated within the proposed depths of exploration for the portion of the alignment located within the valley sediments a few miles south of Palermo. Groundwater levels are expected to range from near the ground surface to depths of more than 20 feet below ground surface for this portion of the alignment. Groundwater is not anticipated within the depths of exploration for the higher elevation sites near Palermo (Kleinfelder 2008).

In Yuba and Sutter counties, areas with a high liquefaction potential are similar to those areas described for Butte County (Sutter County 1996, Yuba County 2008). In other words, areas paralleling the Sacramento, Feather, and Bear Rivers that contain clean sand layers with low relative densities coinciding with a relatively high water table are estimated to have generally high liquefaction potential. Granular layers underlying certain areas in the Sacramento Valley have higher relative densities and thus have moderate liquefaction potential.

Other Ground Failure Types Associated with Liquefaction

Two potential ground failure types associated with liquefaction in the region are lateral spreading and differential settlement. Lateral spreading involves a layer of ground at the surface being carried on an underlying layer of liquefied material over a gently sloping surface toward a river channel or other open face (Association of Bay Area Governments 2001). Lateral spreading is expected to be a concern along the proposed alignment.

Another common hazard in the region is differential settlement (also called ground settlement and, in extreme cases, ground collapse) as soil compacts and consolidates after ground shaking ceases. Differential settlement occurs when the layers that liquefy are not of uniform thickness, a common problem when the liquefaction occurs in artificial fills (Association of Bay Area Governments 2001). Settlement can range from one percent to five percent, depending on the cohesiveness of the sediments (Tokimatsu and Seed 1984). Along the proposed alignment, differential settlement is also expected to be a concern.

Site-specific liquefaction analyses should be performed where these deposits are mapped and/or encountered during the subsurface investigation(s).

Landslide Hazards (Seismic and Gravitational Only)

Aerial photographs were analyzed for the presence of landslides along and adjacent to the proposed alignment. No landslides were observed along the proposed alignment. No geomorphic features indicative of landsliding were observed (e.g., scarps, hummocky topography, etc.). However, the alignment does cross several major rivers and/or drainages with embankments. The stability of major river levee embankments is the purview of the United States Army Corps of Engineers. The stability of other embankments and/or creek banks that could affect the proposed pole foundations will need to be assessed during preparation of the project geotechnical report(s).

Volcanic Hazards

The only portion of the project alignment subject to volcanic hazards is the northern portion in Butte County. Some of the most striking topographic features of Butte County, including Table Mountain north of Oroville, are volcanic in origin. The lava flows that now cap Table Mountain and most of the other volcanic features in the county are, however, tens of millions of years old. The geologic activity producing this volcanism has long since ceased and thus there are virtually no volcanic hazards in most of Butte County. However, northern Butte County is an exception to this generalization because Mount Lassen, an active volcano, is approximately 25 miles north of the Butte County line.

Mount Lassen is the southernmost volcano in the Cascade Range and last erupted in the period between 1914 and 1921. This period of volcanic activity included steam and ash eruptions as well as a small lava flow. Like the other volcanoes in the Cascades, Mount Lassen is considered dormant, which means that it is not currently erupting but is expected to erupt again in the future. Mount Lassen has erupted at least seven times within the past 1,200 years.

Four main hazards may accompany volcanic eruptions.

1. Ash and cinder falls.
2. Explosive blasts.
3. Lava flows.
4. Mud flows.

Despite the general severity of volcanic hazards, potential volcanic hazards for Butte County are limited to the northernmost portions of the county. Even here, the hazards are relatively modest because of the distance between Butte County and Mount Lassen. In historic times, there are no records of significant ash falls, explosive effects, lava flows, or mud flows reaching Butte County. Furthermore, impending volcanic eruptions generally give numerous advance warning signs and thus it is usually possible to evacuate residents in areas subject to volcanic hazards (Butte County 2005).

Impact Analysis

Methods

Impacts related to geology, soils, and seismicity were assessed based on technical reports prepared for the proposed project, on other available data, and professional judgment.

Analysis focused on the proposed project's potential to increase the risk of personal injury, loss of life, and damage to property as a result of existing geologic conditions along the project alignment. This impact analysis assumes that the applicant will conform to the latest NPDES requirements, and other applicable requirements.

This impact analysis also requires that, per direction of the applicable counties and the City of Marysville, geotechnical analyses be performed at individual construction/demolition locations. Specifically, site-specific, design-level geotechnical investigations will be performed at specific locations to evaluate the potential for the presence of soft and/or loose soils, unstable slopes, surface fault rupture, ground shaking, liquefaction hazard, slope stability in the vicinity of river crossings, and expansive soils. See below for more information about how each hazard will be mitigated.

Significance Criteria

For this analysis, impacts pertaining to geology, soils, and seismicity were considered significant under CEQA if the project would result in any of the following environmental effects. These criteria are based on Appendix G of the State CEQA Guidelines.

- Expose people or structures to increased risk from 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.
- Expose people or structures to increased risk related to strong seismic ground shaking.
- Expose people or structures to increased risk related to seismically induced ground failure, including liquefaction.
- Expose people or structures to increased risk of landslides or other slope failure.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soil, as defined in Table 18-1-B of the *UBC* (International Conference of Building Officials 1997), creating substantial risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Impacts and Mitigation Measures

Construction Related Impacts

Impact GEO-1: Potential structural damage and injury from development on soft or loose soils—less than significant

Saturated, loose sands and soft clays may pose difficulties in access for construction and in excavating for pole foundations. Soft or loose soils could also cause instability of excavations during construction of foundations. However, as described under APM GEO-1, design-level geotechnical studies will be performed by the applicant where necessary to evaluate the potential for, and effects of, soft or loose soils.

Where potential problems exist, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered during

construction. Such measures, typical of common construction practice, may include locating construction facilities and operations away from areas of soft and loose soil; over-excavating soft or loose soils and replacing them with engineered backfill materials; increasing the density and strength of soft or loose soils through mechanical vibration and/or compaction; and treating soft or loose soils in place with binding or cementing agents. Appropriate shoring construction methods for trenches and other excavations will be designed.

Where necessary, construction activities will be scheduled for the dry season to allow safe and reliable truck and equipment access. As a result, potential construction impacts from soft or loose soils will be less than significant.

Incorporation of standard engineering practices as part of the project will ensure that people or structures are not exposed to fault rupture hazards and any impacts will be less than significant.

APM GEO-1: Incorporate measures identified in geotechnical report/use of standard engineering practices to mitigate for individual site specific and design-specific hazards

For overhead transmission lines, tower replacement(s), and any other associated project activities, site-specific, design-level geotechnical investigations will be performed at specific locations where required to evaluate the potential for the presence of soft and/or loose soils, unstable slopes, surface fault rupture, ground shaking, liquefaction hazard, slope stability in the vicinity of river crossings, and expansive soils.

Where significant potential for these hazards exists, pole locations will be adjusted when possible in order to minimize any potential for damage.

Impact GEO-2: Potential for accelerated erosion during construction—less than significant

Grading, excavation, removal of vegetation cover, and loading activities associated with construction activities could temporarily increase erosion, runoff, and sedimentation. Construction activities could also result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at the construction sites and staging areas.

A SWPPP will be developed by a qualified engineer or erosion control specialist and implemented before construction. The SWPPP will be kept onsite during construction activity and will be made available upon request to representatives of the RWQCB. The objectives of the SWPPP would be to:

1. Identify pollutant sources that might affect the quality of stormwater associated with construction activity.
2. Identify, construct, and implement stormwater pollution prevention measures to reduce pollutants in stormwater discharges during and after construction. To this end, the SWPPP would include a description of potential pollutants, management of dredged sediments, and hazardous materials present onsite during construction (including vehicle and equipment fuels).

The SWPPP will also include details of how the sediment and erosion control BMPs will be implemented. Implementation of the SWPPP will comply with state and federal water quality regulations.

Finally, it is assumed that relevant recommendations from the required site-specific, design-level geotechnical investigations required under APM GEO-1 would also minimize negative effects associated with erosion, runoff, and sedimentation. As a result, potential erosion impacts will be less than significant.

Impact GEO-3: Potential structural damage and injury from slope failure and unstable soil conditions—less than significant

Destabilization of natural or constructed slopes could occur as a result of construction activities. Excavation, grading, and fill operations associated with providing access to tower locations and other project facilities could alter existing slope profiles making them unstable as a result of over-excavation of slope material, steepening of the slope, or increased loading.

However, as discussed below (per requirements of APM GEO-1), design-level geotechnical investigations will be performed where necessary to evaluate subsurface conditions, identify potential hazards, and provide information for development of excavation plans and procedures. Appropriate design features and construction procedures will be implemented to maintain stable slopes and excavations during construction.

Temporary construction slopes and existing natural or constructed slopes impacted by construction operations will be evaluated for stability. In developing grading plans and construction procedures for access roads and transmission poles, the stability of both temporary and permanent cut, fill, and otherwise impacted slopes will be analyzed. Construction slopes and grading plans will be designed to limit the potential for slope instability, maintain adequate drainage of improved areas, and minimize the potential for erosion and flooding during construction.

During construction, slopes affected by construction operations will be monitored and maintained in a stable condition. Construction activities likely to result in slope or excavation instability will be suspended during and immediately following periods of heavy precipitation when slopes are more susceptible to failure.

For construction requiring excavations, such as foundations, appropriate support and protection measures will be implemented to maintain the stability of excavations and to protect surrounding structures and utilities. Temporary support such as bracing or underpinning will be designed and implemented at affected facilities when excavations are located adjacent to structures, utilities, or other features that may be adversely impacted by potential ground movements. Appropriate construction methods and procedures, in accordance with state and federal health and safety codes, will be followed to protect the safety of workers

and the public during trenching and excavation operations. Potential impacts from slope or excavation instability would be less than significant and further mitigation is not required.

Operational Impacts

Impact GEO-4: Potential structural damage and injury from fault rupture—less than significant

There is no evidence of recent (Holocene) faulting within the project alignment vicinity and no faults are mapped to cut valley alluvium at or near the proposed alignment (Kleinfelder 2008). However, the proposed alignment is subject to seismic hazards because of its proximity to active faults, fault systems, and fault complexes. Some of the officially recognized active faults are located within a 20-mile radius of the project area. The closest active faults to the proposed alignment are the Dunning Hills Fault about 19 miles to the west, and the Cleveland Hill Fault (western splay of the Foothills Fault System) as close as 2.5 miles east of the proposed alignment (Hart and Bryant 1997; International Conference of Building Officials 1997; Jennings 1994). All of these faults are in Alquist-Priolo Earthquake Fault Zones (Hart and Bryant 1997).

The closest fault to the proposed alignment is the Willows Fault Zone, located less than two miles from the southern end of the proposed alignment. This fault zone is mapped as a pre-Quaternary fault zone; according to Kleinfelder (2008). However, this fault zone is defined as potentially capable of generating infrequent and moderate-magnitude earthquakes along its northern extent north of the Sutter Buttes and is mapped on the basis of offset, deep (i.e. 1,500 feet) bedrock strata and associated groundwater elevation anomalies in that region.

Accordingly, due to the close proximity of the project alignment to the Cleveland Hill Fault and the Willows Fault Zone, potential impacts from surface fault rupture may be significant. Potential impacts to project facilities from surface fault rupture could occur to transmission line poles and substations. For overhead transmission lines, the flexible capacity of the transmission lines themselves can generally accommodate surface fault displacements. Transmission poles are susceptible to damage or failure if they directly overlie a fault trace that experiences surface rupture.

Previous earthquakes in other areas with transmission lines, such as the 1994 Northridge earthquake, show that damage to overhead transmission lines as a result of fault surface rupture has been limited. Within the project alignment, the potential for fault surface rupture is generally concentrated in the vicinity of mapped active and early Quaternary fault traces and within established earthquake fault zones.

As demonstrated in other areas of California, surface fault rupture and significant ground distortion may occur within a zone extending several hundred feet on either side of the main fault trace. In addition, the difficulties involved in accurately identifying, locating, and assessing the potential activity of individual

fault traces create significant uncertainty in predicting precisely where ground displacements are most likely to occur during an earthquake on a given fault.

Therefore, proposed project facilities that intersect, occupy, or are adjacent to active and early Quaternary fault traces and earthquake fault zones are subject to potentially significant impacts from fault surface rupture. However, with implementation of APM GEO-1, the impact from surface fault rupture would be reduced to a less-than-significant level.

Impact GEO-5: Potential structural damage and injury from ground shaking—less than significant

As discussed above, the ground-shaking hazard along the project alignment ranges from low to moderate. However, a large earthquake on any of the nearby faults described above could cause strong ground shaking along the project alignment, with the potential to damage associated project structures. The greatest potential for strong seismic ground shaking within the project alignment comes from the active Cleveland Hill Fault, which has produced moderately large earthquakes in the past.

Because seismic waves attenuate with distance from their source, estimated bedrock accelerations are highest for portions of the project alignment near the fault zone and decrease with distance from the fault. Local soil conditions may amplify or dampen seismic waves as they travel from underlying bedrock to the ground surface. In addition to the Cleveland Hill Fault, other active or early Quaternary faults in the vicinity of the proposed project also present significant potential for strong ground shaking.

In general, overhead transmission lines can accommodate strong ground shaking. In fact, windloading design requirements for overhead lines are generally more stringent than those developed to address strong seismic ground shaking. Furthermore, use of site-specific seismic data for project design obtained through geotechnical inquiry under APM GEO-1 will reduce potential impacts of strong ground shaking to a less-than-significant level.

Impact GEO-6: Potential structural damage and injury from development on materials subject to liquefaction and other types of seismic ground failure—less than significant

As discussed above, the potential for liquefaction along the project alignment is moderate. Seismic-induced ground failure has the potential to distress, displace, and/or destroy project components. However, use of site-specific seismic data for project design obtained through geotechnical inquiry under APM GEO-1 will reduce potential impacts of liquefaction and other types of seismic ground failure to less than significant.

In brief, if liquefiable soils or soils susceptible to other types of seismically induced ground failure are determined to be present at any location where project

activities would occur, corrective actions will be taken, including design methods, structural methods, and/or improving in situ foundation methods such as removal and replacement of soils, on-site densification, grouting, or other measures depending on the extent and depth of susceptible soils.

All of these measures reduce pore water pressure during ground shaking by densifying the soil or improving its drainage capacity. Implementation of one or a series of these measures in accordance with the findings of the required site-specific, geotechnical report(s) will reduce potential impacts of liquefaction and other types of seismic ground failure to a less-than-significant level.

Impact GEO-7: Potential structural damage and injury from slope failure—less than significant

Aerial photographs were analyzed for the presence of landslides along and adjacent to the proposed alignment. No landslides were observed along the proposed alignment. No geomorphic features indicative of landsliding were observed. However, the alignment does cross several major rivers and/or drainages with embankments.

Slope instability in the vicinity of the river and/or drainage crossings, including landslides, earth flows, and debris flows, have the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy project components. However, as described under APM GEO-1, design-level geotechnical surveys will be performed to evaluate the potential for slope instability, including landslides, earth flows, and debris flows along proposed transmission line route and in the vicinity of other project facilities.

Proper design allows for the transmission line to span large unstable areas. In cases of shallow sliding, slope creep, or raveling, specially designed deep foundations may be used to anchor the overlying structure to underlying competent material. As appropriate, stabilization of unstable slopes will be performed by excavating and removing unstable material, regrading unstable slopes to improve surface drainage and limit infiltration, installing subsurface drainage systems, and/or constructing improvements to mechanically restrain slope movement. Facilities will be located away from very steep hillsides, debris-flow source areas, the mouths of steep sidehill drainages, and the mouths of canyons that drain steep terrain.

Incorporation of standard engineering practices as part of the project will ensure that people or structures are not exposed to slope instability hazards. As a result, potential impacts will be less than significant.

Impact GEO-8: Potential structural damage and injury from development on expansive, soft, and/or soils—less than significant

Many of the natural soil types identified along the proposed alignment have high clay contents and thus potentially have moderate to high shrink-swell potential.

Expansive soils may cause differential and cyclical foundation movements that can cause damage and/or distress to overlying structures and equipment.

Potential operation impacts from loose sands, soft clays, and other potentially compressible soils include excessive settlement, low foundation-bearing capacity, and limitation of year-round access to project facilities. However, as described under APM GEO-1, design-level geotechnical studies will be conducted to develop appropriate design features for locations where potential problems are known to exist.

Appropriate design features might include excavation of potentially problematic soils during construction and replacement with engineered backfill, ground treatment processes, direction of surface water and drainage away from foundation soils, and the use of deep foundations such as piers or piles. Implementation of these standard engineering methods will reduce potential impacts to a less than significant level and further mitigation is not required.

Impact GEO-9: Potential impacts to septic tanks or alternative wastewater disposal systems—no impact

The project does not involve the use of septic tanks or alternative wastewater disposal systems. Accordingly, there is no impact.

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RWQCB	regional water quality control board.....	4.6-2
General Construction Permit	General Permit for Discharges of Storm Water Associated with	
Construction Activity	4.6-2	
NOI	Notice of Intent	4.6-2
SWPPP	Stormwater Pollution Prevention Plan.....	4.6-2
BMP	best management practice	4.6-2
CVRWQCB	Central Valley RWQCB	4.6-2
Alquist-Priolo Act	Alquist-Priolo Earthquake Fault Zoning Act.....	4.6-2
MSL	mean sea level.....	4.6-3
BP	before present.....	4.6-4
NRCS	U.S. Department of Agriculture, Natural Resources Conservation Service	4.6-5
GPTU	Butte County General Plan Technical Update	4.6-7

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Hazards and Hazardous Materials

Introduction

This section discusses potential hazards to the environment and the public, and worker health and safety associated with construction and operation of the project. Potential hazards include fire hazards, releases or encounters with existing hazardous substances, and helicopter use during construction. The section also describes potential impacts to public health and safety that would result from implementation of the project. Applicant-proposed mitigation measures that would reduce these impacts to a less-than-significant level are provided.

Existing Conditions

Regulatory Setting

For the purposes of this discussion, *hazardous materials* consist of raw materials and products, and *hazardous wastes* consist of wastes generated by facilities and businesses or wastes that remain onsite from past activities. Hazardous materials that would be used during construction activities for the proposed project include diesel fuel and other liquids in construction equipment. Applicable hazardous materials and wastes regulations and policies are summarized below.

Federal

The Environmental Protection Agency (EPA) is the principal federal regulatory agency responsible for the safe use and handling of hazardous materials. The key federal regulations pertaining to hazardous wastes are described below. Other applicable federal regulations are contained primarily in Titles 29, 40, and 49 of the Code of Federal Regulations (*CFR*).

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) enables the EPA to administer a regulatory program that extends from the manufacture of hazardous materials to their disposal, thereby regulating the generation, transport, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

Comprehensive Environmental Response, Compensation, and Liability Act; and Superfund Amendment and Reauthorization Act Title III

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, was enacted by Congress in 1980 to facilitate the cleanup of the nation's toxic waste sites. In 1986, Superfund was amended by the Superfund Amendment and Reauthorization Act Title III (SARA Title III), also called the Emergency Planning and Community Right-to-Know Act (EPCRA) or Community Right-to-Know laws.

SARA Title III states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup even if the material was dumped illegally when the property was under different ownership. These regulations also establish reporting requirements that provide the public with important information on hazardous chemicals in their communities to enhance community awareness of chemical hazards and facilitate development of state and local emergency response plans.

Federal Aviation Administration Regulations

The Federal Aviation Administration (FAA) regulates the use of aircraft. The FAA requires a lift plan for the use of helicopters in populated areas. The lift plan serves to identify staging areas and flight paths that present the least potential to affect populated areas. The FAA regulates the flight distances for loaded and unloaded helicopters. Unloaded large helicopters (also called sky cranes) cannot fly within 150 lateral feet of an occupied structure at elevations where downdrafts can occur. Loaded sky cranes cannot fly within 300 lateral feet of an occupied structure. If the required distances cannot be maintained during the flight, structures must be unoccupied.

State of California

California hazardous materials and wastes regulations are equal to or more stringent than federal regulations. The EPA has granted the state primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous materials are handled, stored, and disposed of properly to reduce risks

to human health and the environment. Several key state laws pertaining to hazardous materials and wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a hazardous materials business plan that describes their facilities, inventories of hazardous materials, emergency response plans, and training programs. *Hazardous materials* are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State Hazardous Waste Management Program, which is similar to, but more stringent than, the federal RCRA program. *Hazardous wastes* are defined as waste products with properties that make them dangerous or potentially harmful to human health or the environment; they can be the by-products of manufacturing processes or simply discarded commercial products, like cleaning fluids or pesticides. The act is implemented by regulations set forth in Title 26 of the California Code of Regulations (*26 CCR*), which describes the following required parameters for the proper management of hazardous waste.

- Identification and classification.
- Generation and transport.
- Design and permitting of recycling, treatment, storage, and disposal facilities.
- Treatment standards.
- Operation of facilities and staff training.
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of them. Under this act and *26 CCR*, a generator of hazardous waste must complete a manifest that accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with the Department of Toxic Substances Control (DTSC).

Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the Governor's Office of Emergency Services (OES). The office coordinates the responses of other agencies, including the EPA, the California Highway Patrol, regional water quality control boards, air quality management districts, and county disaster response offices.

California Occupational Safety and Health Administration Standards

Worker exposure to contaminated soils, vapors that could be inhaled, or groundwater containing hazardous constituents are subject to the monitoring and personal safety equipment requirements established in Title 8 of the California Occupational Safety and Health Administration (Cal-OSHA) regulations. The primary intent of the Title 8 requirements is to protect workers, but compliance with some of these regulations also will reduce potential hazards to non-construction workers and project vicinity occupants because required controls related to site monitoring, reporting, and other activities will be in place.

Fire Hazard Regulations and Requirements

Public Resources Code 4290

Public Resources Code 4290 (*PRC 4290*) was adopted to establish minimum wildfire protection standards in conjunction with building, construction, and development in State Responsibility Areas (SRAs). Under *PRC 4290*, the future design and construction of structures, subdivisions, and developments in SRAs must provide for basic emergency access and perimeter wildfire protection measures as specified in the code. These measures provide road standards for emergency access, signing, and building numbering; water supply reserves; and fuel breaks and greenbelts. Local standards that exceed those of *PRC 4290* supersede *PRC 4290*.

SRAs are those lands that meet these conditions.

- Are covered wholly or in part by forests or by trees producing or capable of producing forest products.
- Are covered wholly or in part by timber, brush, undergrowth, or grass, whether of commercial value or not, that protect the soil from excessive erosion, retard runoff of water, or accelerate water percolation, if such lands are sources of water available for irrigation or for domestic or industrial use.
- Are in areas principally used or useful for range or forage purposes and are contiguous to the lands described above.

California Environmental Protection Agency

The California Environmental Protection Act (Cal-EPA) implements and enforces a statewide hazardous materials program established by Senate Bill 1082 (1993) to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs for hazardous materials.

- Hazardous Materials Release Response Plans and Inventories (Business Plans).
- California Accidental Release Prevention (CalARP) Program.
- Underground Storage Tank Program.
- Aboveground Petroleum Storage Act Requirements for Spill Prevention, Control, and Countermeasure (SPCC) Plans.
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment Programs.
- California Uniform Fire Code: Hazardous Materials Management Plans and Hazardous Material Inventory Statements.

Other State Laws, Regulations, and Programs

Additional state regulations that affect hazardous waste management are listed here.

- Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), which requires labeling of substances known or suspected by the state to cause cancer.
- California Government Code (*CGC*) Section 65962.5, under which Cal-EPA compiles a list of possible contaminated sites in the state.

Consolidated Hazardous Materials Programs

The Certified Uniform Program Agency (CUPA) is responsible for implementing a unified hazardous materials and hazardous waste management program. The California Health and Safety Code (*HSC*) Section 25505 requires handlers of hazardous materials to submit business plans to the CUPA if hazardous materials inventories meet or exceed established thresholds. Cal-EPA can delegate responsibility for many of its programs to local governments. A CUPA can be a county, city, or joint powers authority that demonstrates its ability to administer the program.

Local Regulations

Although Pacific Gas and Electric Company (PG&E) is not subject to local planning regulations, the following local regulations related to hazards and hazardous materials are provided for informational purposes.

Butte County General Plan

The policies in the Butte County General Plan (Butte County 1977) related to safety and hazardous materials are as follows:

Policy 4.1. Geologic Hazard—Erosion Potential: Consider erosion potential in review of private development and public facilities in areas rated high and very high on Figure S-2.

Policy 6.1. Geologic Hazard—Expansive Soils: Protect development in valley areas with expansive soils.

Policy 1.1. Fire Hazard—Fire Hazard Consideration: Make protection from fire hazards a consideration in all planning, regulatory, and capital improvement programs, with special concern for areas of “high” and “extreme” fire hazard.

Policy 3.1. Fire Hazard—Fuel breaks: Use fuel breaks along the edge of developing areas in “high” and “extreme” fire hazard areas.

Policy 6.1. Fire Hazard—Water Supply: Determine the level of water supplies necessary for new development for fire protection services.

Policy 3.1. Fire Hazard—Road Access: Ensure that road access for new development is adequate for fire protection purposes.

Policy 9.1. Fire Hazard—High Fire Potential: Regulate as necessary those activities and uses with a high fire potential except uses regulated by the Forest Practices Act.

Sutter County General Plan

The goals and policies in the Sutter County General Plan (Sutter County 1996) that are related to health and safety are as follows:

Goal 7.B: To minimize the risk of personal injury and property damage due to seismic and geologic hazards.

Policy 7.B-2. Soil and/or Geologic Analysis: The County may require the preparation of a soils engineering and/or geologic-seismic analysis prior to permitting development in areas of geologic or seismic hazards (i.e., groundshaking, landslides, liquefaction, expansive soils).

Goal 7.C: To minimize the risk of personal injury and property damage and the economic and social disruptions associated with floods.

Policy 7.C-2. New Development or Improvement to Development Compliance with County Flood Damage Prevention Regulations: When new development or substantial improvement of existing development occurs within a special flood hazard area, as defined by the Federal Emergency Management Agency (FEMA), the development or improvement shall comply with the County Flood Damage Prevention Regulations.

Goal 7.D: To minimize the risk of personal injury and property damage resulting from fire.

Policy 7.D-1. Submission of Development Proposals to Fire Agencies in Unincorporated Areas: The County will submit development proposals, in the unincorporated areas of the County, to the appropriate fire agency.

Policy 7.D-2. State Standards for Fire Protection: The County shall require that new development, at a minimum, meets state standards for fire protection.

Goal 7.F: To minimize the risk of personal injury, property damage, and environmental degradation resulting from the use, transport, disposal, and release/discharge of hazardous materials.

Policy 7.F-1. Compliance with Federal, State, and Local Requirements: The County shall ensure that the use and disposal of hazardous materials complies with appropriate federal, state and local requirements.

Policy 7.F-3. Review of Proposed Development that Manufactures, Uses or Transports Hazardous Materials: Review of all proposed development projects that manufacture, use or transport hazardous materials shall be coordinated between the County and appropriate state and federal agencies.

Policy 7.F-4. Emergency Plan: The County shall require that development proposals that will generate hazardous waste or utilize hazardous materials provide a hazardous waste business and emergency plan pursuant to state law.

Yuba County General Plan

The goals and objectives in the Yuba County General Plan—Seismic Safety and Safety Elements (Yuba County 1996) that are related to health and safety are as follows:

Goal A: The general goal is to protect the lives and property of the citizens of Yuba County from unacceptable risk resulting from seismic hazards.

Objective 1. Identify Seismic Hazards to Reduce Risk: To define the nature of potential seismic hazards in various parts of the County in order that this information shall be used as a guide for risk reduction measures for

all construction, and for structural hazard abatement where needed in existing development.

Objective 2. Planning and Land Use in relation to Identified Seismic Hazards: To provide a guide for planning for appropriate uses of land in relation to identified seismic hazards.

Goal B: The general goal is to protect the lives and property of the citizens of Yuba County from unacceptable risk resulting from flood, fire and airport hazards.

Objective 1. Identify Seismic Hazards to Reduce Risk: To identify and establish those areas where public safety may be jeopardized by construction or improper land use.

City of Oroville General Plan

Goals and policies in the City of Oroville General Plan (City of Oroville 1995) related to safety and hazardous materials are as follows.

Goal SAF-3: Protect lives and property from risks associated with wildland and urban fire.

Policy P3.1. Fire Protection Standards & Defensible Space: Enforce fire protection standards as specified by the City of Oroville Fire Department, Butte County Fire Department, and California Department of Forestry and Fire Protection within rural and undeveloped portions of the Planning Area and in the urban-wildland interface, including implementation of fire safety ordinances to minimize wildland fire hazards, including incorporation of fire resistant building and roofing materials, and attainment and maintenance of “defensible space.” Defensible space may include re-vegetation with less flammable species, and the use of mulch to prevent erosion on bare soil.

Policy P3.2. Addressing Wildland Fire Risk: Ensure that the development review process addresses wildland fire risk, including assessment of both construction- and project-related fire risks particularly in areas of the City most susceptible to fire hazards. Review fire safety plans and provisions, consistent with California Public Resources Code (PRC) 4290 and 4291, for new development, including aspects such as emergency access, site design for maintenance of defensible space. and use of non-combustible materials.

Goal SAF-4: Protect the community from the harmful effects of hazardous materials.

Policy P4.2. Analyze soil samples prior to development: Require applicants to take and analyze soil samples prior to grading or construction in areas with a historical or suspected presence of toxic materials, including areas with known mine tailing, Superfund sites or other sites identified by the City or concerned agencies. If contamination is discovered prior to development, consult with the appropriate agencies and commence the proper clean-up measures.

Policy P4.3. Multi-Hazard Functional Disaster Plan: Rely on the Multi-Hazard Functional Disaster Plan in the event of a hazardous accident.

Policy P4.4. Hazardous Materials Response Team: Continue to participate in the Hazardous Materials Response Team authorized by the Joint Powers Agreement.

Policy P4.5. Identify and Eliminate Contaminated soils and Groundwater: Support efforts to identify and remediate soils and groundwater contaminated with toxic materials, and to identify and eliminate sources contributing to such contamination.

Policy P4.6. Coordination with Butte County Environmental Health Division and Oroville Fire Department: Continue to coordinate with the Butte County Environmental Health Division and Oroville Fire Department in review of all projects which require the use, storage or transport of hazardous waste to ensure necessary measures are taken to protect public health and safety.

Goal SAF-6: Protect residents from any hazards that may be documented related to electromagnetic fields generated by power transmission lines and other sources.

Policy P6.1. Department of Education Setback Standards: Comply with the setback standards established by the State Department of Education, School Facilities Planning Division, when locating schools, child care facilities, and other non-residential uses where sensitive members of the population, such as children, are present for extended periods.

Policy P6.2. Electromagnetic Fields Research Monitoring: Continue to monitor research on the health effects of electromagnetic fields generated by power transmission lines, substations, and other sources, and take additional appropriate action, if warranted, to reduce hazardous exposure.

Goal SAF-7: Prepare Oroville residents to respond to emergency situations.

Policy P7.2. Coordination with Caltrans During Emergency: Work with Caltrans to coordinate establishment of appropriate emergency access routes through the City when closure of State highways is necessitated by weather-related or other emergencies.

Policy P6.2. Electromagnetic Fields Research Monitoring: Use the City of Oroville's Multi-Hazard Functional Disaster Plan (MHFDP) as the guide for disaster planning in the Oroville Planning Area.

City of Marysville General Plan

The goals and policies in the City of Marysville General Plan—Community Safety and Seismic Safety Element (City of Marysville 1985) that are related to health and safety are as follows:

Goal: To minimize the danger of natural and manmade hazards and to protect residents and visitors from the dangers of earthquake, fire, flood, or other disasters.

Policy 2. Engineering Analysis of New Development: To require engineering analysis of new development proposals in areas with possible soil instability, flooding, earthquake faults, or other hazards, and prohibit development in high danger areas.

Policy 4. Development in 100 Year Flood Levels: To prohibit development below 100 year flood levels.

Policy 5. Development Along Stream Channels: To prohibit development along stream channels that would reduce stream capacity, increase erosion, or cause deterioration of the channel.

Policy 6. Disclosure of Hazardous Materials Use: To require disclosure of hazardous materials by those using them within the city.

Policy 7. Reimbursement for Hazardous Waste Spills: To develop and implement a hazardous materials cleanup code which allows the city to collect reimbursement for costs incurred from those responsible for hazardous waste spills.

Policy 9. State Earthquake Standards: To insure that future buildings and structures within the city are designed in conformance with state earthquake standards.

Plumas Lake Specific Plan

A portion of the project alignment traverses through the Plumas Lake Specific Plan area. The Specific Plan, however, does not have any relevant policies.

East Linda Specific Plan

A portion of the project alignment traverses through the east Linda Specific Plan area. The Specific Plan, however, does not have any relevant policies.

Environmental Setting

This section describes the use of hazardous materials in the study area, known and potential hazardous waste sites within or adjacent to the project alignment, potential sensitive receptors in the vicinity, locations of the nearest airports and fire safety.

Use of Hazardous Materials in the Study Area

Butte County

Butte County encompasses approximately 1,670 square miles (1.07 million acres) and is divided into two topographical sections: a valley area, which is the northeast portion of the Sacramento Valley, and a foothill/mountain region east of the Valley. The primary land use in Butte County is agricultural. The project alignment traverses through land designated as Agricultural, Agricultural Residential, Industrial, and Commercial (Butte County 2000). Businesses handling hazardous materials in Butte County include, but are not limited to, airports, lumber and wood manufacturers, metal recycling, gun ranges, dry cleaners, and railroad sites.

Sutter County

Sutter County is located along the Sacramento River in the Central Valley. The County Seat is Yuba City. According to the U.S. Census Bureau, the county has a total area of 609 square miles. The county's primary land use is agricultural. The project alignment crosses or is adjacent to properties designated by the Sutter County General Plan as Agriculture where agricultural pesticides and herbicides are likely used. Facilities in Sutter County known to utilize hazardous materials include a steel manufacturer, auto service stations, and a chemical company.

Yuba County

Yuba County is located in the Central Valley and along the western slope of the Sierra Nevada, north of Sacramento, along the Feather River. The County Seat is Marysville. According to the U.S. Census Bureau, the county has a total area of 644 square miles. A portion of the county, where Marysville is located and most of the population lives, is west of the mountains on the valley floor.

The county's primary land use is agriculture, particularly fruit orchards, rice fields, and cattle grazing. Within Yuba County, the project alignment crosses or is adjacent to properties designated by the Yuba County General Plan as Valley Agricultural, Single Family Residential, Multiple Family Residential, Public, Industrial and Community Commercial. Agricultural pesticides and herbicides are likely in use or have been used in agricultural and newer residential areas.

Facilities in Yuba County that are associated with hazardous materials include Beale Air Force Base, Yuba County Airport, hospitals, mining operations, and lumber and wood manufacturers (Yuba County 1996).

Contaminated Soil/Groundwater Sites

Research was conducted on sites in the project alignment vicinity known to be associated with a historical release of hazardous materials or wastes. The results include sites listed in state and federal databases. The California DTSC EnviroStor Database (DTSC 2008) indicates that, as of October 2008, 39 sites in Butte County, 10 sites in Sutter County, and 10 sites in Yuba County fell under the following categories: federal Superfund sites on the EPA National Priorities

List, state response sites, voluntary cleanup sites, school cleanup sites, permitted (hazardous waste) sites, and corrective action sites.

Butte County

Within Butte County, the DTSC indicates that, as of October 2008, 39 sites fall under the following categories: federal Superfund sites on the EPA National Priorities List; state response sites, voluntary cleanup sites, school cleanup sites, and permitted sites. The closest site to the project alignment is Lomo Airstrip, a state response site that has since been delisted. The site is located approximately three miles west of the project alignment. No sites with contaminated soil or groundwater are known to be located within or adjacent to the project alignment.

Sutter County

As of October 2008, the DTSC indicates that there are 10 sites within Sutter County that fall under the following categories: state response sites, voluntary cleanup, and non-operating hazardous waste site. The closest site is a school cleanup site located within 0.5 miles of the project alignment. Seven acres of the Plumas Ranch Elementary School site are affected by elevated arsenic concentrations and the current listing is inactive status.

Yuba County

Within Yuba County, the DTSC indicates that, as of October 2008, 10 sites fall under the following categories: state response sites, voluntary cleanup sites, school cleanup sites, and permitted sites. Two sites nearest the project alignment are located approximately one mile to the west. A radiator shop and an automotive repair shop exhibited elevated concentrations of lead. Both completed voluntary cleanup and were re-inspected and given certified and active status, respectively.

Leaking Underground Storage Tanks

The State Water Board GeoTracker data show one leaking underground storage tank (LUST) site in Butte County, 11 LUST sites in Yuba County, and two LUST sites in Sutter County. From the report details provided (Diablo Green Consulting 2008), it appears that three of the identified sites are situated in path of the project study area, defined as land within an approximate 500-foot corridor of the alignments.

- Farmers Market, located adjacent to the project alignment near Palermo Road in Butte County was listed as a LUST clean-up site due to soil contamination from gasoline in 1991; cleanup was performed and verified in 1996.
- Circle A, located adjacent to the project alignment near Highway 20 in Yuba County was listed as a LUST clean-up site due to soil contamination from gasoline in 2003; a preliminary site assessment work plan was submitted in 2004.
- The Tower Mart, located in Olivehurst, is located within 1/8 of a mile of the project alignment and was listed as a LUST clean-up site due to soil

Electric and Magnetic Fields

Electric and magnetic fields (EMF) are 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.

Recognizing that there is public interest and concern regarding potential health effects from exposure to EMF from transmission lines, this document provides some general background information regarding EMF associated with electric utility facilities in Appendix A. However, EMF is not addressed here as an environmental impact under CEQA. 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 does create a potential health risk, and (2) there are no defined or adopted CEQA standards for defining health risk from EMF. See, e.g., CPUC Decision No. 04-07-027 (Jul. 16, 2004); Delta DPA Capacity Increase Substation Project Final MND and Supporting Initial Study (November 2006), A.05-06-022, section B.1.14.1, page B-31, adopted in D.07-03-009 (March 1, 2007).

Sensitive Receptors

Sensitive receptors are individuals who have the potential to come into direct or indirect contact with a released substance. Sensitive receptors include nearby schools (less than 0.25 mile away) and residential populations likely to be affected by project activities or operations.

Butte County

There are no schools within 0.25 miles of the proposed transmission line within the Butte County portion of the project area. The closest residential area in the county is located approximately 1.5 miles southwest of the alignment (Butte County 1977).

Sutter County

The nearest school in the Sutter County portion of the alignment is East Nicolaus High School, located within 0.25 mile of the project area. In addition, a small residential estate district is located immediately adjacent to the alignment in East Nicolaus.

Yuba County

The nearest schools to the project area in Yuba County include Plumas Lake Charter School (within 0.25 mile), Linda Elementary (within 0.125 mile, Yuba

Gardens Intermediate School (within 0.125 mile), South Lindhurst/South APEC Continuation School (within 0.25 mile), and Yuba College (within 0.125 mile). In addition, two small pockets of light residential blocks are located within the alignment in Olivehurst and East Linda.

Airports

Butte County

The nearest existing airport facility in Butte County is the Oroville Municipal Airport, located approximately 4.5 miles northwest from the project alignment in Palermo (Butte County 1977).

Sutter County

The nearest existing airport facility in Sutter County is the Sutter County Airport, located approximately 2.35 miles east of the Town of Linda (Sutter County 2008).

Yuba County

The nearest existing airport facility in Yuba County is the Yuba County Airport located approximately 0.75 mile west of the alignment and the town of Olivehurst. Beale Air Force Base is located approximately 5.5 miles east of the alignment in Linda (Yuba County 1996).

Fire Safety

Butte County

Butte County has a climate typical of much of central California with mild winters and hot, dry summers. Along most of the project alignment are areas of agriculture and foothills. The abundant vegetation combined with dry climate conditions make this area susceptible to wildfires. According to the California Department of Forestry and Fire Protection (CDF), the proposed alignment does not run through an area mapped as posing any substantial risk of wildland fires (CDF 2008).

The Butte County Fire Department (BCFD) provides fire protection for the unincorporated areas of the valley (i.e., the county-designated Local Zone and location of the project alignment). The BCFD is also primarily responsible for suppression of non-forest fires and for the protection of life in the State Zone, which is composed of the foothills and mountain areas east of the proposed alignment and otherwise protected primarily by the state Division of Forestry and the U.S. Forest Service.

The BCFD is operated through a cooperative fire protection agreement between the County and the State Division of Forestry. The state-county organization operates 23 fire stations, five lookouts, and 33 forest and structural fire trucks (Butte County 1977). Maximum response time to the proposed project area would be 10 minutes (Butte County 1977).

Sutter County

Sutter County has a typical central California climate with mild winters and hot, dry summers. Six fire districts serve Sutter County. County The East Nicolaus Fire Department (County Service Area C) and the Pleasant Grove Fire Department (County Service Area D) are two districts that serve the proposed project area. No CDF wildland fire data was available for Sutter County.

Yuba County

Yuba County also has a climate characteristic of much of central California with mild winters and hot, dry summers. According to the CDF however, the proposed alignment does not run through an area mapped as posing any substantial risk of wildland fires (CDF 2008).

Because Yuba County does not operate a county fire department, each community within the county has organized their own fire protection services through various districts that are eligible for county and state funding. Unincorporated areas of the county are provided with nine fire protection districts.

Impact Analysis

Methods

Existing conditions were determined from review of published literature, searches of public records of known hazardous materials sites, examination of aerial photographs, and descriptions of location and project components as outlined in Chapter 3, "Project Description."

Environmental database searches were performed using (1) the Cal-EPA DTSC Hazardous Waste and Substances Site List (Cortese) List to identify sites in the proposed project vicinity with known contamination and a potential to contaminate the project alignment areas; and (2) the State Water Board GeoTracker database to identify LUST sites.

Significance Criteria

For this analysis, an impact pertaining to hazards and hazardous materials was considered significant under CEQA if the project would result in any of the following environmental effects. These criteria are based on Appendix G of the State CEQA Guidelines.

- Creates a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Creates 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.

- Emits hazardous emissions or handles hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school (this analysis also considered residences within the same distance).
- Is located on a site that is included on a list of hazardous materials sites compiled pursuant to *GCS 65962.5* and, as a result, would create a significant hazard to the public or the environment.
- Results in a safety hazard to people residing or working within an airport land use area or in the vicinity of a private airstrip.
- Impairs implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Exposes people or structures to a significant loss, injury, or death involving wildland fires.

Impacts and Mitigation Measures

Impact HAZ-1: Potential for hazardous materials spills during construction—less than significant

During the construction phase, hazardous materials such as vehicle fuels, oils, and other vehicle maintenance fluids would be used and stored in construction staging areas. Spills of these hazardous materials during construction activities could cause soil or groundwater contamination. Improperly maintained equipment could leak fluids during construction activities and while parked, resulting in soil contamination. PG&E will implement the following measures to reduce the potential for spills and leaks of hazardous materials and reduce the severity of the impact in the event of an inadvertent spill.

APM HAZ-1: Implement a spill prevention plan

PG&E will implement a Spill Prevention Plan for each staging area and workers will receive written instructions and training on the plan. This measure will reduce the potential risk of accidental spills in construction areas. The Spill Prevention Plan for each staging area will include the following.

- A Hazardous Substance Control and Emergency Response Plan addressing preparations for quick and safe cleanup of accidental spills. The plan will prescribe hazardous materials handling procedures for reducing the potential for a spill during construction and will include an emergency response program. The plan will identify areas where refueling and vehicle maintenance activities and storage of hazardous materials, if any, will be permitted.
- An Environmental Training and Monitoring Program to communicate environmental concerns and appropriate work practices, including spill prevention, emergency response measures, and applicable best management practices to all construction and operations personnel. A monitoring program will be implemented to ensure that the plans are followed during the construction project.

With implementation of the above actions, potential impacts associated with spills of hazardous materials during construction will be less than significant, and no additional mitigation is required.

Impact HAZ-2: Potential to encounter previously unknown contamination during construction—less than significant

Unexpected soil or groundwater contamination could be encountered during grading or excavation. As noted above, PG&E will implement an Environmental Training and Monitoring Program, which will detail sampling methods and protocol if unexpected contamination is encountered along the project route or in substations. Implementation of this program will reduce potential impacts associated with encountering previously unknown contamination during construction. PG&E will implement the additional measures listed below to ensure that potential impacts associated with previously unknown contamination are reduced to less-than-significant levels.

APM HAZ-2: Conduct construction soil sampling and testing if soil contamination is suspected

PG&E will conduct soil sampling along the project alignments, as needed, before construction begins. Soil information will be provided to construction crews, to inform them about soil conditions and potential hazards. If hazardous substances are unexpectedly encountered during trenching, grading, or excavating work, work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. If excavation of hazardous materials is required, the materials will be handled, transported, and disposed of in accordance with federal, state, and local regulations.

APM HAZ-3: Conduct groundwater sampling and testing if suspected contaminated groundwater is encountered during construction

If suspected contaminated groundwater is encountered in the proposed project construction areas, samples will be collected and submitted for analysis of petroleum hydrocarbons, metals, volatile organic compounds, and semi-volatile organic compounds. If necessary, groundwater will be collected during construction, contained, and disposed of in accordance with all applicable regulations.

Impact HAZ-3: Potential impacts on sensitive receptors associated with hazardous materials—less than significant

The nearest schools (Linda Elementary School, Yuba Gardens Intermediate School, and Yuba College) are located approximately 1/8 of a mile from the project alignment. The nearest residential areas located within the project alignment are in Olivehurst and East Linda. Although reconstruction of the transmission line will not change the existing conditions, there is the potential for a hazardous spill or accident during construction. However, implementation of

APM HAZ-1 (Spill Prevention Plan) will mitigate the potential risk of accidental spills in construction areas. No new significant sources of hazardous materials will be introduced by the project.

Construction equipment will be stored and dispatched from staging areas to be located at designated sites during the project, described specifically in Chapter 3, "Project Description" and shown on Figure 3-2, Project Description.

Four of the proposed staging areas are within the impact radius of 0.25 mile from sensitive receptors as defined in the CEQA guidelines. These sensitive receptors consist of the following schools:

- Linda Elementary School located at 6180 Dunning Avenue in Linda
- Yuba Gardens Intermediate School located at 1964 11th Avenue in Olivehurst
- Plumas Lake Charter School located at 2743 Plumas-Arboga Road in Arboga
- East Nicolaus High School located at 2454 Nicolaus Avenue in East Nicolaus

To avoid potential impacts on sensitive receptors in the project area, PG&E will prepare and implement a Spill Prevention Plan (as described above). Implementation of these actions will reduce potential impacts on sensitive receptors from hazardous materials to a less-than-significant level.

Impact HAZ-4: Potential hazard from location on a hazardous waste site—no impact

According to the DTSC Cortese List, six sites of potential environmental concern are located within or adjacent to the project alignment. However, based on regulatory status and the presumed groundwater gradient, none of the sites on the Cortese List are considered to represent a recognized environmental condition. Therefore, the proposed project would not result in a significant hazard to the public or the environment through exposure to such sites. No impact is associated with this concern.

Impact HAZ-5: Potential safety hazard for people residing or working within an airport land use area or in the vicinity of a private airstrip—no impact

The Yuba County Airport is within 0.75 mile of the project alignment. The alignment is within the overflight zone of the Yuba County Airport Comprehensive Land Use Plan (Airport Land Use Commission 1994 Comprehensive Land Use Plan). However, the Land Use Compatibility Guidelines for Safety do not restrict proposed project activities within the overflight zone (Airport Land Use Commission 1994: Land Use Compatibility Guidelines for Safety). Therefore, the proposed project will not affect existing airports.

Impact HAZ-6: Potential risks to persons and structures from operation of helicopters in populated areas—less than significant

Excavated soils, foundation forms, concrete, tubular steel poles, and miscellaneous tools and materials will be transported in and out of the construction areas by helicopter. Helicopters also may be used to transport construction workers to some pole sites. Operation of these helicopters in populated areas can pose a risk to structures or person.

To comply with requirements of the Federal Aviation Administration (FAA), PG&E will require the helicopter vendor to develop and implement a helicopter lift plan. Implementation of the following measure will reduce the risks associated with helicopter operations to a less-than-significant level.

APM HAZ-4: Develop and Implement a helicopter lift plan

PG&E will require the helicopter vendor to prepare a Helicopter Lift Plan for approval by the FAA prior to any construction helicopter operations. Any specific transportation needs (e.g., temporary road closures) will be identified in the plan and will be coordinated with the appropriate jurisdictions.

Impact HAZ-7: Potential to impair or interfere with an adopted emergency response plan or emergency evacuation plan—less than significant

The proposed project is a short-term construction effort considered small in scope that does not require additional emergency support measures. As part of standard operating procedures, PG&E has existing safety plans in place for these types of projects, and will coordinate with local agencies if road closures will be required that may impede emergency access routes or services. PG&E will implement the following measures to ensure that potential impacts on emergency access routes or services are reduced to a less-than-significant level.

APM HAZ-5: Prepare a health and safety plan

PG&E will prepare a Health and Safety Plan that will address emergency medical services to be provided in case of an emergency. The plan will list procedures, specific emergency response, and evacuation measures to be followed during emergencies. PG&E will prepare this manual and distribute it to all PG&E and contract workers involved in the project prior to construction and during operation of the proposed project.

PG&E will provide project maps to emergency personnel, which describe tower and pole locations as well as access roads, to ensure proper emergency response to all parts of the proposed project alignment.

Impact HAZ-8: Potential for significant risk of wildland fires—less than significant

The proposed project alignment passes through areas considered moderate to high for wildfire hazards. The primary risks of potential fire hazards for the project involve the use of vehicles and equipment during construction. Heat or sparks emitted from equipment in the area could ignite dry vegetation and cause a fire. Construction crews will use existing roads along most of the alignment corridor to access pole and tower sites or new access roads that will be constructed for the project. After construction, routine vegetation clearing and tree trimming and removal around the transmission poles and towers will be performed in accordance with the applicable laws covering vegetation management: *PRC 4291–4296*, inclusive, and North American Electric Reliability Council Standard FAC-003-1, Transmission Vegetation Management Standard. Implementation of the following additional Applicant-proposed mitigation measures would ensure that potential fire hazards are reduced to a less-than-significant level.

APM HAZ-6: Develop and implement a fire risk management plan

PG&E follows a standard practice of developing and implementing a Fire Risk Management Plan that addresses fire-suppression equipment and procedures to be used during construction and training of construction and maintenance crews. Additionally, fire suppression equipment and materials will be kept adjacent to all areas of work and in staging areas, and will be clearly marked. Detailed information for responding to fires will be provided in the project's Fire Risk Management Plan. Information contained in the Plan and location of fire-suppression materials and equipment will be included in as part of the employee environmental training discussed in APM HAZ-1.

Furthermore, water tanks will be sited in the project area to protect against fire, and all vehicles shall carry fire suppression equipment. PG&E will contact and coordinate with local and county fire departments to determine the minimum amounts of fire equipment to be carried on the vehicles and appropriate locations for the water tanks.

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Hydrology and Water Quality

Introduction

This section presents a discussion of the existing hydrology and water quality environment in and around the Palermo–East Nicolaus 115kV Transmission Line Reconstruction Project (project), an analysis of the potentially significant impacts resulting from construction and operation of the project and mitigation measures to reduce the project to a less-than-significant level of environmental impact. The analysis concludes that, with implementation of the proposed APMs, all project impacts on hydrology and water quality will be less than significant.

Existing Conditions

Regulatory Setting

Several state and federal statutes regulate the construction and operation of the proposed project if the project would result in impact to surface or groundwater. The California State Water Resources Control Board (SWRCB) is the state agency with primary responsibility for implementation of state and federal regulations relating to water resource issues. Typically, all regulatory requirements are implemented by the SWRCB through nine regional boards established throughout the state. The Central Valley Regional Water Quality Control Board (CVRWQCB) is responsible for regulating discharges to the Feather River and its tributaries.

Federal

Clean Water Act

The federal Clean Water Act (CWA) was enacted as an amendment to the Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA now serves as the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all

discharges into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool.

The CWA empowers the Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations, and includes programs addressing both point- and nonpoint-source pollution. Point-source pollution originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful unless specifically authorized by a permit. Permit review is the CWA's primary regulatory tool.

The following paragraphs provide additional details on specific sections of the CWA.

Section 404: Permits for Fill Placement in Waters and Wetlands

CWA Section 404 regulates the discharge of dredged and fill materials into "waters of the United States," which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from the United States Army Corps of Engineers (Corps) for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. Before any actions that may impact surface waters are implemented, a delineation of jurisdictional waters of the United States must be completed, following Corps protocols, to determine whether the project area contains wetlands or other waters of the United States that qualify for CWA protection. These include:

- Areas within the OHWM of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned.
- Seasonal and perennial wetlands, including coastal wetlands.

Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (*33 CFR 328.3; 40 CFR 230.3*).

Applicants must obtain a permit from the Corps for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. As stated by EPA general counsel Gary Guzy at the EPA's January 19, 2002 determination in response to the ruling in *Solid Waste Agency of Northern Cook County v. Corps of Engineers*, 121 S Ct. 675 (2001) (SWANCC), non-navigable, isolated waters might not be regulated by the Corps. As part of the wetland delineation and verification process, the Corps will determine whether the wetlands in the project study area are isolated and therefore not regulated under CWA Section 404.

The Corps may issue an individual permit evaluated on a case-by-case basis, or a general permit evaluated at a program level for a series of related activities. General permits are pre-authorized and are issued to cover multiple instances of similar activities expected to cause only minimal adverse environmental effects.

Nationwide permits (NWP) are a type of general permit issued to cover particular fill activities. Each NWP specifies particular conditions that must be met for the NWP to apply to a particular project. Potential waters of the United States along the project corridor are under the jurisdiction of the Corps, Sacramento District.

Compliance with Section 404 requires compliance with several other environmental laws and regulations. The Corps cannot issue an individual permit or verify the use of a general permit until the requirements of the National Environmental Policy Act (NEPA), ESA, and National Historic Preservation Act (NHPA) (Section 4.5, Cultural Resources) have been met. In addition, the Corps cannot issue or verify any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401.

Certain activities, listed below, are exempt from the Section 404 permitting process.

- Farming, ranching, and forestry activities that are considered normal and ongoing (as of 1985 conditions), such as plowing, harvesting, and minor drainage of upland areas to waters of the United States.
- Construction and maintenance of stock ponds and irrigation ditches.
- Maintenance of drainage ditches.
- Construction of temporary sedimentation basins in upland areas.
- Construction and maintenance of farm, forest, and mining roads in accordance with best management practices (BMPs).
- Other activities regulated by an approved program of BMPs authorized by CWA Section 208(b)(4).

Section 404 permits may be issued only for the least environmentally damaging practicable alternative (i.e., authorization of a proposed discharge is prohibited if there is a practicable alternative that would have less adverse impacts and lacks other significant adverse consequences). Section 404 may apply to the proposed project if construction would occur within waters of the United States.

This issue is also addressed in Section 4.4, Biological Resources, of this report.

Section 402: Permits for Discharge to Surface Waters

CWA Section 402 regulates discharges to surface waters through the National Pollution Discharge Elimination System (NPDES) program, which is administered by the EPA. In California, the SWRCB is authorized by the EPA to oversee the NPDES program through regional water quality control boards (RWQCBs) (see the related discussion under Porter-Cologne Water Quality

Control Act). The NPDES program provides for both general permits (those that cover a number of similar or related activities) and individual permits.

Construction Activities: Most construction projects that disturb one acre of land or more are required to obtain coverage under the NPDES General Permit for Construction Activities (General Construction Permit), which requires the applicant to file a notice of intent (NOI) to discharge stormwater and to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities, along with demonstration of compliance with relevant local ordinances and regulations, and an overview of the best management practices (BMPs) that would be implemented to prevent soil erosion and discharge of other construction-related pollutants that could contaminate nearby water resources.

Permittees are further required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants. The applicant will need to file an NOI with the CVRWQCB to obtain the General Construction Permit before any construction activities associated with the proposed project.

Dewatering Activities: While small amounts of construction-related dewatering are covered under the General Construction Permit, the CVRWQCB has also adopted a General Order for Dewatering and Other Low Threat Discharges to Surface Waters (General Dewatering Permit). This permit applies to various categories of dewatering activities and would likely apply to the proposed project, if construction required dewatering in greater quantities than those allowed by the General Construction Permit and discharged the effluent to surface waters.

The General Dewatering Permit defines waste discharge limitations and prohibitions similar to those in the General Construction Permit. To obtain coverage, the applicant must submit an NOI and pollution prevention and monitoring program (PPMP) to the CVRWQCB. The PPMP must include a description of the discharge location, discharge characteristics, primary pollutants, receiving water, treatment systems, spill prevention plans, and other measures necessary to comply with discharge limits.

A representative sampling and analysis program must be prepared as part of the PPMP and implemented by the permittee, along with record keeping and quarterly reporting requirements during dewatering activities. For dewatering activities that are not covered by the General Dewatering Permit, an individual NPDES permit and Waste Discharge Requirements (WDRs) must be obtained from the CVRWQCB. However, the amount of dewatering needed for this project would likely fall under this General Dewatering Permit because excavation activities associated with construction of the transmission towers may explore the water table.

Section 401: Water Quality Certification

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United

States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect the quality of the state's waters (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with Section 401. Section 401 certification or waiver is under the jurisdiction of the CVRWQCB.

Regulations Covering Development on Floodplains

National Flood Insurance Program

Alarmed by increasing costs of disaster relief, Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains.

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA issues Flood Insurance Rate Maps (FIRMs) for communities participating in the NFIP. These maps delineate flood hazard zones in the community. The locations of FEMA-designated floodplains in the project area are discussed in the environmental setting below.

Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding to:

- Avoid incompatible floodplain development.
- Be consistent with the standards and criteria of the NFIP.
- Restore and preserve natural and beneficial floodplain values.

State of California

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act, passed in 1969, articulates with the CWA. It established the SWRCB and divided the state into nine regions, each overseen by a RWQCB. The SWRCB is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies, but much of its daily implementation authority is delegated to the RWQCBs, which are responsible for implementing CWA Sections 303(d), 401, and 402. In general, the SWRCB manages both water rights and statewide regulation of water quality, while the RWQCBs focus exclusively on water quality within their regions. The Feather River and its tributaries are under jurisdiction of the CVRWQCB.

Basin Plans and Water Quality Objectives

The Porter-Cologne Act provides for the development and periodic review of water quality control plans (basin plans) that designate beneficial uses of California's major rivers and groundwater basins, and establish narrative and numerical water quality objectives for those waters. Beneficial uses represent the services and qualities of a water body (i.e., the reasons for which the water body is considered valuable), while water quality objectives represent the standards necessary to protect and support those beneficial uses.

Basin plans are primarily implemented by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met (see the discussion of the NPDES system under "Clean Water Act"). Basin plans are updated every three years and provide the technical basis for determining water quality objectives that project must meet.

Basin plans are adopted and amended by the CVRWQCB for both the Sacramento and San Joaquin River Basins (the Feather River is part of the Sacramento River Basin). A total of four editions have been adopted: 1975, 1989, 1994, and 1998 (Central Valley Regional Water Quality Control Board 2007). However, the 1998 edition has been periodically amended to include new water quality objectives and the most recent amendment was approved in 2007.

The CVRWQCB has set water quality objectives for all surface waters in its Sacramento River Basin, including the Feather River for the following substances and parameters: ammonia, bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen (DO), floating material, oil, grease, acidity, basicity, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes, odors, temperature, toxicity, and turbidity.

Specific objectives for concentrations of chemical constituents are applied to bodies of water based on their designated beneficial uses (CVRWQCB 2007). Water quality objectives applicable to all groundwaters have been set for bacteria, chemical constituents, radioactivity, tastes, odors, and toxicity (CVRWQCB 2007).

Lakebed or Streambed Alteration Agreement Program

Under California Fish and Game Code Sections 1600–1616 (*CA Fish & Game 1600–1616*), the Department of Fish and Game (DFG) regulates projects that affect the flow, channel, or banks of rivers, streams, and lakes. Section 1602 requires public agencies and private individuals to notify and enter into a streambed or lakebed alteration agreement with DFG before beginning construction of a project that will:

- Divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake.
- Use materials from a streambed.

Section 1602 contains additional prohibitions against the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

Sections 1601–1607 may apply to any work undertaken within the 100-year floodplain of any body of water or its tributaries, including intermittent stream channels. In general, however, it is construed as applying to work within the active floodplain or associated riparian habitat of a wash, stream, or lake that provides benefit to fish and wildlife.

Sections 1601–1607 typically do not apply to drainages that lack a defined bed and banks, such as swales, or to very small bodies of water and wetlands, such as vernal pools. However, Sections 1601–1607 would apply to the proposed project if construction or construction staging areas encroach into a creek or river.

Local Regulations

Although PG&E is not subject to local land-use regulations, the following overview of local regulations relating to hydrology and water quality is provided for informational purposes. PG&E's project will comply with County standards in this area.

Butte County

Butte County General Plan

Section 2.4 of the Land Use Element of the Butte County General Plan contains policies that pertain to water resources in Butte County. The following lists describe the water resources policies for Butte County.

- 2.4.a:** Maintain quantity and quality of water resources adequate for all uses in the County.
- 2.4.b:** Support water development projects needed to supply local demands.
- 2.4.c:** Control development in watershed areas to minimize erosion and water pollution.
- 2.4.d:** Require proof of adequate water supply for all new development.
- 2.4.e:** Conservation of water and energy will be considered in approving plans for new development.
- 2.4.f:** Exercise constant vigilance in the protection against export of our ground water supply.

Section 5.2 of the Land Use Element contains policies that pertain to water and sewer systems in Butte County.

- 5.2.a:** Encourage expansion of public water and sewer systems where development to be served conforms to adopted land use plans.

Section 5.3 of the Land Use Element contains policies that pertain to drainage and flood control facilities in Butte County.

- 5.3.a:** Plan drainage facilities to serve areas of future urban growth.

5.3.b: Require adequate drainage improvements for new development.

5.3.c: Encourage improvement of flood control facilities along the Sacramento River, while at the same time preserving the riparian habitat of the river.

5.3.d: Direct future urban growth away from floodplain areas.

Section 5.8 of the Land Use Element contains policies that pertain to solid and liquid waste disposal facilities in Butte County.

5.8.a: Protect public health and safety of Butte County residents and the natural environment through efficient solid and liquid waste management practices.

5.8.b: Support the continued review and study of alternate locations for the disposal of solid and liquid wastes.

Section 7.3 of the Land Use Element contains policies that pertain to flood hazards in Butte County.

7.3.a: Limit development in areas with significant drainage and flooding problems until adequate drainage or flood control facilities are provided.

City of Oroville General Plan

Goals and policies that pertain to the collection and disposal of stormwater are listed below.

P8.1: Use a site-specific stormwater drainage plan or the stormwater drainage master plan to be prepared under A8.1 to determine whether to require storm drainage analysis for projects within the Planning Area, and if necessary, make storm drainage improvements a condition of development approval.

P8.2: Encourage project design that minimizes the potential for wind and water erosion to occur. Where necessary, require the preparation and implementation of a soil erosion plan, including soil erosion mitigation during construction.

P8.3: Encourage the utilization of best engineering practices for stormwater collection and disposal.

P8.4: Require that local storm drainage improvements be built to carry appropriate design-year flow resulting from buildout of the General Plan. Design storm drainage facilities for two-, 10-, and 100-year discharges.

P8.5: Require that developers pay their fair share for construction of off-site drainage improvements, as determined by a site-specific stormwater drainage plan or the stormwater drainage master plan to be prepared under A8.1.

P8.6: Implement all necessary measures to regulate runoff from urban uses to protect the quality of surface water and groundwater.

P8.7: Require new development to identify and adequately mitigate its stormwater impacts.

P8.8: Offer site-specific drainage plans prepared by applicants for peer review prior to review and approval by City Council.

P8.9: Require installation of temporary drainage facilities as necessary during construction activities in order to adequately mitigate stormwater impacts.

P8.10: Require the installation of stormwater collection systems concurrently with construction of new roadways to maximize efficiency and minimize disturbance due to construction activity.

Actions

A8.1: Develop, adopt, and maintain a stormwater drainage master plan. The plan should be organized by drainage basin, rather than by project or jurisdiction, and should cover the entire Planning Area based on the buildout of the General Plan.

The following are policies and goals that pertain to flooding, including inundation of Oroville Dam.

P2.1: Discourage development within the Feather River floodplain and other flood-prone areas, in order to minimize risks associated with flooding.

P2.2: If development occurs within flood plains, ensure that existing and proposed structures are provided adequate protection from flood damage and hazards.

P2.3: Continue to work with appropriate local, state, and federal agencies (particularly FEMA) to maintain the most current flood hazard and floodplain information and use it as a basis for project review and to guide development in accordance with federal, state, and local standards.

P2.4: Continue to participate in the FEMA National Flood Insurance Program–Community Rating System.

P2.5: Where feasible, given flood control requirements, maintain the natural condition of waterways and floodplains to ensure adequate groundwater recharge and water quality, preservation of habitat, and access to mineral resources.

P2.6: Support a multiuse concept of floodplains, flood-related facilities, and waterways, including, where appropriate, the following uses.

- Flood control.
- Groundwater recharge.
- Water quality preservation.
- Open space.
- Agriculture.
- Nature study.
- Habitat preservation.
- Pedestrian, equestrian, and bicycle circulation.
- Outdoor sports and recreation.

P2.7: Cooperate with all affected or interested public and private agencies involved to ensure that flood control improvements do not result in unacceptable degradation of environmentally sensitive areas.

P2.8: Incorporate stormwater drainage systems in development projects to effectively control the rate and amount of runoff in order to prevent increases in downstream flooding potential.

P2.9: Explore the possibility of creating additional stormwater detention areas in Dry Creek.

P2.10: If future studies establish a conclusive relationship between reservoir drawdown, refilling, and seismic activity, encourage the Department of Water Resources to manage the Oroville Dam water regime to reduce risk.

P2.11: Prior to project approval, consult FIRMs on file with the Planning Department to identify areas in the vicinity of a waterway or drainage course that have not been subject to detailed study. If the project falls within an area that has not been studied, perform studies and, if necessary, require mitigation or restrictions on development.

Yuba County

The following policies pertain to flood protection in Yuba County and are contained in the 1996 Yuba County General Plan that is currently being updated and anticipated to be completed in 2009.

61–LUO: Implementation of flood protection measures described in the revised South Yuba Drainage Master Plan.

209–LUP: Flood protection measures contained in the revised South Yuba Drainage Master Plan shall be implemented in conjunction with specific plans and other new development projects.

210–LUP: Financing for major components of the Master Plan shall be actively pursued by the County, including the collections of drainage fees from new development projects, in order to enhance flood protection in the Linda/Olivehurst region.

62–LUO: Routine maintenance and improvement of Feather River and Yuba River flood protection levees.

211–LUP: The County shall discourage development projects that may interfere with the integrity of levees.

212–LUP: The County shall support and coordinate with the various reclamation districts in matters of levee maintenance and improvement.

63–LUO: Appropriate flood protection and drainage measures built into all new development projects approvals.

213–LUP: The County shall maintain drainage standards and apply those standards to development projects.

214–LUP: Flood waters leaving new development projects shall conform to existing drainage plans or be directed to existing water courses and shall not exceed historical volumes or rates of flow.

Retention and/or detention ponds shall be incorporated in new development projects to achieve this condition.

Sutter County

The following policies pertain to drainage in Sutter County and are contained in the 1996 Yuba County General Plan.

3.D-1: The County shall continue to require that all new development outside the Special Flood Hazard Area as defined by FEMA be protected from a 50-year storm event.

3.D-2: The County shall require new development to adequately mitigate increases in stormwater flows and/or volume and to avoid cumulative increase in downstream flows.

3.D-3: The County shall discourage residential development in areas that are subject to inundation by surface water.

3.D-4: The County shall require that new development conforms to appropriate County requirements and standards governing drainage.

3.D-5: The County shall require new development projects to provide adequate drainage facilities.

3.D-6: The County shall restrict new development in areas prone to flooding, or that have a seasonal high water table and/or water seepage problems, in order to prevent the contamination of ground and surface water by septic systems.

The following policies pertain to water in Sutter County.

4.A-1: The County shall require development setbacks from all water courses.

4.A-2: The County shall strive to protect groundwater resources by:

- A. Identifying and controlling sources of potential contamination.
- B. Protecting groundwater recharge areas.
- C. Discouraging overdraft.
- D. Encouraging the preparation and implementation of groundwater management plans.
- E. Encourage regional coordination of issues related to the groundwater basins.

4.A-3: The County shall encourage water conservation practices, including drought-resistant landscaping, drip irrigation systems and the use of graywater for landscaping irrigation.

4.A-4: Monitoring of agricultural water runoff should be encouraged to ensure that pollutants are not be returned to the overall water system.

Environmental Setting

The following sections discuss the environmental setting associated with hydrology and water quality by each county.

Butte County

Surface Water Hydrology

The northern portion of the project is located in Butte County, a few miles south of the City of Oroville. The Feather River and Lake Oroville are the two major water features in this area. Lake Oroville is northeast of the proposed project, and the Feather River drains southeast out of Lake Oroville along the western side of the project in Butte County.

Wyandotte Creek is the first major creek crossing in Butte County. Wyandotte drains from east to west (Figure 4.8-1). The other major drainages the proposed project crosses are North Honcut Creek and South Honcut Creek. The line between Butte and Yuba Counties parallels South Honcut Creek (Figure 4.8-1). Both the North and South Honcut drain from east to west.

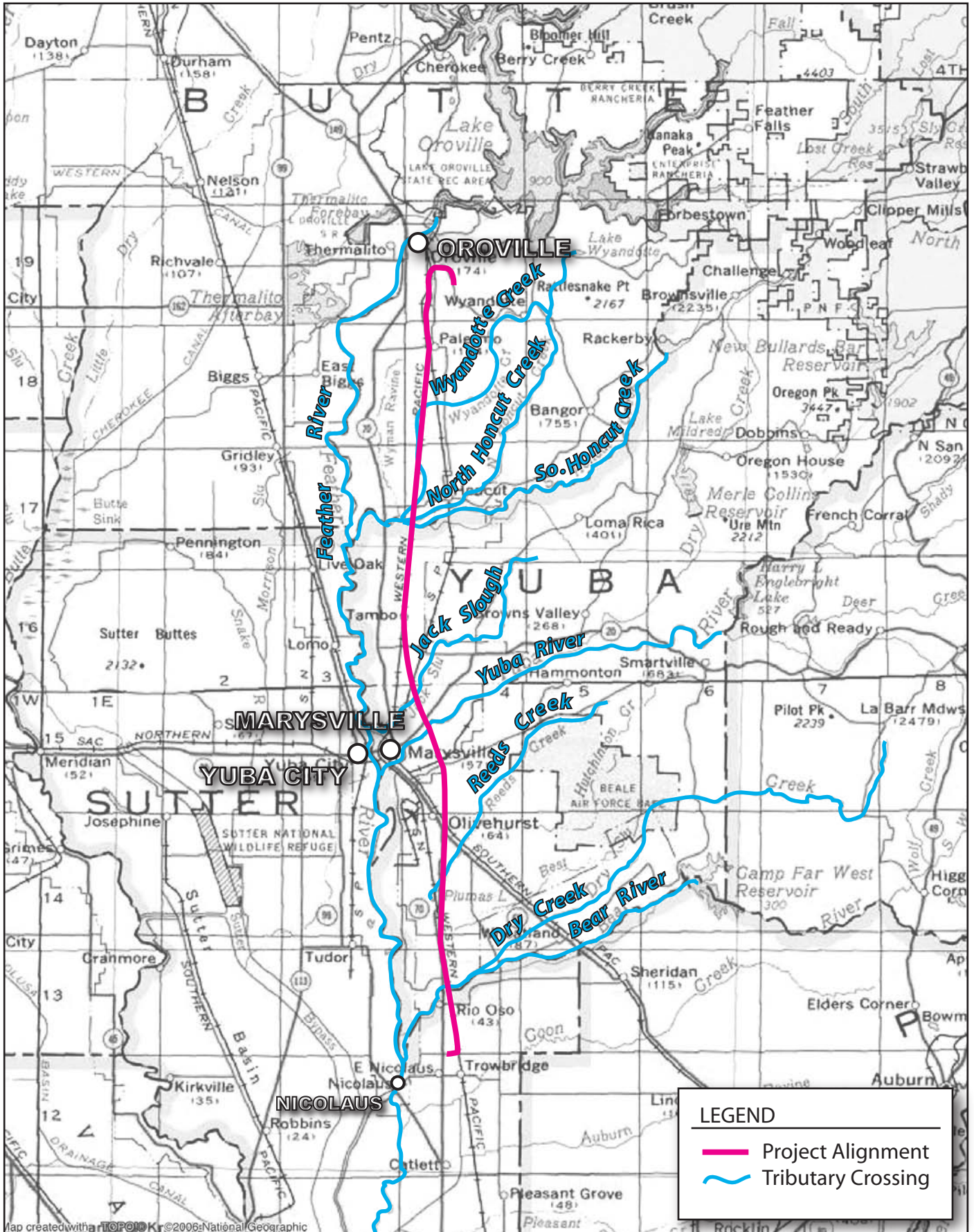
Groundwater

The northern portion of the project is located in the Sacramento Valley Groundwater Basin, West Butte Subbasin (Basin Number 5-21.58). The West Butte Subbasin is bounded on the west and south by the Sacramento River, on the north by Big Chico Creek, on the northeast by the Chico Monocline, and on the east by Butte Creek. The estimated storage capacity of the basin is 2,794,330 (DWR 2004).

Surface Water and Groundwater Quality

According to the CWA Section 303(d) List of impaired waterbodies, the Feather River and North and South Honcut Creeks are not listed for any impairment.

The groundwater is characterized by a calcium-magnesium bicarbonate and magnesium-calcium bicarbonate type. Sodium bicarbonate-type water occurs at the southern tip of the subbasin (DWR 2004). Concentrations of total dissolved solids (TDS) range from 130 to 676 milligrams per liter, averaging 293 milligrams per liter (DWR 2004).



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Map created with **TOPODK** ©2006 National Geographic

Figure 4.8-1
Feather River Tributary Crossings

Flooding

The project crosses three FEMA FIRMs in Butte County (06007C0985D, 06007C0995C, and 06007C1150C). According to FIRM 06007C0985D, the project crosses the floodplain of Wyandotte Creek which is defined as Zone A, where no base flood elevations have been determined (FEMA 1998a).

The same floodplain extends south into FIRM 06007C0995C and FIRM 06007C1150C. The project crosses portions of Zone X in both maps. Zone X is defined as an area of 100-year flooding (FEMA 2000, 1998b).

Yuba County

Surface Water Hydrology

Jack Slough is the first northern crossing in Yuba County (Figure 4.8-1). Jack Slough drains from east to southwest prior to its terminus with the Feather River. The project would then cross the Yuba River (See Figure 4.8-1). The Yuba River also drains from east to west prior to its terminus with the Feather River. The project would then cross Reeds Creek toward the southern end of Yuba County.

Groundwater

In Yuba County the project passes through two subbasins: the North Yuba Subbasin (Basin Number 5-21.60) and the South Yuba Subbasin (Basin Number 5-21.61). The North Yuba Subbasin is bounded on the north by Honcut Creek, on the west by the Feather River, and on the south by the Yuba River. The Sierra Nevada Mountains make up the boundary to the east. The estimated storage capacity of the subbasin is approximately 620,000 acre-feet (DWR 2006a).

The South Yuba Subbasin is bounded on the north by the Yuba River, on the west by the Feather River and on the south by the Bear River. To the east the Sierra Nevada Mountains make up the boundary. The estimated storage capacity of the basin is 1,090,000 acre-feet (DWR 2006b).

Surface Water and Groundwater Quality

According to the CWA Section 303(d) List of impaired waterways, there are no surface-water quality impairments in Yuba County.

The groundwater quality in the North Yuba Subbasin is considered good. TDS concentrations are generally less than 500 milligrams per liter throughout the entire subbasin (DWR 2006c). The primary water chemistry in the area indicates a calcium magnesium bicarbonate or magnesium calcium bicarbonate groundwater. There are no documented impairments in the North Yuba Subbasin (DWR 2006b).

The groundwater quality in the South Yuba Subbasin is considered good. TDS is similar to that of the North Yuba Subbasin with no documented impairments (DWR 2006c).

Flooding

The project crosses six FIRMs in Yuba County (0604270200C, 0604270280B, 0604270295B, 0604270360B, 0604270370B, and 0604270450B). The first flood area of both north and south Honcut Creek is defined as Zone A, or areas of 100-year flood without base flood elevations determined (FEMA 1983). There are no 100-year flood crossings on FIRM 0604270280B. However, the project would cross the 100-year floodplain of the Yuba River according to FIRM 0604270295B (FEMA 1982a).

The project would cross portions of the 100-year flood plain from Reeds Creek according to FIRM 0604270360B (FEMA 1982b). According to FIRM 0604270370B, multiple areas are subject to the 100-year flood event along the stretch of the proposed project next to Plumas Lake (FEMA 1982c). The last FIRM (0604270450B) indicates that the project would cross multiple 100-year floodplains from Dry Creek and the Bear River (FEMA 1982d).

Sutter County

Surface Water Hydrology

The Bear River makes up the northern border between Yuba and Sutter County (Figure 4.8-1). The project crosses the Bear River approximately five miles east of the Bear River's terminus in Feather River. The project ends approximately seven miles south of the Bear River Crossing near the small town of Nicolaus.

Groundwater

The southern portion of the project is located in the Sacramento Valley Groundwater Basin, North American Subbasin (Basin Number 5-21.64). The North American Subbasin is bounded on the north by Bear River, on the west by the Feather River and the Sacramento River to the South. The eastern boundary is a north-south line extending from the Bear River to Folsom Lake.

Surface Water and Groundwater Quality

According to the CWA Section 303(d) List of impaired waterways, the Upper Bear River is listed as being impaired for mercury. This is suspected to be a result of mining activities.

High TDS in the groundwater exists in an area along the Sacramento River. The highest levels of TDS are found in an areas extending just south of Nicolaus to Verona and typically exceed 1,000 milligrams per liter (DWR 2006a). The same area also contains high levels of chloride, sodium, bicarbonate, manganese and arsenic (DWR 2006a). Three sites in the subbasin have significant groundwater contamination: the former McClellan Air Force Base (now an industrial park), Union Pacific Railroad Yard in Roseville, and the Aerojet Superfund Site. Although the Aerojet site lies south of the subbasin, a contamination plume has migrated under the American River and into the North American Subbasin (DWR 2006a).

Flooding

The project crosses one FEMA FIRM in Sutter County (0603940225B). According to FIRM 0603940225B the project crosses the 100-year flood plain of Bear River. However, the remaining portion of the project generally following SR-70 is located in Zone X, which is outside of the 100-year floodplain (FEMA 1988).

Impact Analysis

This section describes the proposed project's impacts relating to hydrology and water quality. First, it describes the methods used to determine the proposed project's impacts and lists the thresholds used to conclude whether an impact would be significant. Second, it discusses construction-related (temporary, short-term) impacts. Third, it discusses operational (permanent, long-term) impacts associated with each component of the proposed project and the project as a whole. Mitigation measures to avoid, minimize, rectify, reduce, eliminate, or compensate for significant impacts immediately follow each impact discussion, as necessary.

Methods

The evaluation of effects on hydrology and water quality is based on professional standards and the information contained in FEMA FIRMs. The key effects were identified and evaluated based on the physical characteristics of the project study area and the magnitude, intensity, and duration of activities.

Significance Criteria

For this analysis, an impact pertaining to aesthetics is considered significant under the California Environmental Quality Act (CEQA) if the project would result in any of the following environmental effects; these criteria are based on Appendix G of the State CEQA Guidelines.

- Substantial alteration in the quantity or quality of surface runoff from placement of transmission towers along the project alignment.
- Substantial degradation of water quality from construction and operation of the transmission towers.
- Violation of any water quality standards or WDRs from construction or operation.
- Substantial alteration of the existing drainage pattern of the site area, such that flood risk and/or erosion and siltation potential would increase from the placement of transmission tower footings in areas that may change the drainage patterns.
- Placement of structures that would impede or redirect flood flows within a 100-year floodplain.
- Exposure of people, structures, or facilities to significant risk from flooding, including flooding as a result of the failure of a levee or dam.
- Creation of or contribution to runoff that would exceed the capacity of an existing or planned stormwater management system.
- Substantial reduction in groundwater quantity or quality.

Impacts and Mitigation Measures

Construction Impacts

Construction activities that disturb the ground surface include grading for new and existing access roads, drilling holes for transmission towers, and demolition and construction of concrete pads for footings of the new towers. Currently, the majority of the project is accessible for maintenance vehicles by existing roads. However, some of the existing roads would be regraded to accommodate the larger equipment and trucks for access to the remote areas, gravel would be installed to minimize the amount of rutting and erosion during the rainy season, and culverts would be constructed to direct runoff water under the access roads.

Impact HYDRO-1: Potential violation of water quality standards from construction activities—less than significant

The general plans of the affected communities contain goals and policies for the protection of water quality from sediment and erosion. In addition, the General Construction Permit requires preparation of a SWPPP that describes erosion and sediment control measures to be implemented for the project.

The goals and objectives pertaining to the protection of water quality from the local general plans will be achieved through implementation of the SWPPP. Implementation of the SWPPP, as described below, will reduce potentially

significant impacts associated with construction-related erosion and sedimentation to a less-than-significant level.

APM HYDRO-1: Prepare and implement a storm water pollution prevention plan

PG&E or its contractor will prepare and implement an SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP will include a list of BMPs to be implemented in areas with potential to drain to any water body in Butte, Yuba, or Sutter Counties. These BMPs will be selected to achieve maximum sediment removal and represent the best available technology (BAT) that is economically achievable. BMPs to be implemented as part of the project-specific SWPPP may include, but are not limited to, the following control measures.

- Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, grass buffer strips, high infiltration substrates, grassy swales, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.
- Drainage facilities in downstream offsite areas will be protected from sediment using BMPs acceptable to Butte, Sutter, and Yuba Counties and the CVRWQCB.
- Pervious/porous pavement would be used to reduce runoff when economically feasible. The pavement is a unique cement-based concrete product with a porous structure, which allows rainwater to pass directly through the pavement and into the soil.

Vegetative cover would be established on the disturbed areas as soon as possible after disturbance. Final selection of BMPs would be subject to review by PG&E.

Impact HYDRO-2: Potential spills of hazardous materials—less than significant

Equipment maintenance would require the use of known hazardous materials such as gasoline, engine oil, and concrete, which could contaminate runoff and surface waters in the project area. Discharge of hazardous materials into surface waters during construction could result in violation of certain water quality standards. Implementation of a Spill Prevention Control and Countermeasure Plan (SPCCP), as described below, will reduce this potentially significant impact to a less-than-significant level.

APM HYDRO-2: Develop and implement a spill prevention control and countermeasure plan

PG&E or its contractor will develop and implement an SPCCP to minimize the potential for, and effects of, spills of hazardous, toxic, or petroleum substances during all construction activities. The SPCCP will

be completed and included in the SWPPP before any construction activities begin. PG&E will routinely inspect the construction areas to verify that the control measures specified in the SPCCP are properly implemented and maintained. PG&E will notify its contractors immediately if there is a noncompliance issue and will require compliance.

If an appreciable spill occurs, a detailed analysis will be performed by a registered environmental assessor to identify the likely cause of contamination. This analysis would conform to American Society for Testing and Materials (ASTM) standards and would include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, PG&E and its contractors will select and implement additional measures to control contamination, with a performance standard that groundwater quality and surface water quality must be returned to baseline conditions.

Impact HYDRO-3: Potential alteration of drainage patterns—less than significant

Grading, drilling, and other earthwork during construction of the proposed project could result in soil disturbance that would temporarily alter drainage patterns and increase the hazard of erosion and sedimentation. This would cause water quality degradation. Implementation of the BMPs detailed in the SWPPP—particularly the erosion control measures—will minimize the potential for the proposed project to substantially alter the existing drainage pattern of the site or project area in a manner that will result in substantial erosion or siltation onsite or offsite.

In addition to the SWPPP, implementation of the following measure will reduce potentially significant impacts related to erosion and sedimentation for altered drainage patterns to a less-than-significant level.

APM HYDRO-3, along with implementation of the SPCCP and SWPPP, will ensure that project-related construction activities comply with the general plan goals and policies of the affected communities.

APM HYDRO-3: Perform a drainage study and comply with setback requirements and county standards

A drainage study will be performed for all of the areas that require grading and new roadways in addition to placement of tower footings in the 100-year floodplain. The drainage study will include calculations for the potential increases in stormwater runoff from related construction activities. The study will also include drainage improvements to minimize the risk of flooding to downstream areas based on any potential increase in flood areas from the proposed project. PG&E will incorporate the recommendations for the drainage study into construction plans and will comply with county standards for construction in 100-year floodplains.

Impact HYDRO-4: Potential degradation of water quality from dewatering activities—less than significant

The depth of the water table is expected to be below most excavations and drilling activities throughout the project area. However, groundwater could be encountered when excavation takes place near an ephemeral stream or creek and at lower elevations on the valley floor near the creek crossings described in Environmental Setting. Dewatering may be required prior to and during pole placement, construction of foundations, or other construction-related activities.

The quantity of water removed would be small and impacts to the groundwater supply are expected to be minimal. However, if the water removed from the dewatering activities is not properly disposed of, turbid or concrete-laden water could be released into the waterway, which would adversely affect water quality. Implementation of the measures in the SPCCP and SWPPP, and compliance with the conditions of the General Construction Permit will reduce this potentially significant impact to a less-than-significant level.

Impact HYDRO-5: Placing structures within the 100-year floodplain—less than significant

As noted, portions of the proposed project cross sections of the mapped 100-year floodplain as defined by FEMA (See the flooding sections in Environmental Setting). The only permanent proposed project features that lie within the mapped 100-year floodplain are footings for new poles. Performing a drainage study as part of APM HYDRO-3 will reduce this impact to a less-than-significant level.

Operations Impacts

Operations and maintenance activities for the new and updated power lines will not affect the water quality or hydrology in the project vicinity. The operation and maintenance practices related to the power lines and supporting permanent infrastructure will be identical to current operation and maintenance, and in compliance with all current water quality regulations. Therefore, no impacts on hydrology or water quality are associated with operation or maintenance of the power lines.

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Introduction

This section provides a description of local planning and land use regulations on parcels that will be traversed by the proposed project and in the project vicinity. The impact analysis evaluates the project's potential to adversely affect existing planning and land use regulations, and concludes that the project will have no impact on land use and planning.

Existing Conditions

Regulatory Setting

State of California

California Public Utilities Commission General Order No. 131-D

The California Public Utilities Commission (CPUC) has sole and exclusive jurisdiction over the siting and design of the project because it authorizes the construction and maintenance of investor-owned public utility facilities. Thus such projects are exempt from local land use and zoning regulations and permitting. Nevertheless, in locating utility projects, utilities are directed to consult with local agencies concerning land use matters.

Nondiscretionary local permits include permits that would not require approval from a local decision-making body such as a planning commission or city council. As part of its environmental review process, PG&E considered local and state land use plans and policies, and local land use priorities and concerns.

Local Regulations

Although PG&E is not subject to local land-use regulations, the following overview of local regulations relating to land use is provided for informational

purposes, especially to describe allowable land uses in the areas around the project alignment.

Butte County

Butte County General Plan

Relevant goals and polices in the Butte County General Plan (Butte County, 2000) related to land use are as follows.

Section 5.4: Private Utility Lines. Most of the County obtains electrical power and telephone service from large companies whose regulation is almost totally in the hands of the State Public Utilities Commission. Similarly, the County has very little control over the nongovernmental systems which provide domestic water services to the entire Chico urban area, part of the Oroville urban area and several small communities. It is obvious, however, that the location of these private utility lines affects the timing and pattern of new development.

Policy 5.4.a. Encourage expansion of private utility systems consistent with County plans and policies.

The General Plan land use map identifies these designations for the area along the project alignment.

- Agricultural (A).
- Agricultural Residential (AR).
- Industrial (I).
- Commercial (C).

The Butte County General Plan defines primary uses for areas designated A as cultivation, harvest, storage, processing, sale, and distribution of all plant crops, especially annual food crops. The General Plan defines secondary uses for the orchard and tree crops to be animal husbandry, intense animal uses, resource extraction and processing, hunting, water-related recreation facilities, dwellings, airports, utilities, environmental preservation activities, public uses, quasi-public uses, and home occupations.

The General Plan defines primary uses for areas designated AR as agricultural uses and single-family dwellings at rural densities. The General Plan defines secondary uses for areas designated AR as animal husbandry, forestry, intense animal uses, home occupations, mining, outdoor recreation facilities, environmental preservation activities, airports, utilities, public uses, quasi-public uses, group quarters, care homes, and transient lodging.

The General Plan defines primary uses for areas designated I as processing, manufacturing, packaging, storage, and distribution of goods and commodities. The General Plan defines secondary uses for areas designated I as light commercial uses, dwelling, utilities, public uses, and quasi-public uses.

The General Plan defines primary uses for areas designated C as structures and activities providing a full range of merchandise and services to the general public. The General Plan defines secondary uses for the C designation to be wholesale storage, distribution, processing, and manufacturing; transient lodging, dwellings and group quarters; home occupations, utilities, public uses, and quasi-public uses.

Butte County Zoning Ordinance

The Butte County Zoning Ordinance provides detailed regulations about the type and location of land uses that can occur within county zoning districts. The ordinance identifies the following County zoning districts along the project alignment.

- **Agricultural (A-5):** This zone permits single family residences, mining, quarrying, and commercial excavation. Regarding utilities, it states:
 - (a) Uses permitted: (4) The erection, construction, alteration or maintenance of gas, electric, water, or communication transmission facilities.
- **Agricultural Residential (AR-1, AR-5):** This zone permits single family residences and agricultural uses. Regarding utilities, the ordinance states:
 - (c) Uses requiring use permits. The following uses are permitted subject to a use permit: (3) Public and quasi-public uses. A quasi-public use is defined as: operated by a private nonprofit educational, religious, recreational, charitable, fraternal, or medical institution, association or organization, said use having the purpose primarily of serving the general public, and including, but not limited to, such uses as churches, private schools, universities, community youth and senior citizen recreational facilities, meeting halls, private hospitals, public utility facilities unless preempted from local review by state or federal regulations, private schools, daycare centers, fraternities, sororities, and the like.
- **Light Commercial (C-1):** This zone permits a variety of light commercial uses, including hotels, motels, retail stores, churches, and immediate-care medical clinics. Regarding utilities, it states:
 - (c) Uses requiring use permits. The following uses are permitted subject to a use permit: (2) Public and quasi-public uses not specifically allowed in subsection (a) of this section (See subsection (a) above, under Agricultural A-5)).
- **Light Industrial (M-1):** This zone permits a variety of light industrial uses, including manufacturing, processing, fabricating, and assembling, and wholesale and storage warehouses. Regarding utilities, the ordinance states:
 - (c) Uses requiring use permits: The following uses are permitted subject to the securing of a use permit in each case: (7) Commercial uses and conditional uses listed in subsections (a) and (c) of the C-1 and C-2 zones unless specifically listed as an allowed use in section 24-175(a), above (see subsection (a) of the C-1 section above, in 'Light Commercial (C-1), and commercial recreation uses (Butte County, 2008).

City of Oroville General Plan

Goals and polices in the City of Oroville General Plan (City of Oroville, 1995) related to land use and utilities are as follows.

Objectives: Energy Resources and Conservation: 6.13a. Encourage utility agencies to use existing transmission corridors for future power transmission line development.

The General Plan land use map identifies the following designations for the area along the project alignment:

- **Industrial Areas (I):** The purpose of the Industrial Area designation is to: encourage diverse industrial environments that will appeal to a broad range of manufacturers and distributors to assure probable opportunities to operate profitably in Oroville; to provide sufficient industrially zoned land to ensure a choice of sites for industrial development; to strive to locate industries that maintain the highest site development standards on the most visible sites and provide assurance that adjoining development will be compatible; and to maintain development and operating standards that give evidence of a community commitment to a high quality community.

City of Oroville Zoning Ordinance

The City of Oroville Zoning Ordinance provides detailed regulations about the type and location of land uses that can occur within City zoning districts. The ordinance identifies the following City zoning districts along the project alignment:

- **Intensive Industrial (M-2):** The zoning ordinance states that the intent of intensive industrial is to provide working areas within the city for the manufacture, assembly, repair, and fabrication of goods and products, to protect areas appropriate for industrial uses, to protect from the intrusion of inharmonious uses, and to provide the opportunity for certain higher intensity uses to locate in beneficial locations. (Ostrander, pers. comm., September 18, 2008) Utilities are permitted outright in M-2 zones. (Hancock, pers. comm., September 19, 2008)

Yuba County

Yuba County General Plan

Goals and polices in the Yuba County General Plan (Yuba County, 1996) related to land use and utilities are as follows:

Land Use Goal 3: Assure that necessary infrastructure and public services are available to serve present and future residents.

The General Plan land use map identifies the following designations for the area along the project alignment:

- **Valley Agriculture (VA):** According to the General Plan, the purpose of the VA designation is to identify areas on the valley floor located outside of

community boundaries that are suitable for commercial agriculture and where it is desirable to retain agriculture as the primary land use; to protect the agricultural community from encroachment of unrelated agricultural uses which, by their nature, would be injurious to the physical and economic well-being of the agricultural community; and to encourage the preservation of agricultural land, both productive and potentially productive, that is identified as state-designated Important Farmlands and/or Class I and II soils by the Natural Resources Conservation Service (NRCS). The General Plan lists examples of permitted uses as (but not limited to) growing and harvesting field crops, grain, and hay crops; growing and harvesting fruit trees, nut trees, vines, and vegetables; pasture and grazing land; game preserves or hunting and fishing; and animal raising operations. Limited residential development is permitted for property owners, caretaker/employee housing, and farmworker housing.

- **Single Family Residential:** According to the General Plan, the purpose of the Single Family Residential designation is to provide areas suitable for development of dwelling units intended for occupancy by only one household, and physically independent from other dwelling units or structures; however, attached housing may be permitted under limited circumstances where overall densities are consistent with those for this classification. The General Plan lists examples of permitted uses as (but not limited to) “traditional” single-family detached housing; mobile home subdivisions; mobile home parks; and planned unit developments.
- **Multiple Family Residential:** According to the General Plan, the purpose of the Multiple Family Residential designation is to provide areas suitable for development of structures containing more than one dwelling unit, including duplexes and triplexes. The General Plan lists examples of permitted uses in these areas as (but not limited to) attached housing; apartments; group housing; condominiums; mobile home parks; and planned residential developments.
- **Public:** According to the General Plan, the purpose of the Public designation is to identify areas having open space value as primitive or natural areas, including national forest and park lands; to identify areas in public ownership that are reserved for wilderness use or as a wildlife or nature preserve; to retain certain lands in a natural or undisturbed state; to identify lake recreation areas and to provide for use of these areas for active or passive public recreation purposes; and to provide areas for development of public facilities to meet public needs. The General Plan lists examples of permitted uses considered appropriate under this classification as (but not limited to) wildlife or nature preserves; active or passive, non-intensive recreational uses; public campgrounds; public parks; important natural resource areas; and institutional, academic, governmental and community services, either publicly owned or operated by non-profit organizations such as fire stations, parks and community centers; and Beale Air Force Base.
- **Industrial:** According to the General Plan, the purpose of the Industrial designation is to provide for a range of manufacturing operations; the processing of natural resources; and the processing of agricultural products. The intent of the classification is to encourage appropriate

industrial/manufacturing development that will be compatible with adjacent land uses and will not create adverse environmental impacts. The General Plan lists examples of uses considered appropriate under this classification as (but not limited to) light manufacturing; uses of a commercial service nature including those involving outdoor storage, display, and work activity such as lumber yards, machine shops, trucking terminals, etc.; fabrication shops; large warehouses; equipment storage yards; distribution sales; batch plants; lumber mills; auto wrecking; salvage and junk yards; fuel tank farms; and energy facilities.

- **Community Commercial.** According to the General Plan, the purpose of the Community Commercial designation is to provide for a full range of commercial retail and service establishments serving more than a single residential neighborhood or development area. The General Plan states that Community Commercial areas should satisfy a variety of personal needs as well as those of other nearby businesses. The General Plan lists as examples of permitted uses considered appropriate under this classification as (but not limited to) gasoline service stations; retail sales establishments; eating and drinking establishments; food and beverage sales; public buildings; professional offices; finance offices; automobile sales; mobile home sales; and hotels and motels.

Yuba County Zoning Ordinance

The Yuba County Zoning Ordinance provides detailed regulations about the type and location of land uses that can occur within county zoning districts. The ordinance identifies the following County zoning districts along the project alignment.

- **Exclusive Agricultural District (AE-40, AE-80):** This zone preserves the maximum amount of the limited supply of agricultural land, eliminates the encroachment of land uses that are incompatible with the agricultural uses of the land, and prevents the unnecessary conversion of agricultural land to urban uses. Regarding utilities, it states:
 - (a) The following uses and structures may be permitted in the AE Zone if a Conditional Use Permit has first been secured: 14) Public utility buildings and public service or utility uses, (transmission and distribution lines excepted), including but not limited to reservoirs, storage tanks, pumping stations, telephone exchanges, power stations, transformer stations, service yards and parking lots.
- **Flood Plain Zoning (FP-1):** This zone promotes and protects the public health, safety, and general welfare by providing a definite plan of development for the County. It guides, controls, and regulates growth in areas subject to flooding. Regarding utilities, it states:
 - The following uses and structures maybe permitted only if a Conditional Use Permit has first been secured: (3) Public utilities structures.
- **Recreational Zone (RZ):** This zone preserves land containing natural or potential park and recreation features, identifies areas suitable for passive recreational activities and nonstructural uses, identifies lake recreation areas,

and provides for use of these areas for active public recreation. Regarding utilities, it states:

- The following uses and structures may be permitted only if a Conditional Use Permit has first been secured: (6) Hydroelectric power generation facilities.
- **Single Family Residential Zone (R-1):** This zone provides living area within an area where development is limited to low-density concentrations of single-family dwellings; promotes and encourages a suitable environment for family life; provides space for community facilities needed to complement urban residential areas and for institutions that require a residential environment; and minimizes traffic congestion and avoids an overload of utilities designed to service only low-density residential use. Regarding utilities, it states:
 - The following uses and structures may be permitted in the R-1 Zone if a Conditional Use Permit has first been secured: (5) Public utility buildings and public service or utility uses (transmission and distribution lines excepted), including but not limited to reservoirs, storage tanks, pumping stations, telephone exchanges, power stations, transformer stations, service yards and parking lots.
- **Medium-Density Residential Zone (R-2):** This zone reserves appropriately located areas for family living in a variety of dwelling types at a reasonable range of population densities; ensures adequate light, air, privacy, and open space for each dwelling unit; and promotes the most desirable use of land and direction of building development in accordance with the General Plan. Regarding utilities, the ordinance states:
 - The following uses and structures may be permitted only if a Conditional Use Permit has first been secured: Public utility buildings and public service or utility uses (transmission and distribution lines excepted), including but not limited to reservoirs, storage tanks, pumping stations, telephone exchanges, power stations, transformer stations, service yards and parking lots.
- **General Commercial Zone (C):** This zone promotes the most desirable use of land and direction of building development in accordance with the General Plan; strengthens the economic base of the County; protects the County's tax revenues; and protects both retail development and nearby residences against congestion, particularly in areas where the established pattern is predominantly residential but includes local retail uses by regulating the intensity of local retail development. Regarding utilities, it states:
 - The following uses and structures shall be permitted in the C Zone: (7) Public utility transmission and distribution lines.
- **General Industrial Zone (M-1):** The purpose of this zone is to reserve appropriately located areas for industrial plants and related activities; to protect areas appropriate for industrial use from intrusion by residential dwellings and other conflicting uses; to protect residential and commercial properties and nuisance-free, nonhazardous industrial uses from noise, odor, dust, dirt, smoke, vibration, heat, glare, fire, explosion, noxious fumes,

radiation and other hazards and objectionable influence incidental to certain industrial uses; and to promote the most desirable use of land and development in accordance with the Yuba County General Plan. Regarding utilities, it states:

- The following non-manufacturing uses and associated structures shall be permitted in this zone: (23) Public Utility facilities (including cell towers).
- **Public Facilities Zone (PF):** This zone is to be applied to properties that are properly used for public purposes or are proposed to be used for public purposes or for specified public utility purposes. Regarding utilities, it states:
 - The following uses and structures shall be permitted in the PF Zone: Public utility warehouse and storage yards; pool yards; gas holders; substations; electric generating plants; and transmission and distribution lines. (Yuba County, 2008)

East Linda Specific Plan

The East Linda Specific Plan was developed to provide for the orderly development of a residential community consisting of single-family and multifamily residences, neighborhood-servicing commercial uses, schools, and parks of the East Linda area. Goals and polices in the East Linda Specific Plan (Yuba County, 1990) related to land use and utilities are as follows.

Section 1.4.3. Infrastructure and Public Services Availability: A Pacific Gas and Electric Company power transmission line and easement approximately 100 feet in width transects the Plan area from north to south, just west of Yuba College. The easement parallels the Linda Drain for part of the distance, along the west side of Yuba College. It is proposed that part of this easement will be used for a drainage and recreation easement. No buildings may be placed within this easement, although other uses such as parking lots, recreation and drainage improvements may be established.

Section 2 Land Use Element: ...the area is bisected by several major land use features, including North Beale Road, a high-tension power line easement, and the proposed Highway 70 Bypass, planned for an ultimately [sic] width of four lanes. In addressing the problems associated with these constraints, it is also useful to recognize that some of these constraints actually provide opportunities for land planning techniques which cannot only solve the problems at hand, but also create other community benefits at the same time...The power line easement also forms an open space and pedestrian circulation "spine" which combines with the floodway and street corridors to connect schools, parks, and a pedestrian circulation system.

The Specific Plan land use map identifies the following designations for the area along the project alignment.

- **Single Family Residential, Single/Multifamily Residential, Multifamily Residential:** The Specific Plan states that the goal for each of the residential land use categories is to create residential neighborhoods that are safe for residents, particularly for children; quiet and buffered from noise and other

nuisance factors; convenient in terms of access to public services and goods for pedestrians, cyclists, and vehicle drivers; protected from through traffic; and responsive to and incorporating significant natural features and open space.

- **Public Facilities:** The Specific Plan states that public uses within the Plan area include the schools, parks, library and all other public improvements. Quasi-public uses include other as-yet unspecified uses such as day care centers, nursery schools, churches and health clubs. The Specific Plan states that, in general, public and quasi-public uses shall be subject to the same landscape, design, and development standards that apply to adjacent land uses or projects.
- **Business Professional:** The Specific Plan states that Business Professional uses are intended primarily to serve the needs of local residents. Uses may include attorneys, accountants, and financial consultants; architecture, engineering and planning firms; real estate companies; insurance companies; travel agencies; medical and dental offices; and other similar services.

East Linda Specific Plan Zoning

The Yuba County Zoning Ordinance includes specific designations for the East Linda Specific Plan, and provides detailed regulations about the type and location of land uses that can occur within this zoning district. The ordinance identifies the following Specific Plan/County zoning districts along the project alignment:

- **Single Family Residential and Multifamily residential (SP R-1, SP R-2, and SP R-05):** The purposes of the single-family residential sub-zones are as follows.
 - To provide living areas within an area where development is limited to low-density concentrations of single-family dwellings.
 - To promote and encourage a suitable environment for family life.
 - To provide space for community facilities needed to complement urban residential areas and for institutions that require a residential environment.
 - To minimize traffic congestion and avoid an overload of facilities designed to service only low density residential use.
- **Multifamily residential (SP R-08, SP R-10 and SP R-20).** The purposes of the Multiple-family residential sub-zones are as follows.
 - To reserve appropriately located areas for family living in a variety of dwelling types at a reasonable range of population densities.
 - To ensure adequate light, air, privacy, and open space for each dwelling unit by controls over the spacing and height of buildings and other structures.
 - To promote the most desirable use of land and direction of building development in accordance with the General Plan.
 - To minimize traffic congestion.

- ❑ And to provide space for community facilities needed to complement urban residential areas and for institutions that require a residential environment.
- **Business Professional (SP BP).** The purposes of this sub-zone are as follows.
 - ❑ To provide an area for business and professional office uses and compatible related uses.
 - ❑ To promote a harmonious development of business and professional office areas with adjacent commercial or residential development.
 - ❑ To provide sufficient and appropriate space, and, in particular, sufficient depth from the street, to meet the needs of the County's expected future economy for modern commercial floor space in major commercial centers.
 - ❑ To strengthen the economic base of the County and to protect the County's tax revenues.
 - ❑ To protect residential areas from incompatible commercial uses by controlling the locations and design of commercial areas.
- **Public Facilities (SP PF).** The Zoning Ordinance states regarding SP PF that public schools, parks, civic center, fire and police stations, public utility facilities and other similar uses and structures shall be permitted in the PF subzone in accordance with Chapter 12.72 and with the following: (1) Public Utilities: Public utilities such as transformers, terminal boxes, meters, fire risers, back flow preventers and other similar facilities, shall be screened and oriented away from public view except as required by the County or public utility companies. (Yuba County, 2008)

Plumas Lake Specific Plan/Zoning

The Plumas Lake Specific Plan was prepared by Yuba County to provide for the orderly development of approximately 5,000 acres of land in the southerly portion of the county. The Specific Plan contains a unique set of policies, land use classifications, and development standards that have been tailored to the Specific Plan area. These policies, classifications, and standards act as a cohesive whole and replace the other, more generalized tools for the implementation of the General Plan, such as the County zoning ordinances, subdivision standards, and development policies that are applicable to other areas of Yuba County (Yuba County, 1993). This means that zoning designations for the Specific Plan area are located in the Specific Plan, not in the Yuba County Zoning Ordinance (Cucchi, pers. comm., 2008). Goals and policies in the Plumas Lake Specific Plan related to land use and utilities are as follows.

Section 4.4: Electric and Gas. An existing major electric transmission line transects the Plan area in its most northerly region. Residential parcels abutting this facility should be designed to have excess depth or an intervening road or open space to provide some separation from residential structures. In general, such structures should not be located closer than 60 feet of the right-of-way.

The land use designation definitions found in the Plumas Lake Specific Plan also serve as the plan area's zoning regulations. The project crosses the following Specific Plan/County zoning districts.

- **Business Park (BP):** The Business Park District is intended to provide areas for the location of high-technology and non-polluting manufacturing uses, offices, warehousing, and related facilities. All structural improvements, parking and landscaping will be subject to design review to ensure that a high level of quality in improvements and landscaping is provided. Utilities are not listed as permitted.
- **Water Feature (IA):** This designation refers to water features already existing in the Plan Area, and does not outline permitted uses in areas with this designation.
- **Highway Commercial (HC):** The purpose of this designation is to accommodate the demand created by Highway 70, a major artery between metropolitan regions. The Specific Plan establishes areas for highway commercial development in proximity to access from the highway. Utilities are not listed as permitted.
- **Public Services (P):** This zoning designation is intended for the development of a variety of public services. [[the only land designated P adjacent to the project area has been designated by the Plumas lake Specific Plan as the site of a future wastewater treatment plan.]] The Specific Plan states that the new wastewater treatment plant will be disengaged to utilize an advanced treatment process. Treated effluent will meet Title 22 standards for water quality and can be used for irrigation. The proposed project is not expected to impact the proposed wastewater treatment plant, and utilities are listed as permitted.
- **Community Parks (CP):** The Land Use Diagram shows four planned Community Parks spatially located in the north, central and south portions of the Specific Plan area. Community parks provide a level of recreation and facilities that serve a number of neighborhoods and a population of perhaps 3,000 to 5,000. They should be located at convenient and accessible locations such as along major roads. Utilities are not listed as permitted.
- **Medium-Density Residential (MDR):** The medium-density residential area zone comprises the majority of land within the Specific Plan. This area has a planned density of four dwelling units per gross acre. At this density the predominant housing type will be single family detached units. Utilities are not listed as permitted (Yuba County, 1993).

Sutter County

Sutter County General Plan

Goals and policies in the Sutter County General Plan (Sutter County, 1996) related to land use and utilities are as follows.

General Facilities and Services: Goal 3.A: To properly serve the residents and developments with efficient public facilities, utilities and services.

Energy: Finding 40: New transmission and substation development is not necessary in the short-term to serve expected growth.

The General Plan land use map identifies the following designations for the area along the project alignment.

- **Agriculture (A):** The General Plan states that urbanization and other land conversion often results in conflicts between agricultural and non-agricultural land uses, and that the goal of the A designation is to minimize conflicts between agricultural and non-agricultural uses. Policies related to this designation include requiring that new development adjacent to agricultural areas be designed to minimize conflicts with adjacent agricultural uses and protecting agricultural operations from conflicts with non-agricultural uses by requiring buffers between proposed non-agricultural uses and adjacent agricultural operations. It states that typical land uses allowed in lands designated A include crop production, orchards, grazing, pasture, rangeland, resource extraction activities, facilities that directly support agricultural operations such as agricultural products processing, and necessary public utility and safety facilities.

Sutter County Zoning Ordinance

The Sutter County Zoning Ordinance provides detailed regulations about the type and location of land uses that can occur within county zoning districts. The ordinance identifies the following County zoning districts along the project alignment:

- **General Agricultural District (AG-20):** The purpose of the AG zoning designation is to provide areas for general farming, low density uses, open spaces, and by use permit limited retail service uses which in the opinion of the Planning Commission support the local agricultural industry. It is intended that this classification may be applied to rural communities where the predominance of land use is of a general agricultural nature, however, the needs of the agricultural community may require the location of retail, commercial and service establishments. The zoning ordinance states that communication or utility substations, gas storage and transmission lines require a use permit. (Sutter County, 2008)

Environmental Setting

Butte County

Butte County encompasses approximately 1,670 square miles (1.07 million acres) which is divided into two topographical sections: a valley area which is the northeast portion of the Sacramento Valley and a foothill/mountain region east of the Valley. Topography includes the relatively flat Sacramento Valley Floor and associated alluvial fans, with elevations from 60 to 200 feet generally, extensive rolling foothills with an elevation range from 200 to 2,100 feet and the Cascade and Sierra Nevada Mountain ranges, with elevations from 2,100 to 600 plus feet above sea level. The valley comprises 45 percent of the County area, foothills 23

percent, and mountains 31 percent. (Butte County, 2000) The primary land use in Butte County is agricultural.

City of Oroville

Oroville is the County Seat of Butte County and the site of Oroville Dam. The city-limits population was 13,004 at the 2000 census; and as of 2007, the population is 14,443. The estimated population of the Greater Oroville Area is 55,000 people. (City of Oroville, 2008) Oroville is situated on the banks of the Feather River where it flows out of the Sierra Nevada onto the flat floor of the California Central Valley. The Yuba River flows into the Feather River near Marysville, and these flow together to the Sacramento River. Oroville sits on the eastern rim of the Great Valley, defined today by the floodplains of the Sacramento River and its tributaries, and has a Mediterranean climate.

Yuba County

Yuba County is located in the Central Valley, north of Sacramento, along the Feather River. As of 2006 its population is 71,938 (California Department of Finance, 2006). The County Seat is Marysville. According to the U.S. Census Bureau, Yuba County has a total area of 644 square miles (1,667 km²), of which, 631 square miles (1,633 km²) of it is land and 13 square miles (34 km²) of it (2.03 percent) is water. The County lies along the western slope of the Sierra Nevada, the steep slopes making it prime territory for the siting of hydroelectric power plants. A portion of the County, where Marysville (the County Seat) and most of the population lives, is west of the Sierra Nevada on the valley floor. The County's primary land use is agriculture, especially fruit orchards, rice fields, and cattle grazing.

Sutter County

Sutter County is a county located along the Sacramento River in the Central Valley of California, north of state capital of Sacramento. As of 2006 its population was 93,142 (California Department of Finance, 2006). The County Seat is Yuba City.

According to the U.S. Census Bureau, the County has a total area of 609 square miles (1,576 km²), of which, 603 square miles (1,561 km²) of it is land and six square miles (16 km²) of it (0.99 percent) is water. Sutter County includes the Sutter Buttes, a small volcanic formation. The County's primary land use is agricultural.

Impact Analysis

This section describes potential impacts of the proposed project related to land use. It lists the thresholds used to conclude whether an impact is considered significant.

Methods

Various documents were reviewed to complete this land use analysis, including aerial photographs, city general plans, county general plans, zoning ordinances, maps, web searches, and communication with planning department staff in relevant counties and municipalities. Field visits were conducted along the transmission line route and where public access was available, as well as on private parcels where access was granted.

Significance Criteria

For this analysis, an impact pertaining to land use was considered significant under CEQA if the project would result in any of the following environmental effects; these criteria are based on Appendix G (*14 CCR 15000 et seq.*) of the State CEQA Guidelines.

- Physical division of an established community.
- Substantial conflicts with applicable land use plans, policies, or regulations of an agency with jurisdiction over the project.
- Substantial conflicts with an applicable habitat conservation plan or natural community conservation plan.

Impacts and Mitigation Measures

Impact LU-1: Potential to physically divide an established community—no impact

The Palermo-East Nicolaus transmission line is currently occupied by similar electrical transmission facilities. Under the proposed project, PG&E will replace the current Milliken towers with a combination of hybrid tubular steel poles, tubular poles, and lattice steel poles. The proposed project makes efficient use of current alignments and easements, avoiding the need for other new transmission corridors.

The Palermo-East Nicolaus transmission line currently crosses or is adjacent to primarily grazing and agricultural lands. However, new homes and established communities exist along the Palermo-East Nicolaus transmission line. As shown in Table 4.9-1, the transmission line between Towers 1 through 33 is bordered by some single-family residences and a small number of multifamily residences in

the unincorporated city of Palermo. The transmission line between Towers 188 through 199 borders some single-family residences and a small number of multifamily residences and institutional uses, including a college and a church, in the unincorporated areas of Linda and East Linda.

The transmission line between Towers 211 and 226 borders some single-family and multifamily residences and institutional uses, including a cemetery and two schools, in the unincorporated cities of Linda and Olivehurst. The transmission line between Towers 233 and 276 borders some single-family residential homes, many of them under construction, in the proposed but as-yet unincorporated community of Plumas Lake. The transmission line between Towers 283 and 284 borders single-family homes in the unincorporated city of Rio Oso. The transmission line between Towers 295 through 306 borders single-family residences and a religious institutional use in the unincorporated city of East Nicolaus.

Despite the presence of these homes, institutional uses, and communities, the proposed project will not affect an established community. The homes and institutional uses were built along the transmission line based on County and City plans and zoning, and their presence is an existing condition. The proposed project makes an efficient use of current alignments and easements, avoiding the need for other new transmission corridors.

The addition of future residences near either side of the existing easement will be subject to county permits. Thus, due to the proposed project's efficient use of the existing easement, and the County's ability to control land use, the proposed project is not expected to result in a new barrier to an existing community. Replacing existing towers and poles will not divide an established community. There is no impact.

Impact LU-2: Conflicts with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project—no impact

Consistency with applicable plans and policies is described below. The analysis is made in the following context: the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project. As discussed in Regulatory Setting, the proposed project is exempt from local land use, zoning regulation, and permitting. Nevertheless, in locating utility projects, utilities are directed to consult with local agencies concerning land use matters.

Butte County General Plan

Within Butte County, the Palermo-East Nicolaus Transmission Line crosses or is adjacent to properties designated by the Butte County General Plan as Agricultural, Agricultural Residential, Industrial and Commercial. The proposed project involves installation of new towers along the same route as PG&E's existing 115-kV transmission line. The reconducted transmission line will not result in significant changes to the land uses of the parcels through which it traverses because an existing transmission line is currently located in the same corridor. PG&E's existing easement, through which the proposed project will

traverse, is a pre-existing use that has been contemplated in the Butte County General Plan.

The proposed project is consistent with the General Plan. The General Plan states as an objective to “encourage expansion of private utility systems consistent with County plans and policies.” The proposed project is also consistent with the designations applied to the land through which it traverses. The Agricultural, Agricultural Residential, Industrial, and Commercial designations all allow utilities as a secondary use. Thus there are no consistency issues with the Butte County General Plan land use designation.

Butte County Zoning Ordinance

The Palermo-East Nicolaus Transmission line crosses or is adjacent to parcels zoned A-5, AR-1, AR-5, C-1, and M-1. In areas zoned A-5, utilities are permitted outright. In the remaining zones, utilities require a use permit, a discretionary permit that is not applicable because the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project.

City of Oroville General Plan

Within the City of Oroville, the Palermo-East Nicolaus Transmission line crosses or is adjacent to properties designated Industrial by the Oroville General Plan. As stated above, the reconducted transmission line will not result in significant changes to the land uses of the parcels through which it traverses because an existing transmission line is currently located in the same corridor. PG&E's existing easement, through which the proposed project will traverse, is a pre-existing use that has been contemplated in the City of Oroville General Plan.

The transmission line reconstruction is consistent with the Oroville General Plan, which states as an objective to “encourage utility agencies to use existing transmission corridors for future power transmission line development.”

The Palermo-East Nicolaus Transmission line will use existing transmission corridors. The transmission line crosses or is adjacent to land with the General Plan designation of Industrial, the intent of which is consistent with allowing utilities and related uses. Thus there are no consistency issues with the City of Oroville General Plan land use designation.

City of Oroville Zoning Ordinance

The Palermo-East Nicolaus Transmission line will traverse parcels zoned as M-2. In M-2 zones, utilities are permitted outright.

Yuba County General Plan

Within Yuba County, the Palermo-East Nicolaus Transmission line crosses or is adjacent to properties designated by the Yuba County General Plan as Valley Agricultural, Single Family Residential, Multiple Family Residential, Public, Industrial and Community Commercial. As stated above, the reconducted transmission line will not result in significant changes to the land uses of the parcels through which it traverses because an existing transmission line is currently located in the same corridor. PG&E's existing easement, through which

the proposed project will traverse, is a pre-existing use that has been contemplated in the Yuba County General Plan.

The transmission line reconstruction is consistent with the Yuba County General Plan, which states as a goal to “assure that necessary infrastructure and public services are available to serve present and future residents.” Utilities are expressly allowed in areas designated Public and Industrial. Utilities are not expressly listed as prohibited in the Plan in areas designated Valley Agriculture, Single Family Residential, Multiple Family Residential, or Community Commercial. There are no consistency issues with the Yuba County General Plan.

Yuba County Zoning Ordinance

The Palermo-East Nicolaus Transmission line crosses or is adjacent to parcels zoned AE-40, AE-80, FP-1, RZ, R-1, R-2, C, M-1 and PF. In AE-40, AE-80, R-1, R-2, C, M-1 and PF zones, utility uses are permitted. In FP-1 zones, utility uses require a conditional use permit, a discretionary permit that is not applicable because the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project. In RZ zones, utility uses other than hydroelectric power generation facilities are not listed as permitted. However, the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project.

East Linda Specific Plan

Within the East Linda Specific Plan Area, the Palermo-East Nicolaus Transmission line crosses or is adjacent to properties designated by the East Linda Specific Plan as Single Family Residential, Single/Multifamily Residential, Multifamily Residential, Public Facilities and Business Professional. As stated above, the reconducted transmission line will not result in significant changes to the land uses of the parcels through which it traverses because an existing transmission line is currently located in the same corridor. PG&E's existing easement, through which the proposed project will traverse, is a pre-existing use that has been contemplated in the East Linda Specific Plan.

The transmission line is consistent with the Specific Plan. While the line is not consistent with the designations that it crosses or is adjacent to, the East Linda Specific Plan describes the transmission line's current easement, and states that “no buildings may be placed within this easement, although other uses such as parking lots, recreation and drainage improvements may be established.” The Specific Plan's consideration of the current easement and direction to ensure this easement remains under its existing use, a transmission line corridor, makes replacement of the existing transmission towers consistent with the Specific Plan. Thus there are no consistency issues with the East Linda Specific Plan.

East Linda Specific Plan Zoning

The Palermo-East Nicolaus Transmission line crosses or is adjacent to parcels zoned SP R-1, SP R-2, SP R-05, SP R-08, SP R-10, SP R-20, SP BP, and SP PF. In areas zoned PF, SP R-08, SP R-10, SP R-20 and SP BP, utility transmission lines are permitted. In areas zoned SP R-1, SP R-2, and SP R-05, utilities are not permitted. However, the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project.

Plumas Lake Specific Plan/Zoning

Within the Plumas Lake Specific Plan, the Palermo-East Nicolaus Transmission line crosses or is adjacent to properties designated by the Plan as Business Park, Water Feature, Highway Commercial, Public Services, Community Parks, and Medium Density Residential. Because these classifications act as a cohesive whole and replace the other, more generalized tools for the implementation of the General Plan, such as the County zoning ordinances, subdivision standards, and development policies that are applicable to other areas of Yuba County, these serve as both general plan and zoning designations (Cucchi, pers. comm., 2008).

As stated above, the reconducted transmission line will not result in significant changes to the land uses of the parcels through which it traverses because an existing transmission line is currently located in the same corridor. PG&E's existing easement, through which the proposed project will traverse, is a pre-existing use that has been contemplated in the Plumas Lake Specific Plan.

The transmission line is not consistent with the Specific Plan and its zoning designations. Utilities are not listed as permitted in any of the classifications the transmission line crosses or is adjacent to, except for Public Services. While the line is not consistent with the designations, the Specific Plan describes the transmission line's current easement.

The Specific Plan's consideration of the current easement and direction to ensure that this easement remains under its current use, a transmission line corridor, makes replacement of the existing transmission towers consistent with the Plumas Lake Specific Plan. In addition, the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project. Thus there are no consistency issues with the Plumas Lake Specific Plan/Zoning.

Sutter County General Plan

Within Sutter County, the Palermo-East Nicolaus Transmission line crosses or is adjacent to properties designated by the Sutter County General Plan as Agriculture. As stated above, the reconducted transmission line will not result in significant changes to the land uses of the parcels through which it traverses because an existing transmission line is currently located in the same corridor. PG&E's existing easement, through which the proposed project will traverse, is a pre-existing use that has been contemplated in the Sutter County General Plan.

The transmission line is consistent with the Sutter County General Plan designations assigned to the land through which it traverses. The General Plan defines typical uses in land designated Agriculture to include "necessary public utility and safety facilities." Thus there are no consistency issues with the Sutter County General Plan land use designation.

Sutter County Zoning Ordinance

The Palermo-East Nicolaus Transmission line will traverse parcels zoned AG-20. In the AG-20 zones, utility transmission lines require a use permit, a discretionary permit that is not applicable because the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project.

Impact LU-3 Conflict with any applicable habitat conservation plan or natural community conservation plan—no impact

As discussed in Section 4.04, Biological Resources, the proposed project will not conflict with any applicable government-adopted habitat conservation plan or natural community conservation plan, and there is no impact in this regard.

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Introduction

This section describes the affected environment and regulatory setting for mineral resources, and potential impacts on mineral resources that would result from implementation of the project. Because the possibility of impacts on mineral resources is low, all potential impacts associated with project construction and operation would be less than significant.

Existing Conditions

Regulatory Setting

No federal plans or policies concerning mineral resources apply to the proposed project.

State of California

California Surface Mining and Reclamation Act

The primary state law concerning conservation and development of mineral resources is the California Surface Mining and Reclamation Act (SMARA) of 1975, as amended to date. SMARA was enacted in 1975 to limit new development in areas with significant mineral deposits. SMARA is found Section 2710 of the California Public Resources Code (*2 PRC, 9:2710 et seq.*).

Depending on the region, natural resources can include geologic deposits of valuable minerals used in manufacturing processes and in the production of construction materials. SMARA calls for the State Geologist to classify the lands within California based on mineral resource availability.

Furthermore, SMARA states that the extraction of minerals is essential to the continued economic well-being of the state and to the needs of society, and that reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety (*2 PRC 9:2711*).

In addition to SMARA, the California Health and Safety Code requires the covering, filling, or fencing of abandoned shafts, pits, and excavations (*HSC 24400-03*). Mining also may be regulated by local government, which has the authority to prohibit mining pursuant to its general plan and local zoning laws.

Local Regulations

Although the proposed project will not be subject to local planning regulations, the following local regulations related to mineral resources are provided for informational purposes.

Butte County

Relevant goals and policies of the Butte County General Plan (Butte County 2000) are as follows.

Goal 6: Utilize and develop natural resources so as to protect those resources and eliminate exposure of persons and property to environmental hazards.

Objective 6.1: Management of mineral resources: Efficiently utilize mineral resources and ensure their continued supply.

Policy 1: Encourage proper development and management of sand and gravel.

Policy 2: Ensure that all commercial development of sand and gravel deposits is compatible with nearby land uses.

Policy 3: Ensure that extraction operations of sand and gravel adhere to all environmental quality regulations of the County and State.

Policy 4: Locate commercial, industrial, open space and agricultural uses adjacent to prime mineral resource areas to avoid conflicts between mineral production activities and present or planned residential and institutional land uses.

City of Oroville

Relevant goals and policies of the City of Oroville General Plan (City of Oroville 1995) are as follows.

Objective 6.22a: Determine whether the Planning Area contains one or more significant mineral resources.

Objective 6.22b: Coordinate mineral resource extraction with other land uses for the enhancement of the Planning Area.

Implementing Policy 6.22c: Explore the appropriateness of a request that the State Division of Mines and Geology map Butte County mineral resources of "Regional or Statewide Significance."

Implementing Policy 6.22d: Once the State Division of Mines and Geology has mapped mineral resources of Regional or Statewide Significance, clearly identify on the General Plan Diagram mineral resource areas and those areas targeted for conservation and possible future extraction.

Implementing Policy 6.22e: Manage mineral resource extraction to ensure that this activity results in the fewest possible environmental impacts. Require preparation and assured implementation of a rehabilitation plan for mineral extraction sites as a condition of mining approval. The mineral resource plan should address the protection of biotic resources.

Implementing Policy 6.22f: If aggregate mineral resources of Regional or Statewide Significance are identified within the Planning Area, apply zoning regulations permitting extraction as a conditional use and prohibiting incompatible land uses in Regionally Significant Construction Aggregate Resource Areas to be conserved.

Implementing Policy 6.22g: If the State Division of Mines and Geology determines that the Planning Area contains significant aggregate resources, conserve sufficient aggregate resources to meet the Planning Area's fair share of future regional needs.

Yuba County

Relevant goals and policies of the Yuba County General Plan (Yuba County 1996) are as follows.

Land Use Objective 9: Avoidance of Resource Conservation Service Capability Class I and II soils when establishing Community Boundaries or otherwise reviewing proposals for nonagricultural development projects.

Land Use Objective 10: Application and maintenance of agricultural zoning with a minimum parcel size of 40 acres on Class I and II soils.

Sutter County

Relevant goals and policies of the Sutter County General Plan (Sutter County, 1996) are as follows:

Goal 4.H: To encourage commercial resource extraction activities in locations where environmental, aesthetic, and adjacent land use compatibility impacts can be adequately mitigated.

Policy 4.H-1: The County shall require that the development of gas and mineral resources be designed and conducted in a manner to minimize incompatibility with nearby land uses.

Policy 4.H-2: The County shall prohibit the establishment of any new mining operations in the Sutter Buttes.

Policy 4.H-3: The County shall require that all new gas and mineral extraction projects be designed to provide a buffer between existing and/or likely adjacent uses.

Policy 4.H-4: The County shall require that all mining operations prepare and implement reclamation plans and provide adequate security to guarantee the proposed reclamation.

Policy 4.H-5: The County shall require that gas, and mineral extraction projects incorporate adequate measures to minimize impacts to local residents, county roadways, services and facilities.

Environmental Setting

Existing Mineral Resources

The California Geological Survey (CGS) has classified the regional significance of mineral resources in accordance with SMARA. Mineral Resource Zones (MRZs) delineated by CGS identify the presence and significance of mineral deposits within the project area (CGS SP 51). In general, areas subject to urbanization pressures are zoned by CGS, while areas not subject to urbanization pressures are not. MRZ categories defined by CGS are presented here.

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 mineral deposits are present, or where it is judged that a high likelihood exists for their presence.

MRZ-2a: Areas underlain by mineral deposits where geologic data show that significant measured or indicated resources are present.

MRZ-2b: Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present.

MRZ-3: Areas containing mineral deposits, the significance of which cannot be evaluated from available data.

MRZ-4: Areas where available information is inadequate for assignment to any other MRZ.

SZ: Areas containing unique or rare occurrence of rocks, minerals, or fossils that are of outstanding scientific significance.

Butte County

The State Geologist has yet to map the mineral resources in Butte County. Public or private entities, however, can petition the State Geology Board to classify specific lands containing mineral deposits threatened by land use incompatibilities. Such a petition was filed for the Greenrock Quarry near Oroville (now known as Martin Marietta Materials, Inc., Table Mountain Quarry). The State Mining and Geology Board (SMGB) concluded that part of this mine is classified as MRZ-2a, for railroad ballast. The remainder of the property has been classified as either MRZ-2b or MRZ-1 for railroad ballast. A

petition was also filed for the M&T Chico Ranch site, which the CGS designated a portion of as MRZ-2a.

The Survey concluded that aggregate resources on this property were greater than the threshold value of \$13.1 million and therefore determined the property could receive the MRZ-2a designation. The project alignment does not cross either of these MRZ-designated areas (Butte County, 2007).

City of Oroville

Because the State Geologist has not yet mapped the mineral resources in Butte County, no MRZ designations exist within the City of Oroville (City of Oroville, 2008).

Yuba County

In Yuba County, the Yuba Goldfields area and the Western World Mining Company Copper-Zinc Deposit have had their mineral resources zoned by the California Department of Conservation's Division of Mines and Geology (CDMG). The Yuba Goldfields area is classified MRZ-2, where significant Portland Cement and Concrete-grade aggregate deposits exist.

The area consists of natural stream channel and floodplain alluvium; hydraulic wash deposits from upstream monitor workings; dredge tailings; and recent stream channel alluvium in the present channel of the Yuba River. The Yuba Goldfields area extends from the town of Smartville west to Marysville, and the project alignment crosses this MRZ-2 designation.

The Western World Mining Company Cooper-Zinc Deposit is also classified as a MRZ-2 zone, where significant sulfide copper-zinc deposits exist. The Deposit is located near Smartville, and the project alignment does not cross this MRZ-2 designation (Yuba County 1996, 2008).

Sutter County

In 1986, the DMG issued Special Report 132, "Mineral Land Classification: Portland Cement and Concrete-Grade Aggregate in the Yuba City-Marysville Production-Consumption Area." The report, prepared pursuant to amendments in the State's Surface Mining and Reclamation Act, found no significant or substantial deposits located within Sutter County (Sutter County, 2008).

Sand, Gravel, Oil, and Geothermal Resources

The proposed project will not cross areas that are presently being used for mineral extraction. There are no productive oil or coal developments in the

proposed project area. No geothermal resources are located within the project alignment (CDOGG, 2008).

Impact Analysis

Methods

Existing conditions were determined from a review of published literature, examination of aerial photographs, and site-specific field inspection of the locations of project components. Descriptions of mineral resources in the project area were derived from published mapping by the United States Geological Survey, (USGS), the California Department of Oil, Gas, and Geothermal Resources (DOGGR), and the California Department of Conservation, California Geological Survey (CGS).

Significance Criteria

For this analysis, an impact pertaining to mineral resources was considered significant under CEQA if it would result in any of the following environmental effects. These criteria are based on Appendix G of the State CEQA Guidelines (*14 CCR 15000 et seq.*).

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
- 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.

Impacts and Mitigation Measures

Impact MR1: Potential loss of availability of a known mineral resource that would be of value to the region and the residents of the state—less than significant

Extraction operations exist outside the proposed project alignment area. The only portion of the alignment that crosses a known mineral resource occurs near Marysville, where the project alignment crosses a portion of the Yuba River that is designated as MRZ-2 for aggregate materials. No aggregate extraction is occurring at this point, and neither the existing structures nor the reconfigured structures in the proposed project will obstruct or affect any future ability to access the river for any purpose. Construction in these areas will be temporary. The potential for the project to result in the loss of a known state or regionally valuable mineral resource is low. This potential impact is considered less than significant.

Impact MR2: Potential loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan—less than significant

Yuba County, in addition to recognizing state-designated MRZ zones, has acknowledged the Yuba Goldfields area as a locally important mineral resource. Specifically, the portion of the alignment that crosses the Yuba River is within a locally important mineral resource area of Yuba County. However, the structures replacement activities from the proposed project will affect only a very small area, and the river crossing does not cross areas currently used to extract known mineral resources. Thus, proposed project impacts to locally important mineral resources are less than significant.

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Introduction

This section presents a discussion of the existing noise environment in the vicinity of Pacific Gas & Electric Company's proposed Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project (project or proposed project), an analysis of the potentially significant impacts resulting from temporary construction noise due to the project and mitigation measures to reduce the project's level of environmental impact. A glossary of terms used in this section and their definitions has been included at the end of this section.

Fundamentals of Environmental Noise

Human response to noise varies depending on the person, the setting, and the activity in which the person is engaged (or no activity, i.e. resting) while exposed to environmental noise. As is the case, certain institutions and land use types are more sensitive to noise exposure. Noise-sensitive receptors can be defined as locations where noise may interfere with people's primary activities. These locations, or receptors, include places where people sleep, such as residences and hospitals as well as schools, libraries, parks, recreation areas, business offices, and places of worship, during hours of operation or primary use.

Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern one-decibel (dB) changes in sound levels when exposed to steady, single-frequency tones in the mid-frequency (1,000–8,000 Hertz [Hz]) range. However, it is widely accepted that, in typical real-world environments, people are able to begin to detect sound level increases of three dB.

Whereas a 10 dB increase is generally perceived as a doubling of loudness a doubling of sound energy (i.e., doubling the volume of traffic on a highway or two pieces of the same model of construction equipment versus one) will produce a three-dB change and would generally be perceived as detectable. A five-dB change, however, is generally considered to be a substantially noticeable change above the existing noise environment.

To account for the fact that human hearing does not process all frequencies equally, an A-weighting (dBA) scale was developed to account for this phenomenon, and, depending on the specific frequency value, deviates from the “linear” dB weighting curve accordingly.

To characterize the average ambient noise environment in a given area, noise level descriptors are commonly used. The L_{eq} , or Sound Equivalent Level, is generally used to characterize the average sound energy that occurs during a relatively short period of time, such as an hour. Two other descriptors, the L_{dn} (Day-Night Level) and CNEL (Community Noise Equivalent Level), would be used for an entire 24-hour period. The value of the L_{dn} and CNEL are generally within one dB of each other and therefore will be used interchangeably in this analysis. Both the L_{dn} and CNEL noise metric descriptors place a stronger emphasis on noise that occurs during night-time hours (10 p.m. to 7 a.m.) by applying a 10-dB “penalty” to those hours, with the difference being that the CNEL also applies a five-dB “penalty” to the evening hours of 7 p.m. to 10 p.m.

Existing Conditions

The extent of the proposed project spans three counties (Butte, Yuba, and Sutter) and the project alignment extends just over 40 miles. Primary noise sources within the project vicinity include traffic on local two-lane roads; traffic from California Highways 20, 70, and 65; train activity along Union Pacific railroad tracks; and aircraft flyovers to and from Beale Air Force Base in Yuba County; the Yuba County Airport; the Sutter County Airport; and Siller Bros Inc. Aviation, a private airstrip within two miles of the proposed project.

Existing ambient sound levels in the project area are typical of a rural environment, where sound levels typically range from 40 to 60 dBA during the day and 20 to 45 dBA at night. Ambient levels within more densely populated areas, such as Marysville, closer to highways or under the flight paths of aircraft would be relatively higher.

Regulatory Setting

Federal, state, and local bodies of government establish laws and regulations to control excessive noise and reduce human noise exposure to a level that is acceptable within their jurisdiction. While federal and state laws regulate transportation noise, establish “normally” and “conditionally” acceptable exterior noise limits based on land-use type, and establish maximum acceptable interior noise limits for residences, no federal or state provisions regulate noise levels due to temporary construction activity. This type of noise is generally regulated at the local or county-wide level.

Local Regulations

Although PG&E is not subject to local land-use regulations, the following overview of local regulations relating to noise is provided for informational purposes. PG&E's project will comply with County and City standards in this area.

As mentioned above, the proposed project spans three separate counties, including the incorporated city of Marysville (the Yuba County Seat). Each county, or incorporated city, has its own separate regulatory system for controlling noise and protecting the health and safety of its citizens. These regulations are summarized below.

Yuba County

Yuba County has established policies and regulations concerning the generation and control of noise that could adversely affect its citizens and noise-sensitive land uses. The goals and policies of the noise element of the Yuba County General Plan and the Yuba County Noise Ordinance are discussed below.

Yuba County General Plan

The noise element of the Yuba County General Plan (Yuba County, 1980) goals are to identify the existing and potential noise sources within the community, identify strategies to minimize residents' exposure to noise, and to mitigate noise impacts to the extent feasible. Beyond characterizing existing noise sources in the community, these goals are achieved by setting provisions for acceptable noise exposure to areas within the county, based on their land use. This information is generally used in assessing the impact and compatibility of new proposed developments and does not apply to the proposed project because construction activities will be temporary and intermittent.

Yuba County Noise Ordinance

The Yuba County noise ordinance is the primary enforcement tool for the operation of locally regulated noise sources, such as mechanical equipment and construction activity, and is set forth in Chapter 8.20 in the Yuba County Code (Yuba County 1980).

Goals and policies of the Yuba County noise ordinance related to environmental noise are as follows.

Goal NOI-YB-1: To control unnecessary, excessive and annoying noise.

Policy NOI-YB-1: Prohibit such noise generated from or by all sources subject to its police power as specified in Chapter 8.20.

To this end, the County has identified exterior noise exposure standards, which are shown in Table 4.11-1.

Table 4.11-1. Yuba County Noise Level Standards

Zone Permitted	Time	Sound Level	Maximum Noise Level
Single Family Residential	10 p.m. to 7 a.m.	45	55
	7 p.m. to 10 p.m.	50	60
	7 a.m. to 7 p.m.	55	65
Multi-Family Residential	10 p.m. to 7 a.m.	50	60
	7 a.m. to 10 p.m.	55	65
Commercial	10 p.m. to 7 a.m.	55	65
	7 a.m. to 10 p.m.	60	70
M1	Anytime	65	75
M2	Anytime	70	80

Source: Yuba County Noise Ordinance (Yuba County 1980).

Section 8.20.310 pertains to construction noise. The ordinance states that it is unlawful to operate equipment within a 500-foot radius of a residential zone between the hours of 10 p.m. to 7 a.m. (nighttime hours), “in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance unless a permit has been duly obtained.”

Section 8.20.710 explains the procedural process by which a project applicant may apply to the Department of Planning and Building Services for an exemption authorized by permit when immediate compliance is impractical or unreasonable (providing the project does not exceed six months).

City of Marysville Municipal Code

Because Marysville is an incorporated city, it has established separate provisions that relate to noise regulation. Chapter 9.09 of the Marysville Municipal Code (City of Marysville 1991) lays forth procedural provisions for police response to loud and unreasonable noise. However, noise level standards are not set and noise due to construction activity is not addressed.

Sutter County

The goal of the noise element of the Sutter County General Plan (Sutter County 1996) is to protect County residences from the harmful effects of exposure to excessive noise. The policy stated to implement this goal is to not allow development of new noise-sensitive land uses where the existing ambient level due to noise sources would exceed acceptable limits as set forth by the County.

Sutter County has not adopted a noise ordinance and noise due to construction activity is not addressed.

Butte County

The goals of the noise element of the Butte County General Plan (Butte County 1977) are to secure and maintain an environment free from annoying noise, to provide information concerning the community noise environment, and to make noise a consideration in the on-going planning process and the development of ordinances relating thereto. Butte County has not adopted a noise ordinance and noise due to construction activity is not addressed.

Environmental Setting

The following is a discussion of the environmental setting surrounding the proposed project. Because the project spans three counties, a north-to-south description of the transmission line reconstruction route is given by county (or incorporated city), including land-use-specific noise sensitive receptors in the general project vicinity with their approximate distances to proposed construction work noted.

Butte County

Temporary reconstruction activities along the proposed project transmission line route would begin at the Palermo substation in Palermo, California, and continue northwest, running just below Pinecrest Road. The transmission line then crosses Upper Palermo Road and immediately after crosses Pinecrest Road. No pole/tower replacement, installation, or elimination work is proposed along this section of the project, although miscellaneous construction work is proposed at two towers just north of Pinecrest Road.

Three work areas are proposed in the direct vicinity of the Palermo substation: one adjacent and to the northeast, one adjacent and to the west, and one further to the west. The area is zoned Agricultural Residential with a single-family residence located approximately 225 feet from a proposed helicopter staging area.

The transmission line route then takes a turn southwest approximately 700 feet south of Ophir Road and continues through South Oroville briefly and then back into the town of Palermo (due west of the substation). At this point a helicopter staging area is proposed. The location is surrounded by an area of agricultural/industrial land use. Pole/tower replacement, installation, and elimination work is proposed along this section of the line, which crosses through a brief area of industrial land use into an area zoned Agricultural Residential, with single-family residences located within 100 feet of proposed pole/tower installation and replacement (residences on Firloop Circle for example).

Next, the transmission line route continues south, parallel to Railroad Avenue, running through an area of mixed use (Agricultural Residential, Industrial, and Commercial). Residences are located approximately 100 feet from proposed helicopter staging areas and 300 feet from proposed tower/pole work. Just north of Louis Avenue, the transmission line route veers off slightly to the west and continues south directly adjacent to Union Pacific railroad tracks through an area of agricultural land use. North of Fiske Road the transmission line route crosses railroad tracks and continues in a southeast direction as it heads to Marysville. This section of agricultural land use extends for approximately 18 miles and pole/tower replacement, installation, and elimination work is proposed along this entire section, as well as helicopter staging areas.

Yuba County

As the transmission line route continues south, it passes into Yuba County. The first noise-sensitive receptors that it passes in proximity to are located in the city of Marysville.

City of Marysville

As the transmission line route approaches Marysville, it crosses Levee Road (California Highway 20). Just south of this crossing, in Marysville, pole installation and replacement work is proposed as close as approximately 800 feet to a residential neighborhood with single-family residences on Nadene Drive.

Yuba County (South of Marysville)

The transmission line route then continues southeast toward the city of Linda and passes through a golf course (Peach Tree Golf and Country Club, 2043 Simpson Dantoni Road), where pole installation and tower replacement work is proposed. As the transmission line route continues south through Linda it runs adjacent to multiple neighborhoods of single-family and multifamily residences. Proposed pole/tower installation, replacement, and elimination work would be located as close as approximately 25 feet to homes along this portion of the alignment, such as mobile homes located on MHP Road (35 feet); those east of Dunning Avenue (70 feet), Park Circle (130 feet), Baywood Way (170 feet) and Edgewater Circle (200 feet); and those west of Stony Creek Way (25 feet).

Linda Elementary School is located approximately 650 feet from proposed pole/tower installation and replacement work and Yuba Community College is directly adjacent. Several places of worship also exist within the vicinity of this section of the project.

Continuing south, the transmission line route passes through an area of agricultural land use, crosses California Highway 70 and continues toward the city of Olivehurst. The transmission line runs parallel to Powerline Road and pole/tower installation and replacement work is proposed as close as approximately 125 feet to multiple neighborhoods of single-family residences west of Powerline Road. An unspecified work area is proposed adjacent to Ninth

Avenue and Powerline Road. Two schools are also within the direct vicinity of the project. Lindhurst High School is located approximately 500 feet from proposed pole/tower installation and replacement work and Yuba Gardens Intermediate School is directly adjacent.

After Powerline Road ends, the transmission line route crosses McGowan Parkway and continues south. Single-family residences along George Avenue are located as close as approximately 500 feet to proposed pole/tower installation and replacement work. The transmission line crosses California Highway 70 again and runs through an area of agricultural land use, including areas of sparse single-family residences that are located as close as 500 feet to proposed pole/tower installation and replacement work.

Further south the transmission line route crosses over the Union Pacific railroad tracks again and then runs parallel with them. Single family residences are located as close as approximately 575 feet to proposed pole/tower installation and replacement work. These residences are located in a neighborhood of southern Olivehurst with the closest residences being on Branding Iron Way. Another neighborhood just south of there is located as close as approximately 900 feet to proposed pole/tower installation and replacement work, with the closest single-family residences located on Durham Court. The transmission line route then passes adjacent to an area of residential construction/planned construction.

Sutter County

The transmission line route continues south, crossing into Rio Oso and an area of agricultural land use. Directly after crossing River Oso Road proposed pole/tower installation and replacement work is located at approximately 350 feet, and a helicopter staging area is located at approximately 200 feet, from single family-residences on Greene Street. Further south is more agriculturally zoned land with single-family residences scattered throughout as well as Fairview Community Christian Church, located at approximately 200 feet from proposed pole/tower installation and replacement work. South of here a proposed helicopter staging area has been designated at approximately 150 feet from a single-family residence as well as pole/tower installation and replacement within the same designated work area.

Just north of Watts Avenue, the transmission line route turns west and heads to the East Nicolaus substation, passing through areas of agricultural land use with single family residences scattered throughout. No further pole/tower installation, replacement or elimination is proposed in this section. However, a helicopter staging area is located approximately 450 feet from a single-family residence and miscellaneous construction work is proposed at existing towers.

Impact Analysis

This section presents an analysis of the potential noise impacts associated with the proposed project.

Methods

Construction noise was evaluated using methods recommended in FTA 2006. Noise from helicopter operations was evaluated using data from Nelson 1987.

Significance Criteria

For this analysis, an impact pertaining to noise was considered significant under CEQA if the project would result in any of the following environmental effects (these criteria are based on Appendix G of the State CEQA Guidelines).

- 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.
- Exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels.
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- A substantial temporary increase or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

Impacts and Mitigation Measures

Impact Noise-1: Exposure of noise-sensitive receptors to operational noise from the proposed project—less than significant

No additional pieces of operational equipment are proposed at the substations along the transmission line and the transmission lines that will replace existing ones are of the same voltage. Therefore, because no new operational noise sources are associated with the proposed project, and because there will be no increase in voltage, no substantial permanent increase in ambient levels is anticipated with implementation of the proposed project. This impact is therefore considered to be less than significant.

Impact Noise-2: Exposure of noise-sensitive receptors to temporary construction noise—less than significant

Proposed pieces of construction equipment and the typical A-weighted (dBA) noise levels associated with their use (as measured at 50 feet) are presented in Table 4.11-2. Assuming a scenario under which multiple pieces of the loudest

equipment (excluding helicopter operations) are used, reasonable upper-bound noise levels (based on distance to nearest receptor) due to construction activities were predicted using methods recommended by FTA 2006. Table 4.11-3 summarizes the results of this analysis.

Table 4.11-2. Proposed Construction Equipment Types and Typical Noise Emission Levels

Equipment	Typical Noise Level 50 Feet from Source (dBA)
Backhoe	78
Concrete mixer truck ²	76
Crane	81
Pick-up truck	55
Dump truck	76
Equipment/tool van ¹	55
Dozer	82
Water truck ²	76
Grader	85
Rock transport ²	76
Roller	80
Hole auger	84
Line truck and trailer ¹	55

Source: Federal Highway Administration, 2006.
¹ Based on noise level for pick-up truck
² Based on noise level for dump truck

Table 4-11.3. Predicted Construction-Related (Non-Helicopter) Upper Bound Noise Levels in Project Vicinity

Distance Between Source and Receiver (ft.)	Geometric Attenuation (dB)	Ground Effect Attenuation (dB)	Calculated Lmax Sound Level (dBA)	Calculated Leq Sound Level (dBA)
50	0	0	89	85
100	-6	-2	81	77
200	-12	-4	74	70
300	-16	-5	69	65
400	-18	-6	66	62
500	-20	-6	63	59
600	-22	-7	61	57
700	-23	-7	59	55
800	-24	-7	58	54
900	-25	-8	56	52
1000	-26	-8	55	51
1200	-28	-9	53	49
1400	-29	-9	51	47
1600	-30	-9	50	46
1800	-31	-10	49	45
2000	-32	-10	47	43
2500	-34	-10	45	41
3000	-36	-11	43	39

Source: Calculations based on FTA 2006.

Note: This calculation does not include the effects, if any, of local shielding from walls, topography, or other barriers that may further reduce sound levels.

As described in Chapter 3, Project Description, helicopters may be used to install poles and replace transmission towers when the use of cranes is not feasible. It is anticipated that helicopter usage during construction will be as follows.

- Existing tower removal and tower site recovery:
 - Two (2) Bell 214s (heavy duty medium-lift single rotor).
 - Two (2) Hughes 500's (light-duty single rotor).
- Pole site excavation, concrete base construction, and new pole installation:
 - One (1) Bell 214.
 - Two (2) Hughes 500s.

A large single-rotor helicopter such as the Bell 214 produces a maximum sound level of about 79 dBA at a distance of 500 feet under level flight conditions (Nelson 1987). This corresponds to a sound level of about 93 dBA at 100 feet. A small single-rotor helicopter such as the Hughes 500 produces a maximum sound level of 75 dBA at distance of 500 feet under level flight conditions (Nelson 1987). This corresponds to a sound level of about 89 dBA at 100 feet.

This analysis indicates that helicopters could produce noise in the range of 89 to 93 dBA in the vicinity of residences that are located as close as 100 feet to helicopter staging areas. Noise from helicopters operating above pole installation locations could be as close as about 250 feet to residences. At this distance helicopter noise levels could be in the range of about 83 to 87 dBA.

With land-based construction activities located as close as 25 feet to noise-sensitive receptors, land-based construction noise levels could be as high as 91 dBA at these locations. This analysis indicates that there is potential for construction noise from both land-based construction activities and helicopter activities to exceed the Yuba County daytime noise standard of 55 dBA and to result in a substantial temporary increase in noise. In addition, any construction activity that occurs outside the hours of 7:00 a.m. to 10:00 p.m. has potential to violate the Yuba County noise ordinance. This impact is therefore considered to be significant.

Implementation of APM Noise-1 would reduce this impact. While it may not be feasible in all cases to reduce noise to a level that is in compliance with applicable noise standards, given the very short duration of construction activity at any one location, this impact is considered to be less significant with the implementation of APM Noise-1.

APM Noise-1: Employ noise-reducing construction practices during temporary reconstruction activities

PG&E will employ noise-reducing construction practices so that noise produced by construction activities is in compliance with applicable local noise level standards and ordinances where feasible. Measures to be implemented may include but are not limited to the measures listed here.

- Ensure that all equipment is equipped with mufflers that meet or exceed factory new equipment standards.
- Locate stationary equipment as far as practical from noise sensitive receptors.
- Limit unnecessary engine idling.
- Use equipment that is specifically designed for low noise emissions and employ equipment that is powered by electric or natural gas engines as opposed to those powered by diesel or gasoline reciprocating engines.
- In the vicinity of noise-sensitive receptors, use cranes wherever feasible as opposed to helicopters to install poles and replace transmission towers.
- Design helicopter flight paths over land use areas that are not noise sensitive (i.e. agricultural and vacant).
- Locate helicopter staging areas as far from residential locations as is practical.
- Limit all construction activity to the hours of 7 a.m. to 7 p.m. Monday through Saturday.

- Use temporary enclosures or noise barriers (i.e. wood and/or noise blankets) around loudest pieces of equipment when practical and necessary.
- Notify communities and neighborhoods that will be most heavily impacted by construction activities, including but not limited to written notice and the posting of signs with contractor contact number on construction site fences.
- Locate vehicle access roads as far from noise sensitive receptors as practical.
- Schedule construction activities in the vicinity of schools and learning institutions (such as Yuba Community College) on days when these facilities are not occupied.

Glossary

Sound: A physical and vibratory disturbance in a medium (e.g., air) which, when transmitted by pressure waves, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

Noise: Sound that is interpreted as loud, unpleasant, unexpected, or otherwise undesirable.

Ambient Noise Level: The sum of the contribution of the prevailing noise sources within or affecting a given area.

Frequency (Hz): The number of oscillations (or cycles) per second of a periodic noise or vibration.

Decibel (dB): A dimensionless unit of sound power or intensity that is equal to the logarithmic ratio of a squared sound pressure amplitude to a reference sound pressure (20 micropascals).

A-Weighted Decibel Level (dBA): An overall frequency-weighted sound level that approximates the frequency response of the human ear.

Maximum Sound Level (L_{max}): The maximum measured sound level during a given period.

Equivalent Sound Level (L_{eq}): A level of steady-state noise which would have the same energy as that of the fluctuating levels of a stated measurement period. The L_{eq} can be thought of as a representation of the average sound energy occurring over a specified period which places more emphasis on high noise levels than a simple arithmetic average.

Day-Night Sound Level (L_{dn}): The energy average noise level for a 24-hour period with a 10-dB “penalty” applied to the hours between 10:00 p.m. and 7:00 a.m.

Community Noise Equivalent Level (CNEL): The energy average noise level for a 24-hour period with a 10-dB “penalty” applied to the hours between 10:00 p.m. and 7:00 a.m. and a 5-dB “penalty” applied to the hours between 7 p.m. and 10 p.m.

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Acronyms

project, proposed project	Pacific Gas & Electric Company's proposed Palermo–East Nicolaus 115 kV Transmission Line Reconstruction Project	4.11-1
Hz	Hertz	4.11-1
L _{eq}	Sound Equivalent Level.....	4.11-2
L _{dn}	Day-Night Level	4.11-2
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Section 4.12

Population and Housing

Introduction

This section describes the affected environment and regulatory setting for population and housing. It also describes the impacts on population and housing that would result from implementation of the proposed project.

The proposed project is a response to growth in Yuba, Placer, and Sutter Counties and is not expected to induce growth. During construction, the temporary increase in construction workers is expected to be accommodated in local lodging. Few homes are located along the alignment, and none are in the path of the alignment. No persons or homes are expected to be displaced. Thus, all potential impacts on population and housing associated with project construction and operation would be less than significant.

Existing Conditions

Regulatory Setting

Federal

No federal plans or policies related to population and housing apply to the project.

State of California

Housing Element

The Housing Element is one of seven elements required to be included in city and county General Plans. State law identifies the subjects that must be addressed in a Housing Element. These guidelines are identified in Article 10.6 of the State of California Government Code (*10.6 CGC 65580 et seq*). State law specifies that the Housing Element must assess housing needs and evaluate the current housing market in the planning area, and then identify programs that will meet housing

needs. The housing market evaluation includes a review of housing stock characteristics as well as housing cost, household incomes, special-need households, availability of land and infrastructure, and various other factors.

Also included in this evaluation is the community's "Regional Housing Needs Allocation," which estimates the number of housing units that should be provided in the community to meet its share of new households in the region.

Butte County Association of Governments

The Butte County Association of Governments (BCAG) is an association of all the local governments within Butte County. Its members include the cities of Biggs, Chico, Gridley, Oroville, the Town of Paradise, and the County of Butte.

BCAG is responsible for development of federal and state transportation plans and programs that secure transportation funding for the region's highways, transit, streets, and roads, pedestrian and other transportation system improvements. Every three years, BCAG is required to update its regional growth projections. The BCAG regional growth projections for 2006–2030 provide insight into the growth trends that are anticipated to occur within Butte County and its incorporated cities and town during the next 24 years. (BCAG 2008).

Sacramento Area Council of Governments

The Sacramento Area Council of Governments (SACOG) is an association of local governments in the six-county Sacramento region. Its members include the counties of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba and the incorporated cities within these counties.

SACOG provides transportation planning and funding for the region, prepares the region's long-range transportation plan, and approves the distribution of affordable housing in the region. SACOG also produces a regional forecast of population, housing, and employment for their region. Each forecast is produced with the best available data and is extensively reviewed by SACOG's member agencies (SACOG 2008a).

Local Regulations

Although PG&E is not subject to local land-use regulations, the following overview of local regulations relating to population and housing is provided for informational purposes.

Butte County

Butte County General Plan

Relevant goals and policies of the Butte County General Plan Housing Element (Butte County 1994) are as follows.

Goal A: To Provide for the County's Regional Share of New Housing for All Income Groups.

Policy A.1: The County will continue to adopt community plans, within the financial ability of the County to finance these plans, to enhance the County's ability to meet its regional share of housing.

Policy A.2: The County will continue to annually monitor zoning to ensure that sufficient land is zoned at various densities to meet the County's regional share of housing.

Policy A.3: Zoning for higher density residential development will emphasize development within or adjacent to existing urban areas in which public facilities and services can be extended, or within large, master planned developments which have the financial capability of providing needed public facilities and services for higher density development.

City of Oroville General Plan

Relevant goals and policies of the City of Oroville General Plan (City of Oroville 1995) are as follows.

Objective 3.30a: Encourage the expansion of all types of housing at a broad range of densities and prices.

Implementing Policy 3.30g: Require or encourage the transfer of density to preserve orchards, woodlands, and wetlands by clustering development in locations where the land supports fewer resources and the infrastructure is in or is close to the project site.

Yuba County

Yuba County General Plan

Relevant goals and policies of the Yuba County General Plan Housing Element (Yuba County 2004) are as follows.

Goal 1: To provide adequate sites to meet current and future housing needs among all income groups.

Policy 1.1: Ensure that sufficient sites are appropriately zoned, with access to public services and facilities, between 2003 and 2008, and beyond, to accommodate the County's share of regional housing needs.

Policy 1.2: Provide additional residential development opportunities on infill and underutilized properties.

Goal 2: To meet the housing needs of special population groups who may not otherwise be served by County housing programs in general.

Policy 2.1: The County will undertake programs designed to meet special housing needs.

Goal 3: To encourage the provision of affordable housing for low-and-moderate-income [sic] households.

Policy 3.1: The County will make use of state and federal programs for which it would be the applicant, and work with non-profit and for-profit developers to make use of those programs for which the developer must be the applicant.

East Linda Specific Plan

The East Linda Specific Plan (Yuba County 1990) references Yuba County General Plan goals and policies as relevant to the Specific Plan (Yuba County, 1996). Those relevant goals and policies are as follows.

Goal 1: To promote the diversity of residential densities which are consistent with the social, economic, transportation and environmental goals of the county.

Policy 1: Appropriate zoning classifications shall be established to provide a diversity of housing sites varying in size, density and location.

Policy 2: Multi-family residential development shall be located close to high intensity land uses and the availability of public water and sewage disposal systems.

The East Linda Specific Plan (Yuba County 1990) goes on to state the following.

Accordingly, the primary housing goal for the East Linda Specific Plan is to provide a mix of housing types and prices that will accommodate a significant portion of the Yuba County demand for housing opportunities, while ensuring that the housing development meets the other General Plan goals and policies, such as the need for agricultural buffering.

Plumas Lake Specific Plan

The Plumas Lake Specific Plan (Yuba County 1993) references Yuba County Housing Element goals and policies as relevant to the Specific Plan (Yuba County, 1996). Those relevant goals and policies are as follows.

Action 1.2.1: Concerning zoning of sufficient land for new housing.

Action 1.2.2: Concerning funding for new drainage improvements, a major constraint to both existing housing and new housing in the Linda, Olivehurst and Plumas Lake area.

Action 1.2.4: Proscribing a program for identifying infrastructure needs on a community by community basis.

Action 1.2.1: Targeting the need for developing multi-family and rental housing.

Action 2.1.6: The need for housing large families.

Action 3.3.1: Providing density bonuses for low and moderate income housing.

Action 3.6.1: Encouraging the enabling of alternative development patterns including "zero-lot line" and flexible lot width standards.

Sutter County

Sutter County General Plan

Relevant goals and policies of the Sutter County Housing Element (Sutter County, 2004) are as follows.

Goal 1: Encourage the provision of safe and sanitary housing with adequate public services for all existing and future residents of Sutter County.

Policy 1.1: The existing housing stock shall be preserved to the extent possible in a safe, sanitary, and livable environment.

Goal 2: Encourage the adequate supply of various housing types at various densities to meet the needs of all income groups and insure that housing opportunities are open to all without regard to race, color, age, sex, religion, national origin, family status or physical handicap.

Policy 2.2: An adequate supply of available land to meet non agricultural, unincorporated housing needs shall be provided and maintained within the County's urban areas.

Policy 2.3: The County shall ensure that the Housing Element continues to address the housing needs of existing and future residents and provides adequate opportunity for present and future residents.

Environmental Setting

Butte County

Butte County encompasses approximately 1670 square miles (1.07 million acres), divided into two topographical sections: a valley area that is the northeast portion of the Sacramento Valley and a foothill/mountain region east of the valley. The primary land use in Butte County is agricultural. As of 2000, Butte County had 203,171 persons and 85,523 housing units (U.S. Census 2000a, 2000b). As of 2006, BCAG estimated a population of 217,209 persons and 93,383 housing units. Regarding more recent forecasts, Table 4.12-1 describes the population and housing statistics from 2006 to 2030 for Butte County, including unincorporated areas.

Table 4.12-1. Butte County Population and Housing Projections

	2006	2010	2015	2020	2025	2030
Incorporated Population and Households						
Population	217,209	232,075	254,224	276,277	297,882	321,315
Housing	93,383	99,655	109,010	118,271	127,384	137,266
Unincorporated Population and Households						
Population	90,323	93,991	98,786	103,825	109,121	114,687
Housing	39,181	40,772	42,852	45,038	47,335	49,749

Source: BCAG 2006.

Population

Between 2006 and 2030, BCAG predicts that Butte County will experience significant growth. As depicted in Table 4.12-1, the population was 217,209 in 2006, and the county is projected to experience a 47 percent increase (to 321,315 persons) in 2030. The proposed project alignment generally will occur on unincorporated lands that are not expected to increase in population as much as incorporated areas, including the City of Oroville. In 2006, the population of the unincorporated areas totaled 90,323. In 2030, this is expected to increase to 109,121 (BCAG 2006).

Housing

In 2000, the average household size of Butte County was 2.48 persons, with 40.7 percent of housing units single-family, owner occupied homes (U.S. Census 2000a, 2000b). In 2006, there were 93,383 housing units in Butte County, an increase of 22 percent from the 1990 amount of 76,115 units. With the increases in population projected by BCAG, the number of housing units is expected to grow 47 percent from 2006 levels by 2030. (BCAG 2006) The proposed project alignment will run adjacent to residential development in Butte County, primarily single-family residences.

City of Oroville

Oroville is the County Seat of Butte County and the site of the Oroville Dam. Oroville is situated on the banks of the Feather River where it flows out of the Sierra Nevada onto the floor of the California Central Valley. In 2000, the City of Oroville had 13,004 persons and 5,469 housing units (U.S. Census 2000a, 2000b). Population and housing data from 2006 to 2030 are provided in Table 4.12-2. Between 2006 and 2030, Oroville's population is expected to grow by approximately 110 percent.

Table 4.12-2. City of Oroville Population and Housing Projections

	2006	2010	2015	2020	2025	2030
Population	13,550	15,696	20,033	23,447	25,888	28,582
Housing	5,785	6,701	8,553	10,010	11,052	12,203

Source: BCAG 2006.

Population

Between 1990 and 2000, the population of Oroville increased by 13 percent from 11,960 to 13,550 residents (U.S. Census 1990, 2000a). Between 2000 and 2006, the population grew by four percent. As shown in Table 4.12-2, the population was 13,550 in 2006, and the city is projected to experience a 110 percent increase in population (to 28,582 persons) in 2030.

Housing

In 2000, the average household size of Oroville was 2.5 persons, with 32 percent of housing units single-family, owner-occupied homes. In 2006, there were 5,785 housing units, an increase of 19 percent from the 1990 amount of 4,831. (BCAG 2006, U.S. Census 1990, 2000a, 2000b) With the increases in population projected by BCAG, the number of housing units is expected to increase by 110 percent from 2006 levels by 2030. The proposed project alignment will not run adjacent to any residential development in the City of Oroville.

Yuba County

Yuba County is located in the Central Valley, north of Sacramento, along the Feather River. The county lies along the western slope of the Sierra Nevada. A portion of the county, where Marysville (the County Seat) and most of the population lives, is west of the mountains on the valley floor. In 2000, Yuba County contained 60,219 persons and 22,636 housing units (Census 2000a, 200b), increasing to 60,800 and 23,304, respectively, in 2001 (SACOG 2001).

Population

By 2035, population and housing are expected to increase significantly in Yuba County, to 139,484 persons and 53,460 housing units (SACOG 2008b). This would represent a 129 percent increase in population from 2001 levels.

Housing

In 2000, the average household size of Yuba County was 2.87 persons, with 34.2 percent of housing units single-family, owner-occupied homes. In 2001, there were 23,304 housing units in Yuba County, an increase of nine percent from the 1990 amount of 21,245 units (SACOG 2001, U.S. Census 1990, 2000a, 2000b). With the increases in population projected by SACOG, the number of housing units is expected to grow 129 percent above 2001 levels by 2035, to 53,460 units. (SACOG 2008b) The proposed project alignment will run adjacent to residential development in Sutter County, primarily single family residences.

Sutter County

Sutter County is located along the Sacramento River in the California Central Valley, north of Sacramento. According to the U.S. Census Bureau, the county has a total area of 609 square miles. The county's primary land use is agricultural. In 2000, Sutter County had 78,930 persons and 28,319 housing units (U.S. Census 2000a, 2000b), increasing to 80,900 and 28,912, respectively, in 2001 (SACOG 2001).

Population

By 2035, population and housing are expected to increase significantly in Sutter County to 125,597 persons and 48,918 housing units respectively (SACOG 2008b). This growth would represent a 69 percent increase in population from 2001 levels.

Housing

In 2000, the average household size of Sutter County was 2.87 persons, with 49.4 percent of housing units single-family, owner-occupied homes (U.S. Census 2000a, 2000b). In 2001, there were 28,912 housing units in Sutter County, an increase of 19 percent from the 1990 amount of 24,163 units. With the increases in population projected by SACOG, the number of housing units is expected to grow 69 percent above 2001 levels by 2035, to 48,918 units. (SACOG 2008b) The proposed project alignment will run adjacent to residential development in Sutter County, primarily single-family residences.

Impact Analysis

Methods

Existing conditions were determined from a review of published literature, examination of aerial photographs, and site-specific field inspection of the

locations of project components. The U.S. Census Bureau and SACOG provided statistical data on affected county and city populations and housing.

Significance Criteria

For this analysis, an impact pertaining to population and housing was considered significant under CEQA if it would result in any of the following environmental effects. These criteria are based on Appendix G of the State CEQA Guidelines (*14 CCR 15000 et seq.*).

- 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).
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.
- Displace substantial numbers of people necessitating the construction of replacement housing elsewhere.

Impacts and Mitigation Measures

Impact PH-1: Potential to 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)—less than significant

Construction Impacts:

The project will provide short-term construction employment, but no additional permanent workers who would require new housing. Construction will require a minimal amount of workers over a limited time period. It is not anticipated that the limited, temporary construction employment would result in long-term growth in the area. Some need for temporary accommodations could arise at times during construction. This would result in a less than significant impact due to the existence of hotel and motel accommodations within the project vicinity.

Operational Impacts:

No direct growth-inducing impacts would occur because the project would not result in the significant increase of local population or housing, and would not indirectly induce growth by creating new opportunities for local industry or commerce. The project involves the reconstruction of an existing transmission line, which would have the effect of increasing transmission capacity in the area, which could accommodate additional economic or population growth. However, because the project is designed to increase reliability and accommodate existing and planned electrical load growth, it is growth accommodating, rather than growth inducing.

Growth in the area is planned and regulated by city and county general plans, which contain land use policies to protect the region's open spaces and agricultural traditions, and to control urban development. The project is designed to meet immediate and projected electrical power needs in the Butte-Yuba-Sutter service area based on current and projected future demand.

Like other utilities and public service providers, PG&E plans and upgrades its electrical facilities incrementally based on growth projections provided by local government agencies. These growth projections reflect economic and residential developments that are planned and approved by city and county governments, which have authority over land uses.

Local planning policies and zoning regulations have the biggest influence in controlling the pace and ultimate amount of growth in this area. In addition, electricity is not a key factor in land use planning in this area and is not the main obstacle to growth. The availability of electrical capacity by itself does not normally ensure or encourage growth within a particular area, and would not in any case be a "substantial" driver of future growth.

Other factors such as economic conditions, land availability, population trends, water supply availability, sewer capacities, and local planning policies have a more direct effect on growth than the availability of services. Therefore, the proposed project would not induce substantial population growth in the project area and this impact would be less than significant impact.

Impact PH-2: Potential to displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere—no impact

The proposed transmission line would traverse an existing PG&E transmission line easement and travel through open space, grazing lands, residential areas and agricultural lands. Currently, no houses are located within the alignment path or PG&E easements. No PG&E easements will need to be adjusted or acquired. All work will take place within existing PG&E right-of-way, and construction would be temporary. The proposed project would not require removal or displacement of any housing, and would thus not necessitate the construction of replacement housing elsewhere.

Impact PH-3: Potential to displace substantial numbers of people necessitating the construction of replacement housing elsewhere—no impact

The proposed transmission line would traverse an existing PG&E transmission line easement and travel through open space, residential areas, ranches, and agricultural lands. Currently, no houses are located within the alignment path or PG&E easements.

No PG&E easements will need to be adjusted or acquired because all work will take place within existing PG&E right-of-way, and construction would be temporary. The proposed project would not result in the displacement of existing housing; therefore, the project would not result in the displacement of people.

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Introduction

This section describes the affected environment and regulatory setting for public services. It also describes potential impacts on public services such as fire protection and police protection that could result from implementation of the project, and concludes that any impacts to public services would be less than significant. Because the proposed project will not result in additional permanent employees for operations or maintenance and because it is an existing facility, demand for school services will not be increased and there will be no impact on schools. Therefore, schools will not be discussed further in this section.

Existing Conditions

Regulatory Setting

No state or federal regulations related to public services apply to the proposed project.

Local Regulations

Although the proposed project will not be subject to local planning regulations, the following local regulations related to public services are provided for informational purposes.

Butte County

Butte County General Plan

Relevant goals and policies of the Butte County General Plan (Butte County, 2000) are as follows.

Safety Element

Policy 1.1: Make protection from fire hazards a consideration in all planning, regulatory, and capital improvement programs, with special concern for areas of “high” and “extreme” fire hazard.

Implementation Policy 1.1: Consider fire hazards in all land use and zoning decisions, environmental review, subdivisions review and the provision of public services.

Policy 2.1: Encourage adequate fire protection services in all areas of population growth and high recreation use.

Implementation Policy 2.1: Identify present and future limits of adequate fire protection services. Guide development to those areas through zoning and development review processes.

Policy 7.1: Ensure that road access for new development is adequate for fire protection purposes.

Implementation Policy 7.1: Develop standards for widths, grades, and curves of new roads to permit passage and maneuvering of emergency vehicles. Require multiple access where feasible.

Land Use Element

Policy 7.1.a: Consider fire hazards in all land use and zoning decisions, environmental review, subdivision review and the provision of public services.

City of Oroville

City of Oroville General Plan

Relevant goals and policies of the City of Oroville General Plan (City of Oroville 1995) are as follows.

Objective 8.30a: Work to prevent wildland and urban fire, and protect lives, property, and watershed from fire dangers.

Implementing Policy 8.30b: Within the built areas of the City, strive to comply with ISO recommendations for fire engine response.

Implementing Policy 8.30c: Within developed portions of the Planning Area, enforce fire protection standards as adopted by the Oroville City Council.

Yuba County

Yuba County General Plan

The Yuba County General Plan (Yuba County, 1996) states the following regarding public services:

Public Services Element:

Most or all law enforcement agencies in Yuba County have favorable staffing ratios, well above the standard of one sworn officer per 1,000 population. With the rate of development within the county increasing, these ratios can drop quickly, placing a relatively greater burden on law enforcement agencies to provide adequate public protection.

It is essential to plan for adequate law enforcement protection in the face of such growth. Thus it is necessary that every appropriate law enforcement agency be given an opportunity to comment on Notices of Preparation, Initial Studies, Negative Declarations, and Draft EIRs for all projects pending within their jurisdictions.

If such agencies, in their responses to these CEQA documents, comment that a project will adversely affect their service capabilities, the Lead Agency must assume that law enforcement services will face project-related impacts that must be mitigated. Mitigation is best accomplished by means of a fee structure to which the developer should make an appropriate contribution.

Safety Element:

As growth occurs, fire protection service in Yuba County will decline without means to fund expanded services. It is unlikely that the increases in property assessments alone will cover future costs. The impact new development has on fire protection capability must be carefully weighted to assure that service levels do not decline for existing property and that unreasonable risks are not created for developing properties.

East Linda Specific Plan

The East Linda Specific Plan (Yuba County 1990) states the following regarding public services.

Fire Protection Services:

The Linda Fire Station is adequate to serve the needs of both the existing community of Linda as well as the anticipated growth within the East Linda Specific Plan area, thus no new station is proposed. If the Fire Department should determine that a new station is needed at some point in the future, there are a number of potential sites; a station could be located on North Beale Road adjacent to the community center, for example, or on Hammonton Smartville Road adjacent to the community park. New development, however, will necessitate installation of fire hydrants and water main extensions, to be paid for by individual developers, and fees to offset costs of purchasing additional fire-fighting equipment.

Police Protection Services:

The East Linda Specific Plan area is served by the Yuba County Sheriff department, which is responsible for providing law enforcement throughout the unincorporated areas of the County. No sheriff substations are proposed, however, as in the case of the fire station, if the Sheriff Department should determine that a substation is needed at some point in the future, there are a

number of potential sites. Additional sheriff personnel and equipment such as vehicles will be required to serve the increased population.

Plumas Lake Specific Plan

The Plumas Lake Specific Plan (Yuba County 1993) states the following regarding public services.

Fire Protection Services:

Currently, the Plan area has a Fire Service Rating of 8 which indicated a poor level of service common to rural areas. The existing urbanized portion of Olivehurst is rated at 5 by comparison. It will be necessary for the fire districts to consider the development of at least one station in the southern portion of the Plan and manpower and equipment to staff it. Manpower and equipment needs will also need to be reevaluated for the existing station in the north area. Equipment and response times should be designed to maintain at least the service rating that prevails in comparable urban areas served by each respective district.

Police Protection Services:

The Sheriff's Department has expressed an interest in the concept of mini-stations to be located within the community. A potential exists for the establishment of "store-front" stations in some of the commercial centers that are planned... The Sheriff's Department and Board of Supervisors should evaluate store-front substations in light of the potential for improved community participation and support, potential for relief of congestion at the main facility and also in terms of potentially higher costs.

Should the Board of Supervisors and department support the concept, assistance through dedicated facilities in this Plan should be pursued. The mitigation for increased demands for police protection cause by the development of new commercial centers can be partially satisfied through contributions from the developers of commercial centers in providing space within the center for the store-front substation.

Sutter County

Sutter County General Plan

Relevant goals and policies of the Sutter County General Plan (Sutter County, 1996) are as follows.

Public Facilities and Services Element:

Goal 3.F: To protect the citizens of Sutter County from criminal activity and deter the incidence of crime.

Policy 3.F-1: The County shall maintain a sheriff force to protect the citizens and property within Sutter County.

Policy 3.F-2: The Sheriff's Department shall encourage community based crime prevention efforts, and pursue regular communication with neighborhood and civic organizations.

Goal 3.G: To minimize the risk of personal injury and property damage resulting from fire and provide for emergency medical response when, and to the extent, determined appropriate by the governing body.

Policy 3.G-1: The County shall continue to coordinate operations between fire service agencies to provide optimum protection and utilization of all fire suppression resources.

Policy 3.G-2: The County will strive to ensure that all proposed development applications are reviewed for compliance with adopted fire safety standards.

Policy 3.G-3: The County shall continue to promote standardization of operations among fire protection agencies and improvement of fire service levels.

Environmental Setting

The proposed project includes portions of Butte County, Yuba County, and Sutter County. In Butte County, the city of Oroville lies in the vicinity of the project area. Details related to the various jurisdictions are outlined below.

Butte County

Fire Safety

The Butte County Fire Department operates 42 fire stations, 64 fire engines, one ladder truck, two heavy rescues vehicles, 16 water tenders, and two bulldozers. Two different stations in the Department would serve the portions of the project area located in Butte County (Fowler, pers. comm.).

Station 72—Palermo

Station 72 is located at 2290 Palermo Road in the unincorporated town of Palermo, and would serve the portion of the project area within the vicinity of Palermo. Two permanent personnel staff Station 72 24 hours a day, seven days a week. While no volunteer firefighters serve the immediate area, approximately five in the geographic area sometimes assist Station 72 with their duties.

The station houses one engine that is often used to assist Station 74 with its duties. The estimated response time to the portion of the project area served by Station 72 would be four minutes maximum (Fowler, pers. comm.).

Station 74—Gridley

Station 74 is located at 47 East Gridley Road in the unincorporated town of Gridley, and would serve the project area from south of Palermo to the Yuba County border. The Station is staffed by four personnel: two are assigned to each of the station's two engines, 24 hours a day, seven days a week. The station also has a ladder truck. Station 72 assists Station 74 with calls, meaning that three engines often arrive on site to high-priority incidents. Station 74's response time

to the project area would be approximately nine to 10 minutes (Fowler, pers. comm.).

Police Protection

The Butte County Sheriff serves the project area in unincorporated Butte County. The Sheriff's main office location is 33 County Center Drive in Oroville. A substation also lies within the vicinity of the project area at 2094 Palermo Road in Palermo. However, the Palermo substation is unmanned and exists primarily for department staff performing office-related work rather than answering calls. Depending on an incident's proximity to the City of Oroville, the Butte County Sheriff's Office might contact the Oroville Police Department to assist with a call.

The number of officers patrolling the area in the project vicinity would depend on the time of day. Four deputies and a sergeant patrol the County during the day. After 3 a.m., staffing drops to two deputies and a sergeant. Call response time is difficult to predict because the patrolling officers' locations vary widely. If officers aren't already handling a call when a new call comes in, response times to the project area could be several minutes. If officers are handling calls, however, response time to the new call could be significantly longer (Wetter, pers. comm.).

City of Oroville

Fire Safety

The City of Oroville Fire department has 21 full-time personnel and 12 paid on-call firefighters. Butte County Fire Station 72 would serve the project area within the limits of the City of Oroville. Two firefighters currently staff the station, located at 2290 Palermo Road. The number could increase to three firefighters, depending on the outcome of a state funding issue related to the provision of fire services to the Feather Falls Casino area.

The station has one front-line engine, a reserve engine, a water tender, and a squad truck, which is a pick-up truck that carries a wide variety of fire-fighting tools. The estimated response time of Station 72 staff to the portion of the project area within the Oroville city limits would be between two and five minutes (Silva, pers. comm.).

Police Protection

The Oroville Police would respond to calls related to the project area within Oroville city limits. The Oroville Police Department headquarters is located at 2055 Lincoln Street in Oroville and is staffed by 23 sworn police officers,

although it is budgeted for 27 police officers. Support staff are also housed in the Department's headquarters. Response times to the project area would depend on the number of other calls already being handled, proximity of a patrol to the project area at the time, and the nature of the call (Briel, pers. comm.).

Yuba County

Fire Safety

According to the Yuba County Office of Emergency Services, the following four fire stations would serve the project area (Bryan, pers. comm.).

Olivehurst Fire Department

The Olivehurst Fire Department is located at 1962 Ninth Avenue in the unincorporated town of Olivehurst. The Department is staffed by four captains, a chief, and seasonal employees. The Station is equipped with four engines, one ladder truck, and one brush rig. The Department is charged with protecting the small portion of the project area that traverses the unincorporated town of Olivehurst. The Department estimates a response time of 30 seconds for the portion of the project area for which it is responsible (Miller, pers. comm.).

Linda Fire Department

The Linda Fire Department provides fire protection and emergency medical services to a 52-square-mile area, covering the unincorporated towns of Linda, Arboga, and Plumas Lake. Station 5, located at 1286 Scales Avenue, Marysville, would be responsible for providing fire protection to the project area that traverses the Linda Fire Department's service area. This area includes Peach Tree Golf Course, Yuba College, and the project area along California State Route 65 to the McGowan Parkway Interchange.

Station 5 is staffed by 13 full-time firefighters, a paid chief, a chief's assistant, and a full-time secretary. Station 5 also includes an engine, a water tender and a rescue rig. The Department's estimated response time to the project area is three minutes (Taylor, pers. comm.).

Wheatland Fire Department

The Wheatland Fire Department has three stations that serve the southern portion of Yuba County. Station 1, located at 4514 Darry Road in Wheatland, would serve the project area that passes through the area served by the Wheatland Fire Department. One full-time chief, one full-time captain, and 25 volunteers serve all three stations. The estimated response time to the project area would vary between four to nine minutes depending on the distance from the Station. (Paquette, pers. comm.).

Marysville Fire Department

The Marysville Fire Department serves residents of an 85-square-mile area that includes Marysville, Hallwood, and surrounding areas, and it responds to approximately 2,500 emergency calls a year. The station located at 107 Ninth

Street in Marysville would serve the project area north of Marysville to the Butte County border. The station is staffed by one battalion chief, one fire captain, and two fire apparatus engineers, all of whom are on duty daily. The department also has an active complement of 15 volunteer firefighters. The station houses two engines, a ladder truck, and a water tender. Response time to the project area is estimated to be 15 minutes (Willeges, pers. comm.).

Police Protection

The Yuba County Sheriff serves the project area falling within Yuba County. The Sheriff's Department is headquartered at 215 Fifth Street, Suite 150, in Marysville, and is staffed by 55 patrol personnel. These personnel patrol the entire county, with seven patrols running during most of the day and five to six patrols running during the graveyard shift. The estimated response time depends on the type of call received. If the call is the highest priority—a priority-one call—average response time is approximately nine minutes. Response time for the lowest priority call could be as long as thirty minutes (Reed, pers. comm.).

Sutter County

Fire Safety

The East Nicolaus Fire Department, located at 1988 Nicolaus Avenue in the unincorporated town of East Nicolaus, would serve the portion of the project area located in Sutter County. The station is staffed by 12 volunteer firefighters. None of these volunteer firefighters staff the station on a regular basis, but instead are on-call, responding to incidents as needed. One paid firefighter is staffed at the station during harvest season, which runs from June to the end of October. During this period, this firefighter is on duty from 8 a.m. to 5 p.m.

The station has three engines and a water tender. Response time would vary depending on the call's location. The maximum estimated response time is 16 minutes. Certain volunteer firefighters could arrive at the incident sooner if they live close to the incident. In addition, if the incident is close to the Yuba County border, the East Nicolaus Fire Department could ask for assistance from the Wheatland Fire Department, which might also reduce response time (Herrington, pers. comm.).

Police Protection

The project area would be served by the Sutter County Sheriff. The Sheriff's Department headquarters are located at 1077 Civic Center Boulevard in Yuba City. The Department is staffed by 30 law enforcement deputies and some K-9 units. Because the deputies patrol throughout the county, response time to the project area would depend on patrols running at the time of the incident, the

nature of the incident, and the incident's proximity to Yuba City because the Sheriff's Office sometimes utilizes Yuba City Police officers to assist with calls. Given these factors, response time to the project area could vary from 15 to 30 minutes (Loyd, pers. comm.).

Impact Analysis

Methods

Existing conditions were determined from a review of published literature, examination of aerial photographs, personal communication with city and county departments, and site-specific field inspection of the locations of project components.

Significance Criteria

For this analysis, an impact pertaining to public services was considered significant under CEQA if the project would result in any of the following environmental effects. These criteria are based on Appendix G of the State CEQA Guidelines.

- Substantial adverse physical impacts associated with the provision of 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 these public services.
 - Fire protection.
 - Police protection.
 - Schools.

Impacts and Mitigation Measures

Impact PS-1: Potential for substantial adverse physical impacts associated with the provision of 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, and schools—less than significant

Potential impacts related to public services are confined to the construction period because the power line has been in operation in the project area for a substantial period of time, and the proposed project involves modifying existing infrastructure. Because the proposed project will not result in additional permanent employees for operations or maintenance and is an existing facility, there will be no increased demand for school services and no impact on schools.

Operations of the proposed project will not result in a change to the provision of fire protection, emergency medical services, or police protection. There will be no increase in operation or maintenance employees. Operation will not require any jurisdiction to add emergency staff or facilities to support the project.

During operation, emergency response to the proposed project area will be needed in the event of live wires falling within public areas, or vandalism, as is the case today. The first available emergency unit from the jurisdictions outlined in this document response to the proposed project area will be by the first available emergency unit. The current maximum response time to the project area for fire services is 15 minutes. For police services, it is up to 30 minutes for the entire project area. These response times are an existing condition. In addition, the 30-minute maximum is based on the distance from station locations to the project area. It is likely that police staff will be patrolling the unincorporated areas of the three affected counties, as well as the city of Oroville. Therefore, it is more likely that police response times to the proposed project area will be less than the 30-minute maximum.

Construction may involve temporary lane closures during the construction period. Temporary increases in traffic during construction and the presence of construction equipment may also affect response times of emergency vehicles.

Additionally, emergencies could occur related to construction worker injuries that would require emergency response services. PG&E has existing safety plans in place for construction of this nature and will coordinate with local agencies in the event that required lane closures may impede emergency services. Proposed measures to address these issues—APM-HAZ-5, Prepare a health and safety plan, and APM-HAZ-6, Develop and implement a fire risk management plan—are described in Section 4.7, *Hazards and Hazardous Materials*.

As part of the established maintenance procedures, the power line will be inspected by a maintenance troubleman, who will look for any vandalism, safety, security, maintenance, and reliability issues along the alignment.

On both tubular steel poles and wood poles, the first climbing steps or pegs are located approximately 10 to 12 feet above the ground to prevent unauthorized structure access from the ground. PG&E will continue to implement the existing protection scheme, and continue to employ a maintenance troubleman to inspect the facilities.

The PG&E protection scheme also detects disturbances on the line. When a disturbance is detected by the relays, the location of the disturbance is identified by the relays and the troubleman visits the disturbed area to determine the cause of disturbance. The existing risk of unauthorized access associated with the 115 kV power line are addressed in PG&E's routine operations and maintenance procedures. All impacts to public services from project construction and operation would be less than significant. Nevertheless, because the potential for vandalism or terrorism activities could increase during construction, the applicant proposes the following measures as part of routine PG&E construction procedures.

APM PS-1: Maintain secured facilities during construction activities

PG&E will implement the following measures during construction activities.

- All unattended equipment will be locked and secured at the most secure locations available.
- Contract security will be made available for use at active pull/tension sites, laydown, and storage areas outside work hours.
- All open holes will be covered and secured once activity at that location stops (after hours).
- Anchor bolts on foundations without structures will be capped.
- Safety structures will be placed at road crossings during overhead wire installation activity to protect traffic and pedestrians.

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Impact PS-1: Potential for substantial adverse physical impacts associated with the provision of 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, and schools—less than significant	4.13-10
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Introduction and Methodology

This section describes the affected environment and regulatory setting for recreation. It also describes the impacts on recreation that would result from implementation of the proposed project, and concludes that there will be no impacts on recreation from project construction operation.

Existing conditions were determined from a review of published literature, examination of aerial photographs, and site-specific field inspection of the locations of project components.

Regulatory Setting

State

There are no state-regulated plans or polices for recreation that relate to the proposed project.

Local Regulations

Although PG&E is not subject to local land-use regulations, the following overview of local regulations relating to recreation is provided for informational purposes, especially for information on the allowed recreational uses in the vicinity of the project.

Butte County General Plan

The goals and polices of the Butte County General Plan that relate to the recreational resources in the project vicinity are as follows (Butte County 2000).

Recreation Element:

Goal 1: That recreational activities be provided which will satisfy the needs and desires of all age groups; pre-school children, school age children, teenagers, adults, and senior citizens.

Goal 2: That sites with outstanding recreational value be reserved for public parks and recreational use to avoid their development with less suitable and beneficial land-uses.

Goal 3: That the County encourage the development of private and commercial recreation facilities—such as golf courses, swimming pools, tennis clubs, camping and boating facilities etc.—in order that they may help meet existing and future leisure time needs.

City of Oroville

The goals and polices of the City of Oroville General Plan that relate to the recreational resources in the Project vicinity are as follows (City of Oroville 1995).

Public Facilities and Services Element:

Objective 7.10a: Strive to create a high-quality, diversified public park system that provides adequate and varied recreational opportunities conveniently accessible to all present and future residents, and that enhances Oroville's unique attributes.

Implementing Policy 7.10m: Encourage preservation of natural areas outside the Planning Area.

Yuba County General Plan

The goals and polices of the Yuba County General Plan that relate to the recreational resources in the Project vicinity are as follows (Yuba County 2008).

Land Use, Circulation, Open Space and Conservation Elements:

Land Use Goal 3: Assure that necessary infrastructure and public services are available to serve present and future residents.

Land Use Goal 6: Preserve open space which is physically accessible to the public as development occurs.

Land Use Objective 36: Avoidance of loss of public access to open space areas in new development.

Land Use Policy 140: The natural resources upon which the county's basic economy (recreation, agriculture, mining, tourism) shall be protected.

Yuba County Parks Master Plan

The goals and polices of the Yuba County Parks Master Plan that relate to the recreational resources in the project vicinity are as follows (Yuba County 2008).

Vision, Goals and Objectives:

Goal 1: Maximize local resources for parks and recreation.

Objective 1b: Encourage and actively pursue cooperation between governmental agencies, nonprofit organizations, and private business in providing park and recreation services.

Objective 1d: Provide a quality park, recreation, natural open space, and trail system that is efficient to administer and cost-effective to maintain.

Objective 1e: Provide a diverse range of recreation programs and services to serve multiple ages, populations, and interests.

Goal 4: Preserve and promote enjoyment of Yuba County's natural character.

Objective 4a: Provide trails that appropriately access key natural areas.

Objective 4b: Preserve land that reflects the diversity of habitats and scenery present in Yuba County.

Objective 4c: Use natural areas for multiple purposes, including buffering land uses, managing stormwater, habitat, and recreation use.

East Linda Specific Plan

The East Linda Specific Plan states the following related to the recreational resources in the project vicinity (Yuba County 1990).

Open Space and Conservation Element

There are presently two parks located in Linda, one in West Linda and another in East Linda, located east of Grove Avenue just west of the Country Club Park tract. East Linda Park is owned by the County, and maintained by the Linda County Water District. The park is improved with turf playing fields and children's play equipment, but contains few trees or other amenities.

The Specific Plan provides five parks, including one community-wide park and four neighborhood parks... These park facilities provide 75.2 acres of parkland at the equivalent of 4.8 acres per 1,000 residents, and are supplemented by the recreation facilities at the school sites and along the floodway/bikeway easements.

Plumas Lake Specific Plan

The Plumas Lake Specific Plan states the following related to the recreational resources in the project vicinity (Yuba County 1993).

Parks and Recreation:

The Olivehurst Public Utility District (OPUD) operates limited parks and recreation program [sic] within their jurisdiction to north of the Specific Plan. A proposed major reorganization to extend services throughout the Plan area is planned. At the time of development of this Plan, OPUD operated 12 acres of parks to serve its resident population of approximately 10,000. This ratio of 1.2 acres of park land per 1000 population is far below the standard of 5 acres per 1000 population established by policy of Yuba County. The Plumas Lake Specific Plan will meet or exceed the higher standard.

The overall plan for the parks system roughly parallels the concept for providing commercial services. That is, a hierarchy of parks shall be developed which serve the need for both quiet retreat and spontaneous recreation and for more elaborate, organized sports. The major elements of this concept are parks for both the neighborhood and community scale.

Sutter County General Plan

The goals and polices of the Sutter County General Plan that relate to the recreational resources in the Project vicinity are as follows (Sutter County 1996).

Conservation/Open Space—Recreation and Cultural Resources Element:

Goal 5A: To provide adequate park and open space areas for passive and active recreational, social, educational, and cultural opportunities for the residents of Sutter County.

Policy 5.A-1: The County shall strive to maintain and improve the distribution of local and regional parks to support the recreational needs of Sutter County residents.

Environmental Setting

This section discusses the existing conditions related to recreation, including public and private recreational facilities in the study area.

Federal

There are no federal recreational facilities located in the immediate vicinity of the proposed project.

State

There are no state recreational facilities located in the immediate vicinity of the proposed project.

Local

Butte County

There are no public recreational facilities located in the immediate vicinity of the proposed project that are within the jurisdiction of Butte County. Wyman Creek, a 495-acre private game bird hunting club, is located at 320 Middle Honcut Road, an area where a wild pheasant population exists that is supplemented with released pen-raised birds. Members seasonally hunt pheasant hens and roosters. The club's entrance is located directly west of Tower 79, and in the general vicinity of Towers 78 and 80. No towers will be replaced within the boundaries of the club.

Oroville

There are no public recreational facilities located in the immediate vicinity of the proposed project that are within the jurisdiction of the City of Oroville.

Yuba County

There are no public recreational facilities located in the immediate vicinity of the proposed project that are within the jurisdiction of Yuba County. A private recreational facility, Peach Tree Golf and Country Club, covers approximately 200 acres and is located at 2043 Simpson Dantoni Rd. Its membership is derived by an invitation-only process. The club consists of an 18-hole golf course, a clubhouse, men's and women's locker rooms, a pro shop, a ballroom, a dining room, and a banquet room. Tower 185 lies within the boundaries of the club, where an existing tower would be replaced with a new pole. Towers 184 and 186 are in the general vicinity of the club.

Sutter County

There are no public recreational facilities located in the immediate vicinity of the proposed project that are within the jurisdiction of the City of Oroville.

Environmental Effects

This section describes the impact analysis relating to recreation for the proposed project. It describes the methods used to determine the impacts of the project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (i.e. avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion.

Significance Criteria

For this analysis, an impact pertaining to recreation was considered significant under CEQA if it would result in any of the following environmental effects (analysis was based on State CEQA Guidelines, Appendix G [14 CCR 15000 et seq.]).

- Increase the use of existing neighborhood and regional parks or other recreational facilities so that substantial physical deterioration of the facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Impacts and Mitigation Measures

Impact REC-1: 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

Increases in overall permanent demand for recreational facilities are typically associated with substantial increases in population, either through the construction of new residences or the creation of a major job generator that will indirectly increase the number of residents in an area. Implementation of the proposed project would not result in a substantial increased demand for recreational facilities nor adversely affect the current recreational resources in a permanent manner. There would be no impact.

Impact REC-2: Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment—no impact

The proposed project would not require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment. There would be no impact.

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Section 4.15

Transportation and Traffic

Introduction

This section describes existing transportation conditions in the study area and evaluates potential transportation impacts associated with construction and operation of the proposed project.

In summary, the project would not conflict with adopted transportation policies. Although existing traffic conditions would be temporarily affected during project-related construction, impacts on traffic and transportation would be less than significant.

Existing Conditions

Regulatory Setting

Roadways in the project area are under the jurisdiction of state and local agencies. State jurisdiction includes permitting and regulation of the use of all state highways, while local jurisdiction includes implementation of state permitting, policies, and regulations, as well as management and regulation of local roads. Applicable state and local laws and regulations related to traffic and transportation issues are discussed below.

Federal

No federal plans or policies related to transportation or traffic apply to the project.

State of California

California Government Code (*CGC*) 65300 requires each local government to include a Circulation Element as part of its general plan. The Circulation Element must address the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports,

and other local public utilities and facilities, and must be correlated with the land use element of the plan (*CGC 65300*).

In addition, the California Department of Transportation (Caltrans) manages interregional transportation, including management and construction of California's State Highway System. Caltrans is also responsible for permitting and regulation of the use of state roadways.

Local Regulations

Although PG&E is not subject to local land-use regulations, the following overview of local regulations relating to cultural resources is provided for informational purposes. PG&E's project will comply with County standards in this area.

Butte County

Butte County General Plan

The Butte County General Plan 2030 is anticipated to be adopted by May 2010. A public draft is anticipated to be available approximately mid-2009 (Dan Breedon, pers. comm. 2008). Relevant policies of the existing Butte County General Plan Circulation Element (1984) are listed here.

Policy 1.1.5: Construction of additional gas and petroleum products pipelines and electrical transmission lines shall occur along existing utility corridors.

Policy 4.1.2: Rural arterial road and highway traffic capacity levels should be planned to provide LOS [level of service] B, and be considered to be providing acceptable service at LOS C when fiscal, environmental, or site constraints are prohibitive;

Policy 5.1.1: All road systems, both public and private, shall provide for the safe evacuation of residents and adequate access for fire and other emergency services by providing at least two means of emergency access to an interconnected collector system.

Policy 8.1.1: Urban street and highway traffic capacity levels should be planned to provide a level of service C, and be considered to be providing acceptable service at LOS D when fiscal, environmental, or site constraints are prohibitive.

City of Oroville

City of Oroville General Plan

Relevant policies of the City of Oroville General Plan (City of Oroville 1995) are as follows.

Policy 5.10e: Strive to maintain LOS C for all arterials and collector streets except the following where LOS D should be maintained:

- Table Mountain Boulevard between the Feather River and Grand Avenue;
- Oroville-Quincy Highway east of Oroville Dam Boulevard; and
- Orange Avenue east of Oroville Dam Boulevard.

Forecasts from the Butte County Association of Governments (BCAG) traffic forecasting model used in the preparation of the Oroville General Plan indicated that all areas of the city, other than the above, can be mitigated to achieve LOS C. The forecasts indicate that all of the above can be mitigated to LOS D. The costs and impacts associated with mitigating the above list to LOS C are considered unreasonable, and a service level standard of D was thus established for these locations.

Yuba County

Yuba County General Plan

The Yuba County General Plan Update is anticipated to be adopted in the fall of 2009 (Tony Gon, pers. comm. 2008). The 1996 Circulation Element contains the following relevant policies (Yuba County 1996):

Policy 15-CP: Prior to final action on any development project, the impact that the proposed development project will have on the local road system shall be determined and mitigation incorporated into the project to assure that the established level of service is maintained.

Policy 21-CP: The County shall utilize the following level of service thresholds for roadways within the county:

- On County roads in urban areas and within specific/community plan areas, level of service "C" shall be maintained during the PM Peak Hour at signalized intersections. The procedures outlined in Transportation Research Board Transportation Research Circular No. 212 shall be used to establish peak hour level of service.
- On County roads in rural areas, level of service "C" shall be maintained. The procedures outlined in the most recent Highway Capacity Manual shall be used to establish peak hour level of service.
- On State highways, the level of service goals included in the adopted Yuba-Sutter Congestion Management Plan shall be maintained. An exception to this policy is set forth in Section 6.2 of this General Plan. When the exception described therein applies, the County shall take appropriate action to assure that LOS is maintained as close to LOS "C" as is feasible.

Policy 24-CP: All development project proposals shall be reviewed for compliance with the goals, objectives and policies contained in this Circulation Element.

Policy 29-CP: Applications for development projects that may have impacts on State highways shall be referred to Caltrans for comment.

Policy 37-CP: New development projects shall be evaluated to determine the impact such development will have on future and existing residential streets and whether such development will exceed LOS or other standards established by the General Plan.

Policy 42-CP: When feasible alternatives exist, it shall be the policy of the County to avoid directing additional traffic to streets which cross residential neighborhoods.

Sutter County

Sutter County General Plan

The Sutter County General Plan is planned to be adopted by early 2010 (Steve Geiger, pers. comm. 2008). The current Sutter County General Plan Transportation and Circulation Element (Sutter County 1996) contains the following relevant policies:

Policy 2.A-4: The County shall strive to develop and manage its roadway system to maintain a minimum level of service D (LOS D);

Policy 2.A-5: The County's level of service standards for the state highway system shall be those standards adopted in the Bi-County Congestion Management Plan;

Policy 2.A-6: The County shall require all new development projects to analyze their contribution to increased traffic and to implement improvements necessary to address the increase.

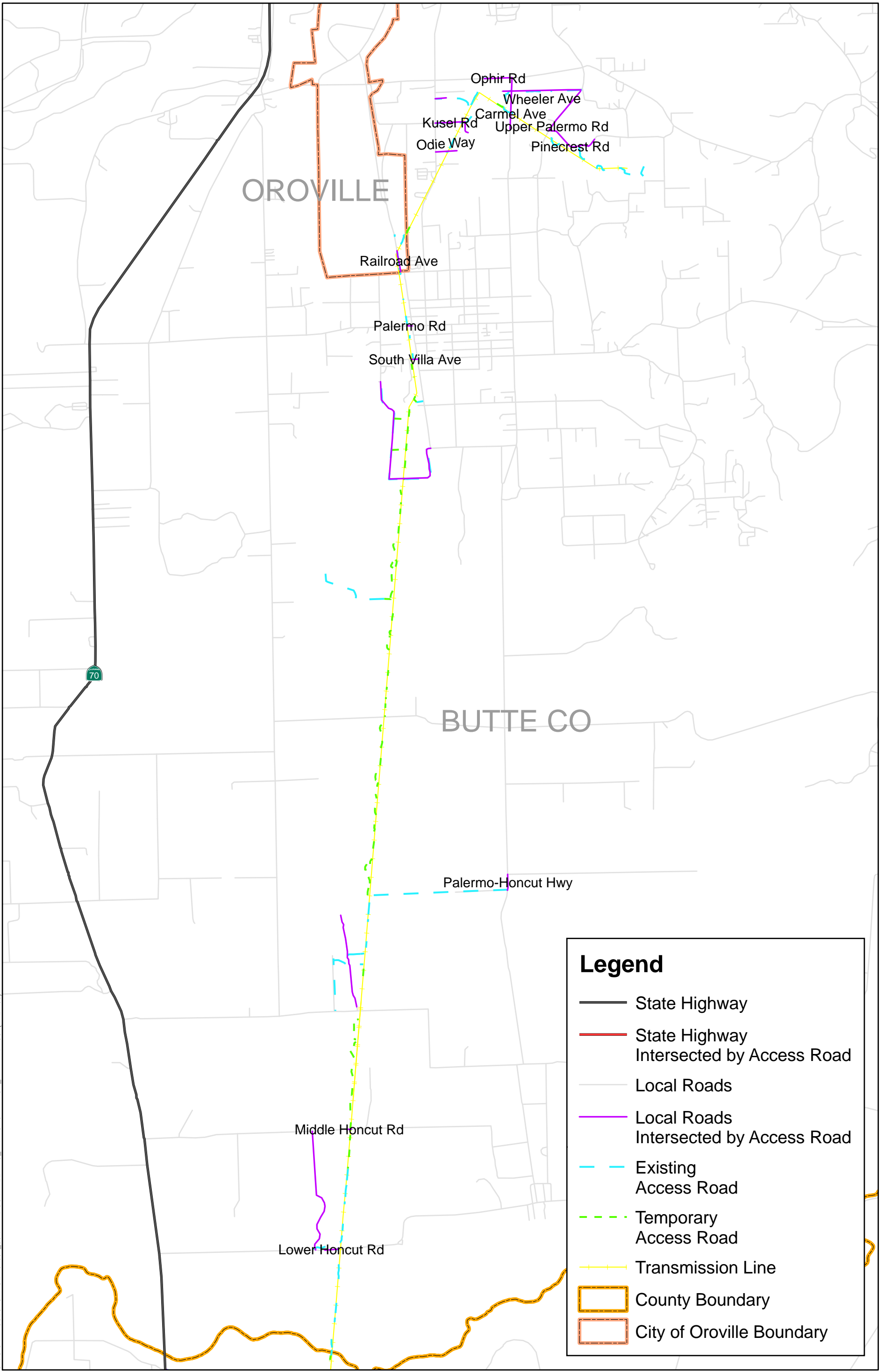
Environmental Setting

The project study area is defined as land within a 500-foot corridor of the two line segments. The project study area is located within unincorporated areas of Butte, Sutter, and Yuba Counties, and the City of Oroville. Access roads to be used in project implementation are described below.

Butte County

As shown in Figure 4-15.1, the project uses the following County roadways in Butte County: Carmel Avenue; Lower Honcut Road; Middle Honcut Road; Odie Way; Ophir Road; Palermo Road; Palermo-Honcut Highway; South Villa Avenue; Upper Palermo Road; Kusel Road; Pinecrest Road; and, Wheeler Avenue.

Lower Honcut Road, Palermo Road, Palermo-Honcut Highway, and Upper Palermo Road have a 2003 and projected (up to year 2025) LOS C or better (Butte County Association of Governments. 2004).



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Figure: 4-15.1
Roadways Traversed or Crossed in Butte County

The remaining listed roadways (Middle Honcut Road, Odie Way, Ophir Road, South Villa Avenue, Kusel Road, Pinecrest Road, and Wheeler Avenue) were not identified as having a 2006 peak-hour LOS below C in the County's Setting and Trends report, which shows 2006 peak-hour LOS for local roads of regional significance that connect population centers with industrial, commercial, recreational and other important uses. (Butte County. 2007).

City of Oroville

The project uses Railroad Avenue in the City of Oroville which is not operating below LOS C (City of Oroville 1995).

Yuba County

As shown in Figure 4-15.2, the project uses the following county roadways in Yuba County: Cecilia Way, Jack Slough Road, Kimball Lane, Plumas Arboga Road, Simpson Lane, Speckert Road, and Sutter Street. In addition, the project uses State Highway 20, State Highway 65, and State Highway 70.

All county study roads currently operate at LOS C or better during the p.m. peak hour, with the exception of a portion of Simpson Lane which operates at LOS D during p.m. peak-hour traffic volumes. (Yuba County 2007).

Segments of State Highway 20 east of Marysville used by the project operate at LOS D during a.m. peak-hour traffic volumes, which is considered acceptable for that segment. The segments of State Highway 65 and State Highway 70 used by the project operate at LOS C or better during PM peak-hour traffic volumes. (Yuba County. 2007).

Sutter County

As shown in Figure 4-15.3, the project uses the following county roadways in Sutter County: Cornelius Avenue, Pacific Avenue, Rio Oso Road, and Watts Avenue.

Sutter County has adopted LOS D as the minimum acceptable standard for county roadways. All county roadways are operating at LOS C or better and therefore currently meet the adopted standard (Sutter County 2008).

Impact Analysis

Methods

Existing transportation and traffic conditions in the study area were identified by collecting the best available traffic data and other transportation system information. Traffic data and other transportation system information were obtained from site visits, maps, literature searches, and aerial photographs. Impacts on transportation and traffic were determined based on the project construction plan and anticipated operations procedures.

Significance Criteria

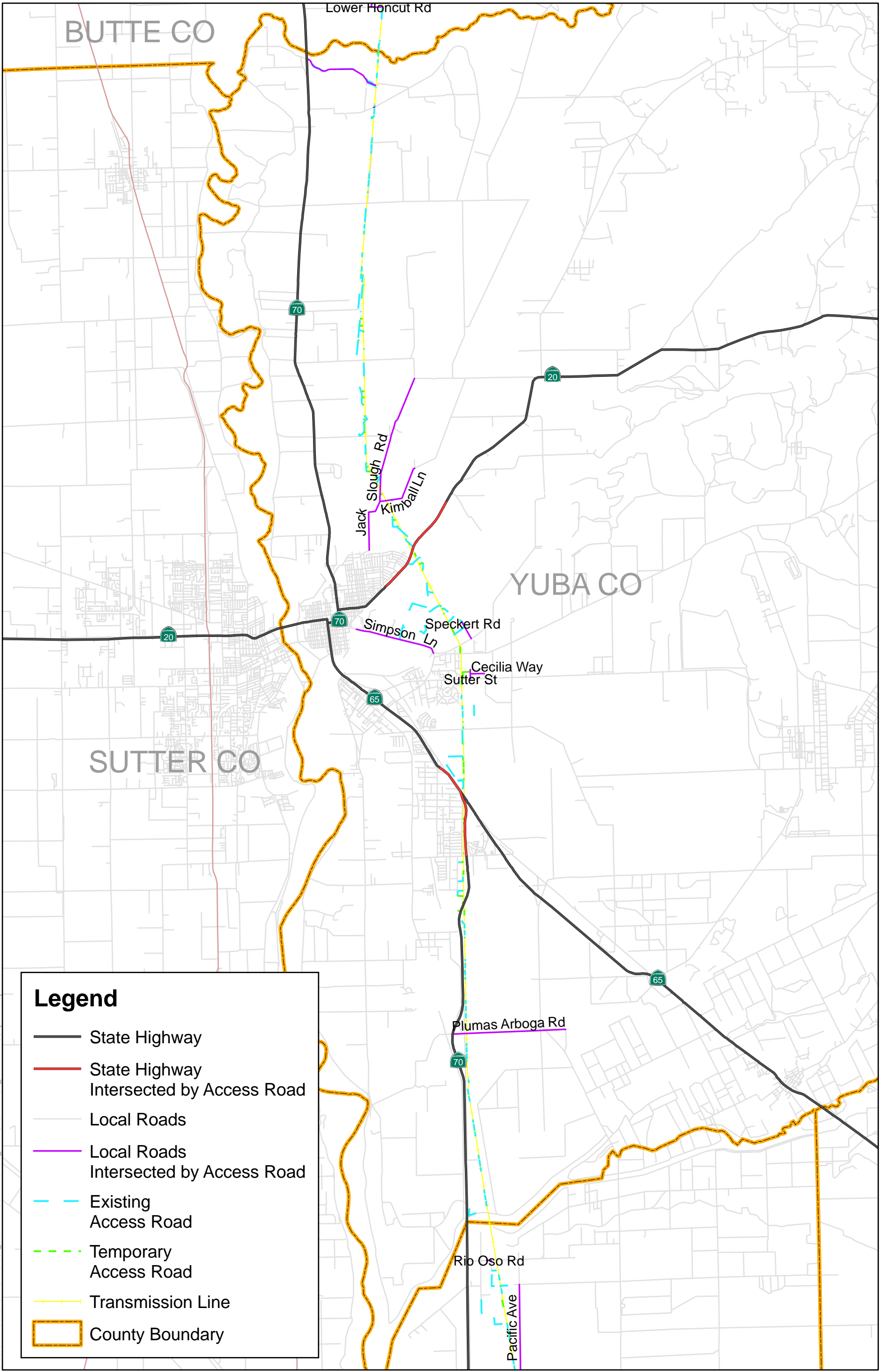
For this analysis, an impact pertaining to circulation was considered significant under CEQA if the project would result in any of the following environmental effects; these criteria are based on Appendix G of the State CEQA Guidelines:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.
- 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.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Result in inadequate parking capacity.
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts and bicycle racks).

Impacts and Mitigation Measures

This section presents an analysis of the potential impacts to traffic, transportation, and circulation from short-term traffic disruption associated with Project construction activities.

The construction period for the transmission line is expected to last approximately 12–18 months (see Table 4.15-1). The construction schedule will be determined by the project's environmental requirements and service outage restrictions. Pending outcome of environmental review and permitting,



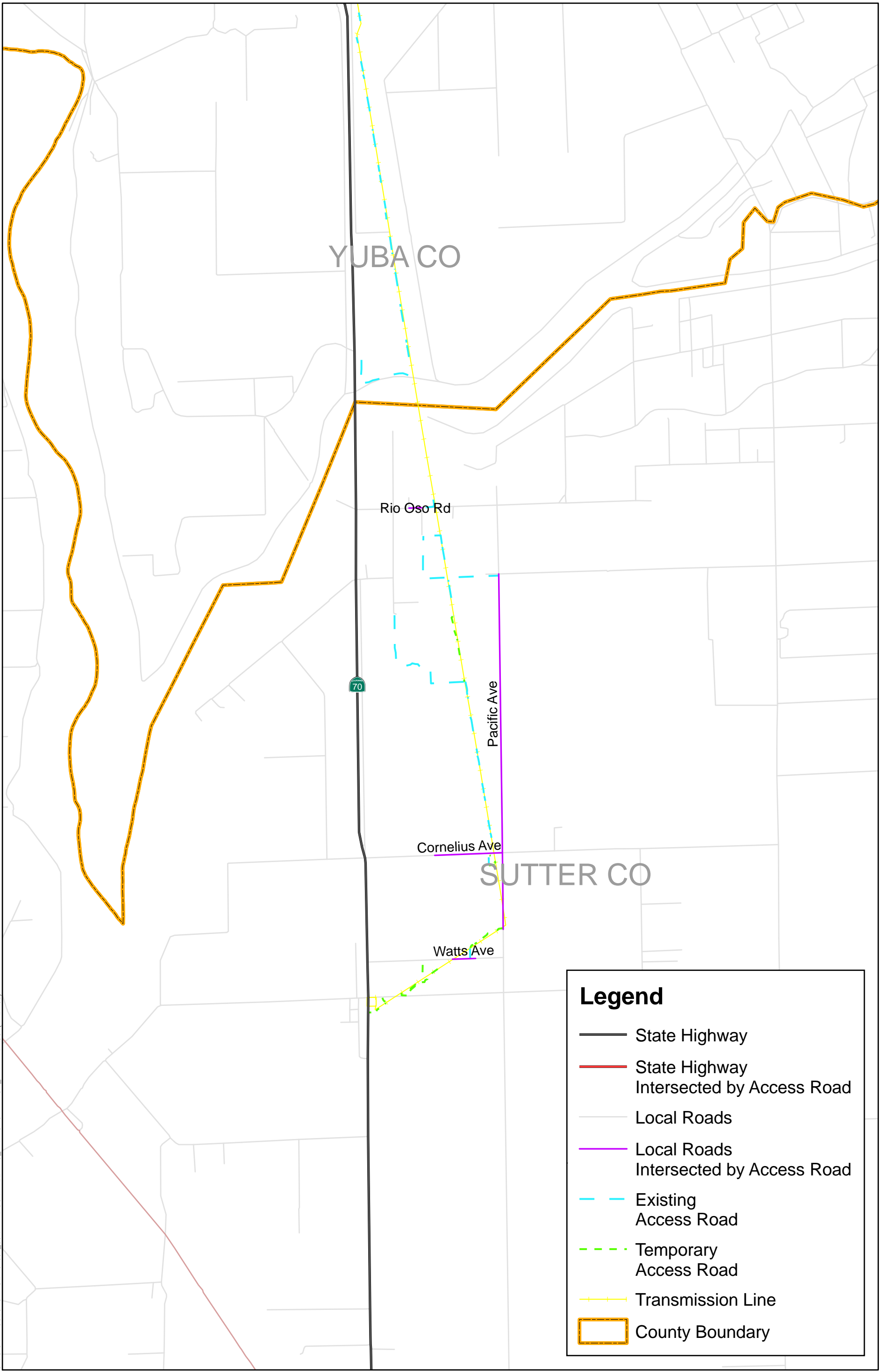
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Legend

- State Highway
- State Highway Intersected by Access Road
- Local Roads
- Local Roads Intersected by Access Road
- Existing Access Road
- Temporary Access Road
- Transmission Line
- County Boundary



Figure: 4-15.2
Roadways Traversed or Crossed in Yuba County



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Legend

- State Highway
- State Highway Intersected by Access Road
- Local Roads
- Local Roads Intersected by Access Road
- Existing Access Road
- Temporary Access Road
- Transmission Line
- County Boundary

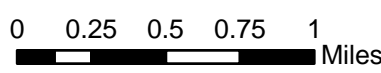


Figure: 4-15.3
Roadways Traversed or Crossed in Sutter County

construction activities are proposed to begin in July of 2009. Due to the various environmental and operational restrictions, it is anticipated that construction will occur year round but will be seasonal along certain portions of the project alignment.

Table 4.15-1. Construction Schedule

Milestone	Date
Permit to construct decision adopted and effective	June 1, 2009
Acquisition of required permits	June 1, 2009
Final engineering completed	February 1, 2009
Transmission line construction begins	October, 2009, 2009
Project operational	November, 2010

Impact TRAN-1: Increase in area traffic volumes and degradation of LOS due to operation-generated traffic—no impact

Maintenance of the transmission line is generally on an as-needed basis when PG&E staff discover something needing repair or in response to an emergency situation. Specific access requirements that may result from right-of-way negotiations with property owners will be documented and provided to the transmission line PG&E staff, with instructions to comply with these access requirements during inspection and maintenance. Therefore, there will be no impact.

Impact TRAN-2: Increase in area traffic volumes and degradation of LOS due to construction-generated traffic—less than significant with mitigation

Access will be primarily by existing major roadways suitable for truck traffic, including highways, county roads, and other major roadways. Construction crews will use existing paved or graveled roads along most of the transmission line corridor to access tower/pole sites; these include existing paved roads and farm roads, in addition to existing maintenance access to the existing transmission lines. Where necessary, existing access roads will be widened to a maximum of 16 feet, and new, temporary, access roads will be constructed. New, temporary, access roads will be restored to pre-construction conditions.

Encroachment permits will be obtained from Caltrans and the appropriate counties for crossing of jurisdictional roadways or highways. Traffic control may be required for work along major roadways. All required permitting and notification will be made to comply with permit conditions. Occasionally, it may be necessary to temporarily close one lane of traffic and appropriate traffic control and safety measures will be taken. A traffic control plan will be prepared according to Caltrans requirements and submitted for approval by the local county public works departments.

Butte County

All roadways within Butte County identified above as having an LOS are operating at LOS C or better. Some of the roadways were not identified as having an LOS because they are not local roads of regional significance that connect population centers with industrial, commercial, recreational, and other important uses. Because of the temporary nature of the project and the limited increase in traffic, LOS would not exceed thresholds due to project related construction and impacts would be less than significant.

City of Oroville

All roadways within the City of Oroville accessed by the project are operating at LOS C or better. Because of the temporary nature of the project and the limited increase in traffic, LOS would not exceed thresholds due to project-related construction and impacts would be less than significant.

Yuba County

All county study roads currently operate at acceptable levels during the p.m. peak hour with the exception of a portion of Simpson Lane, which operates at LOS D during p.m. peak-hour traffic volumes. The segments of state highways used in Yuba County for this project operate at acceptable levels. With the implementation of APM TRAN-1, Project-related construction and impacts would be less than significant.

APM TRAN-1: Restriction of Simpson Lane during p.m. peak hours

During p.m. peak hours, Simpson Lane shall not be used by the project for construction related activities.

Sutter County

All county roadways are operating at LOS C or better and therefore currently meet the adopted Sutter County standard. Because of the project's temporary nature and the limited increase in traffic, LOS would not exceed thresholds due to project-related construction and impacts would be less than significant.

Impact TRAN-3: Change in area air traffic patterns due to the use of helicopters during construction—less than significant

Helicopters will be used to install towers in locations where overland access is not possible or difficult due to topography and vegetation, and otherwise as warranted by construction needs. Helicopters will be used to remove and deliver tower sections, materials, equipment, concrete, and workers to these tower locations and to other locations where access is difficult or the project schedule requires.

Temporary helicopter landing areas will be established. In addition, staging areas will be used for helicopter landings. Helicopters will use the temporary landing areas to pick up and drop off crew and materials, as well as to stage and refuel. Operation of the helicopters could affect existing air traffic patterns. However, as required by the Federal Aviation Administration (FAA), PG&E will require the

helicopter vendor to develop and implement a helicopter lift plan (see APM HAZ-4, “Develop and Implement a Helicopter Lift Plan, in Section 4.7. “Hazards and Hazardous Materials.” With implementation of this measure, this impact is considered less than significant and no additional mitigation is required.

Impact TRAN-4: Increase in safety hazards due to construction-generated traffic—less than significant

The maneuvering of construction-related vehicles and equipment among the general-purpose traffic on local roads could cause safety hazards. However, appropriate traffic control and safety measures will be taken. In addition, a traffic control plan will be prepared according to Caltrans requirements and submitted for approval by the local county public works departments. This impact is considered less than significant and no additional mitigation is required.

Impact TRAN-5: Interference with emergency access and circulation due to construction-generated traffic—less than significant impact

Emergency access to the project vicinity could be affected by project construction, and construction-related traffic could delay or obstruct the movement of emergency vehicles.

As part of standard operating procedures, PG&E has existing safety plans in place for these types of projects, and will coordinate with local agencies if required road closures might impede emergency access routes or services. Also see APM HAZ-5, “Prepare a Health and Safety Plan” and APM HAZ-6, “Develop and Implement a Fire Risk Management Plan” in Section 4.7, “Hazards and Hazardous Materials.” This impact is considered less than significant and no mitigation is required.

Impact TRAN-6: Inadequate parking supply to meet parking demand for construction equipment and construction workers—no impact

Prior to transmission line construction, lay-down/staging/helicopter landing zone areas will be prepared to provide space for crew parking in addition to materials delivery, storage, and preparation; and equipment storage. These areas will provide sufficient parking for construction workers’ vehicles as well as construction equipment. There will be no impact related to inadequate parking.

Impact TRAN-7: Conflict with alternative transportation modes due to temporary lane closures—less than significant

Although most of the project construction would take place within the project right-of-way, temporary lane closures would be needed in some areas where power lines would cross over existing roads, which could interfere with

alternative transportation modes along these roads. However, interference would be temporary and therefore this impact is considered less than significant, and no additional mitigation is required.

Alternate Butte County Transportation

There are several rail facilities and services in Butte County transporting passengers and cargo. The Butte County region currently has three fixed route transit systems in operation in 2003. They are the Butte County Transit, the Chico Area Transit, and the Oroville Area Transit.

The transportation needs of the elderly and persons with disabilities are addressed by various demand responsive systems in the local urban areas. These are available in Paradise, Chico, Oroville, and Gridley under the names Paradise Express, Chico Clipper, Oroville Express, and Gridley Golden Feather Flyer. Greyhound Lines is a private common carrier that provides scheduled service to the Butte County region.

The main Greyhound bus terminal is located in downtown Chico at the Amtrak station. The station is served by Chico Area Transit. Greyhound offers 13 daily departures from Chico and also serves Paradise, Oroville, and Gridley as well as destinations outside the Butte County region.

The unincorporated areas of Butte County have existing and planned pedestrian and bicycle facilities located in both rural and urban environments. For the most part, the urban environments within the County's jurisdiction lie within the greater Chico and Oroville urban areas where the County's existing and planned pedestrian and bicycle facilities interface with the various facilities of those communities. (Butte County. 2005)

Alternate City of Oroville Transportation

The Oroville Express is a ticket based dial-a-ride service for the elderly and disabled. The fixed route transit system is the Oroville Area Transit (OATS). City contains pedestrians and bicycle facilities. (Oroville. 1995).

Alternate Yuba County Transportation

Yuba County is served by two freight railroads for commodity transport that are owned and operated by Union Pacific Railroad. The current bicycle and pedestrian network within Yuba County is intermittent. Public transportation in Yuba County is operated by Yuba-Sutter Transit, which offers both fixed-route and demand-response services to County residents through local, commuter, and rural bus routes. The Yuba-Sutter Bikeway Master Plan identifies existing and planned bikeways, lanes, and paths within Yuba County (Yuba County. 2007).

Alternate Sutter County Transportation

The Yuba-Sutter Transit Agency provides Sutter County residents and businesses with fixed route local transit service, three rural routes, and commuter service to Sacramento. Additionally, Yuba-Sutter Transit operates countywide demand responsive transit services for disabled and elderly residents.

Southern Pacific Railroad lines run through Sutter County east of Highway 70 from Sacramento County to Yuba City, and north of Yuba City to Butte County. The rail lines are available for the transport of agricultural goods and other materials. Rail passenger service is only available in Oroville by way of the Amtrak Coast Starlight train that runs from Los Angeles to Seattle with one stop daily in each direction, or Sacramento or Roseville for both the Amtrak Coast Starlight and the Capitol Corridor that runs from Reno to San Jose with sixteen trains a day between Sacramento and Oakland.

Unincorporated Sutter County currently has 4.6 miles (7.4 km) of Class I bikeways, 10.6 miles (17.1 km) of Class II bikeways, and 0.7 miles (1.1 km) of Class III bikeways. The existing bikeway system is somewhat limited and fragmented (Sutter County 2008).

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Utilities and Service Systems

Introduction

This section describes the affected environment and regulatory setting for public utilities and service systems, including water, wastewater/sewer, storm drainage, and solid waste. It also describes the impacts on public utilities and service systems that will result from implementation of the project and concludes that impacts will be less than significant.

Existing Conditions

Regulatory Setting

No federal plans or policies concerning public utilities and service systems apply to the proposed project.

State of California

California Urban Water Management Planning Act

The California Urban Water Management Planning Act requires management of urban water demands and efficient use of urban water supplies. Urban water suppliers serving more than 3,000 customers are to prepare and adopt an Urban Water Management Plan (UWMP) as defined by the law. The UWMP must describe the supplier's existing and planned water demand management measures, as well as how proposed measures will be implemented. The California Department of Water Resources (DWR) is responsible for reviewing and certifying UWMPs prepared pursuant to the act. A UWMP is required to contain a chapter on the water conservation best management practices (BMPs) that are to be implemented by urban water users.

California Integrated Waste Management Board

The California Integrated Waste Management Board (CIWMB) promotes a “Zero Waste California” in partnership with local government, industry, and the public. This means managing the estimated 92 million tons of waste generated each year by reducing waste whenever possible; promoting the management of all materials to their highest and best use; regulating the handling, processing, and disposal of solid waste; and protecting public health and safety and the environment.

Assembly Bill 939—Solid Waste

AB 939, enacted in 1989, requires each city and/or county to include an implementation schedule for a 25-percent diversion of all solid waste from landfill disposal or transformation by January 1, 1995, through source reduction, recycling, and composting activities—followed by a 50-percent reduction to the waste stream by January 1, 2000. The CIWMB continues to track compliance with this law.

Local Regulations

Although the proposed project will not be subject to local planning regulations, the following local regulations related to utilities are provided for informational purposes.

Butte County

Butte County General Plan

Relevant goals and policies of the Butte County General Plan (Butte County 2000) are as follows.

Land Use Element

Policy 2.4.a: Maintain quantity and quality of water resources adequate for all uses in the County.

Policy 2.4.b: Support water development projects needed to supply local demands.

Policy 2.4.d: Require proof of adequate water supply for all new development.

Policy 2.4.e: Conservation of water and energy will be considered in approving plans for new development.

Policy 2.4.f: Exercise constant vigilance in the protection against export of our ground water supply.

Policy 5.2.a: Encourage expansion of public water and sewer systems where development to be served conforms to adopted land use plans.

Policy 5.8.a: Protect the public health and safety of Butte County residents and the natural environment through efficient solid and liquid waste management practices.

Policy 5.8.b: Support the continued review and study of alternate locations for the disposal of solid and liquid wastes.

City of Oroville General Plan

Relevant goals and policies of the City of Oroville General Plan (City of Oroville 1995) are as follows:

Open Space, Natural Resources and Conservation Element

Objective 6.14a: Reduce the generation of solid waste, including hazardous waste, and recycle those materials that are used, to slow the filling of local and regional landfills, in accordance with the California Integrated Waste management Act of 1989 (AB 939)

Implementing Policy 6.14b: Implement measures specified in the Source Reduction and Recycling Element and the Household Hazardous Waste Element.

Public Facilities and Services Element

Objective 7.31a: Continue to encourage the water purveyors of the region to ensure that adequate water supply is available for the projected population and to developed properties throughout the Planning Area.

Objective 7.31b: Coordinate the land planning process with the water purveyors' planning process to ensure that developments are not approved that cannot be properly served with water at the time of completion.

Objective 7.31d: Support water conservation measures

Implementing Policy 7.31e: Work with the water districts and water company to implement water conservation measures, as necessary.

Objective 7.32a: ensure that adequate wastewaters collection and wastewater treatment services continue to be available to developed properties throughout he Planning Area.

Objective 7.32d: Restrict the timing of any development proposal that cannot be adequately served at the time of development, to ensure that wastewater collection and wastewater treatment facilities are planned for and available without over-burdening existing facilities.

Implementing Policy 7.32h: Inform project developers of the discharge requirements for waste into surface water in conformance with guidelines set forth in the latest revision of the Regional Water Quality Control board, Region 5 Plan.

Implementing Policy 7.32i: Continue to support SCOR's [Sewer Commission—Oroville Region] requirement that, if necessary, industrial water users pretreat wastewater onsite prior to discharging into the sewer system, or into any permeable conduit or basin that ultimately could lead to groundwater contamination.

Yuba County

Yuba County General Plan

Relevant goals and policies of the Yuba County General Plan (Yuba County 1996) are as follows.

Land Use Element

Land Use Goal 3: Assure that necessary infrastructure and public services are available to serve present and future residents.

Land Use Objective 17: Identification of all necessary services and infrastructure prior to approval of new development projects.

Land Use Policy 47: Within specific/community plan areas, infrastructure for roads, sewer, water, parks, recreation and other necessary public services shall be incorporated in development project plans, and shall be fully paid for through the development project process and by those with a present or future interest in the area directly benefitted.

Land Use Policy 49: Adequate sites for new and expanded public facilities needed to serve new growth and development shall be preserved, and general locations for such facilities shall be designated on the Land Use Diagram, and in specific and community plans, including but not limited to solid and liquid waste disposal facilities, drainage facilities, fire stations and County government buildings and facilities.

Land Use Policy 54: The approved landfill located on Ostrom Road south of Beale Air Force Base and potential expansion of the facility shall be shown on the Land Use Diagram and shall be protected from incompatible uses. Incompatible uses shall include new residential uses, schools, hospitals and other similar uses involving concentrations of people.

Land Use Policy 67: Proposed development projects with lots less than three acres in size in the foothill and mountain regions and less than one acre in the valley region shall demonstrate an adequate supply of water.

Land Use Policy 68: Proposed development projects shall demonstrate that 1) adequate facilities are available for the disposal of sewage waste, and 2) the impacts of sewage disposal are not environmentally significant or can be mitigated to a level of insignificance. Package treatment plants may be used in areas designated for residential development and for clustered projects in the Foothill Agriculture designation, subject to approval by the Environmental Health Department.

Land Use Policy 70: The County shall comply with source reduction and recycling standards mandated by the State to reduce the projected quantity of solid waste disposed to landfills.

East Linda Specific Plan

The East Linda Specific Plan (Yuba County 1990) states the following regarding public utilities and service systems.

The area has abundant groundwater supplies; in fact, groundwater levels are higher now than they were 20 years ago. The District will continue to derive its water supply solely from groundwater sources, and will expand their supplies as needed by acquiring new well sites through purchase, eminent domain or other means. The District has concentrated its recent efforts

toward improving water quality, letting other expansion projects wait until later.

Plumas Lake Specific Plan

The Plumas Lake Specific Plan (Yuba County 1993) states the following regarding public utilities and service systems.

The Plumas Lake Specific Plan area, at build-out, is expected to generate approximately 6.5 million gallons a day (MGD) of wastewater (average dry weather flow). The project will be served by combination of gravity sewers and force mains carrying wastewater to the existing treatment plant to the north and to a proposed, new treatment plant located within the Plan area on the south.

The primary infrastructure for the planned water system has four components: water supply through a system of wells, water treatment, storage and distribution.... The district will accept new wells provided on a project-by-project basis by developers within the Plan area. For each project, either multiple wells or wells with connections to the existing distribution system will be required to provide for redundancy in supply.

The proposed system combines the use on-site, off-site and linear detention; and conveyance improvements; underground storm drain pipes, channel improvements and discharge pumps to provide a phasable plan consistent with the anticipated Master Drainage Plan for Reclamation District 784.

Sutter County

Sutter County General Plan

Relevant goals and policies of the Sutter County General Plan (Sutter County, 1996) are as follows:

Goal 3.B: To ensure the availability of an adequate and safe water supply for County residents and other end users of water in the County.

Policy 3.B-1: The County shall require proponents of new development to demonstrate the availability of a long term reliable water supply. The County shall require written certification from the service provider that either existing services are available or needed improvements will be made prior to occupancy.

Goal 3.C: To provide adequate wastewater collection and treatment and the safe disposal, including sludge and septage.

Policy 3.C-2: The County shall permit on-site sewage treatment and disposal on existing lots in rural communities and on lands designated for agriculture where all current sewage disposal standards and regulations can be met and where parcels have the area, soils, and other characteristics that permit such disposal facilities without threatening surface or groundwater quality or posing any other health hazards.

Policy 3.C-3: The County may permit on-site sewage treatment and disposal on existing lots in areas designated for suburban/urban development if no public wastewater system is available to serve the project. In cases where public systems are not available, design provisions will be required and projects will be conditioned to connect to a public

system at such time it becomes available per UPC and/or county ordinance. Additionally, it shall be demonstrated that other suitable alternative systems have been considered and documented to be infeasible prior to using a standard septic tank and leach field system.

Goal 3.D: To collect and dispose of storm water in a safe and efficient manner.

Policy 3.D-2: The County shall require new development to adequately mitigate increases in storm water flows and/or volume and to avoid cumulative increases in downstream flows.

Policy 3.D-4: The County shall require that new development conforms to the appropriate County requirements and standards governing drainage.

Policy 3.D-5: The County shall require new development projects to provide adequate drainage facilities.

Goal 3.E: To ensure the safe and efficient disposal or recycling of solid waste generated in Sutter County.

Policy 3.E-3: The County shall continue to rely on the Regional Waste Management Authority to prepare and maintain a Regional Waste Management Plan for Sutter County.

Environmental Setting

Butte County

Water Service

A portion of the project area located in unincorporated Butte County would be supplied with water by the South Feather Water and Power Agency. The South Feather Water and Power Agency district encompasses 38,320 acres, and serves a population of 21,400. It has 6,120 domestic water accounts and 525 irrigation accounts.

The agency supplies water used for agricultural, residential, and commercial purposes, and owns six reservoirs, including Forbestown, Little Grass Valley, Lost Creek, Miners Ranch, Ponderosa, and Sly Creek. Together, these reservoirs provide approximately 172,064 acre-feet of storage. Three canal systems in the district—Forbestown, Bangor, and Palermo—provide raw water to agricultural customers.

While the South Feather Water and Power Agency does not use groundwater, some areas of land in the district possess independent private wells. The agency's primary treatment plant, located at the Miners Ranch Reservoir, has capacity to treat 14.5 MGD. The South Feather Water and Power Agency has water rights totaling 800,000 acre-feet, and can take 172,145 acre-feet of water from the South Fork of the Feather River and the Yuba River and store it in its reservoirs. South Feather Water and Power Agency uses 27,000 acre-feet of water within their service area. The remainder of the project area not served by the agency

extracts water from groundwater basins through privately owned wells. (Butte County, 2007)

Wastewater Service

An estimated 50,000 on-site sewage disposal systems (i.e., septic systems) exist in Butte County, serving approximately half of the county's population. Roughly 75 percent of the systems fall under county jurisdiction. Standard septic tank-leach field systems have historically been the common practice in most of the unincorporated areas of the county, necessitating and receiving relatively limited oversight from the County Environmental Health Division and the Central Valley Regional Water Quality Control Board (RWQCB). (Butte County, 2007)

Stormwater Drainage

Butte County does not maintain a storm drainage system in the project vicinity. Stormwater drainage is handled by the individual incorporated cities.

Solid Waste Service

The primary solid waste disposal site in the county is the county-owned and -operated Neal Road Landfill. The Butte County Division of Environmental Health, Department of Public Health functions as the local enforcement agency operating under the guidelines of the County Solid Waste Enforcement program and the oversight of the CIWMB.

The Neal Road Landfill is located seven miles southeast of Chico, and is permitted to accept a variety of types of waste, including municipal solid waste, inert industrial waste, demolition materials, special wastes containing non-friable asbestos, and seepage. The permitted maximum disposal amount at the Neal Road Landfill is 1,500 tons per day, and the total capacity of the site is estimated to be 20,217,600 cubic yards (13,141,300 tons).

The Neal Road Landfill is anticipated to be able to continue to receive solid waste until at least the year 2033. The Butte County Department of Public Works serves as the responsible agency monitoring remaining capacity of the landfill site. (Butte County, 2007)

City of Oroville

Water Service

The California Water Service Company, Oroville (Calwater-Oroville), a private water supplier, provides water within Oroville city limits, except in areas served by other Oroville water suppliers (Thermalito Irrigation District and South

Feather Water and Power Agency). The project area within the city limits of Oroville is within the area served by the South Feather Water and Power Agency, which is discussed above. (City of Oroville, 2008)

Wastewater Service

The City of Oroville is served by three wastewater collection agencies: the City of Oroville, the Thermalito Irrigation District, and the Lake Oroville Area Public Utility District.

The City of Oroville provides wastewater collection services to approximately 13,500 individuals. Current wastewater flows are 1.9 million gallons per day, and are expected to grow to approximately 3.2 MGD over the next 20 years. The City discharges wastewater to the Sewerage Commission—Oroville Region (SCOR) for treatment at SCOR's plant.

The city collection system is sufficient to meet current demands. However, the pipelines for transporting the city's wastewater are not large enough to support additional growth. To support this expected growth, new developments will be required to upgrade the existing collection system infrastructure to accommodate additional capacity.

The Thermalito Irrigation District (TID) provides wastewater collection services to approximately 1,985 customers. Wastewater flows currently average 0.37 MGD, and are expected to grow to 0.67 MGD within the next 20 years. The TID's system discharges to SCOR for treatment at their plant. The TID currently has no plans for future infrastructure capacity expansion. Developers building in the TID's service area are required to upgrade existing infrastructure or install new infrastructure for new development.

The Lake Oroville Area Public Utility District (LOAPUD) provides sewer collection services to approximately 12,000 individuals. Their service area is primarily in unincorporated areas east and south of the City of Oroville. The district's population is expected to grow to more than 20,000 individuals by 2025. The LOAPUD collects an average of 384 million gallons of wastewater annually. The current demand of 0.81 MGD is expected to grow to 1.35 MGD over the next 20 years. The LOAPUD's collection system discharges into SCOR's system for treatment at their plant. Currently, no capacity issues exist with collection volumes, and there are no plans for capacity expansion. New development in the LOAPUD's service area may be required to upgrade existing collection systems if additional capacity is required. (City of Oroville, 2008)

Stormwater Drainage

The City of Oroville currently maintains six regional detention basins. In order to accommodate impacts of increased impervious surfaces due to new development, the City of Oroville requires installation of stormwater detention ponds or underground storage tanks to retain peak stormwater runoff. Butte County's

Stormwater Management Program is a requirement of Phase II of the National Pollutant Discharge Elimination System (NPDES) Program as ordered by the U.S. Environmental Protection Agency (EPA). The City of Oroville could become part of this program within the next several years, which would require the City of Oroville to create and implement a storm water management program to reduce storm water pollution. (City of Oroville, 2008)

Solid Waste Service

The City of Oroville contracts all solid waste collection and recycling services with Norcal Waste Systems, a company with 600 vehicles. Norcal provides commercial and residential garbage and recycling collection for residents and businesses. The company also operates a materials recovery facility, a transfer station, a household hazardous waste facility, a scrap metal public drop-off center, a recycling buyback center, green waste recycling and construction and demolition services.

Waste generated within the city limits gets collected and processed at the Oroville Transfer Station. This station receives more than 200 tons of material per day on average, and is permitted to receive 975 tons per day. This permitted volume is greater than the City of Oroville's needs for the foreseeable future, and no plans now exist for expansion of this facility. Once processed, waste that cannot be recycled is transported to the Ostrom Road Landfill. The landfill is expected to reach its capacity of 41.8 million cubic yards in 2066, and there are no planned expansions or deficiencies at the landfill at this time. (City of Oroville, 2008)

Yuba County

Water Service

Nine domestic (potable) water providers operate in Yuba County, two of which also provide irrigation water. Eleven irrigation water purveyors also operate in Yuba County. Yuba County has adequate water supplies, though as new development occurs, areas now served by surface water must likely convert to urban water purveyors. In the long term, there may be inadequate groundwater supplies to serve future development. The following water providers serve the project area.

The Olivehurst Public Utility District (OPUD) serves groundwater to 5,221 connections, and distributed 3,430 acre-feet in 2005. The OPUD's water supply is provided entirely by the South Yuba Groundwater Subbasin.

The Brophy Water District (BWD) distributes water to 30 customers, primarily rice farmers, and has a boundary area encompassing approximately 17,200 acres. The primary source of water is Yuba River surface water, though portions of the boundary area are not irrigated by surface water.

The Cordua Irrigation District (CID) distributes to 133 customers and has a boundary area of approximately 11,500 acres. The water supply comes from Yuba River surface water, and is primarily used for rice farming. The district holds water rights to 60,000 acre-feet in Yuba River flows, and contracts with Yuba County Water Agency (YWCA) for 12,000 acre-feet.

The South Yuba Water District (SYWD) serves raw water to approximately 8,500 acres located south of Olivehurst and west of Wheatland. The district's water supply comes from surface water from the Yuba River, along with approximately 4,000 acre-feet of spill water. District users rely on a canal and ditch system for water delivery.

The Linda County Water District (LCWD) serves 3,360 customers in the unincorporated town of Linda, and distributed 3,521 acre-feet in 2005. LCWD's water supply comes from the South Yuba Groundwater Subbasin. Contaminants are removed from the water at four wellhead treatment facilities. (Yuba Local Agency Formation Commission, 2008)

Sewer Service

A variety of wastewater service providers serve Yuba County and the project area, although as many as 35,675 housing units are planned for areas currently not in any wastewater providers' service area. These wastewater service providers serve the project area.

- The Linda County Water District (LCWD), which includes the unincorporated town of Linda, provides wastewater collection, treatment, and disposal services to 3,360 connections. LCWD owns and operates a wastewater treatment plant and sewer collection infrastructure, and there are no septic systems inside the district's boundaries.
- The Olivehurst Public Utilities District (OPUD), which includes the unincorporated towns of Olivehurst and Plumas Lake, provides wastewater collection, treatment, and disposal services to 5,221 connections. The district owns and operates a wastewater treatment plant and sewer collection infrastructure, but relies on outside contractors for system repairs.

Portions of the project area that do not lie within the service areas of these providers do not receive central wastewater treatment services. Instead, these areas rely on septic systems. Septic systems are located on individual properties, and provide treatment of wastewater on-site. Septic systems are allowed in most areas of the county only if no public sewer system exists nearby, and property owners must maintain the septic system. Approximately 9,000 septic systems exist throughout Yuba County. (Yuba Local Agency Formation Commission, 2008)

Stormwater Drainage

In the unincorporated areas of Yuba County, the drainage system consists of roads with drainage systems, catch basins, water basins, detention basins, constructed wetland, artificial channels, aqueducts, curbs, gutters, ditches, sumps, pumping stations, storm drain inlets, and storm drains. The county plans on developing a master underground drainage system in Linda and Olivehurst address problems with the current system there. Improvements identified in the plan will be funded and constructed by developers.

Yuba County prepared a drainage master plan for southwest Yuba County in 1981 and issued in 1992 an update to the plan that identified drainage improvements for the area. With the exception of the Eastside Interceptor Canal, all of the major improvements have been made since the publication of the plan, including the Olivehurst Interceptor Canal, Olivehurst Detention Basin, Eastside Interceptor Canal, and the County Regional Detention Basin. (Yuba Local Agency Formation Commission, 2008)

Solid Waste Service

Yuba-Sutter Disposal, Inc. (YSDI) provides residential and commercial solid waste collection, disposal and recycling services to Yuba County. YSDI collects more than 100,000 tons of materials and serves more than 30,000 residential customers and 5,000 commercial customers annually. The amount of trash disposed from Yuba and Sutter Counties has increased was 127,289 tons in 1995, and 139,649 in 2006.

Ostrom Road Landfill is the only active solid waste landfill in Yuba County. A Class II landfill, the facility is owned and operated by Norcal Waste Systems, Inc., and has a total disposal area of 225 acres. The Ostrom Road Landfill has a permitted capacity of over 41.8 million cubic yards. More than 97 percent of its capacity is still available. The landfill can accept a maximum of 3,000 tons of waste a day. The estimated closure date of the landfill is December 31, 2066. The CIWMB indicates that the Ostrom Road Landfill has adequate capacity to accommodate current and projected demand for service. (Yuba Local Agency Formation Commission, 2008)

Sutter County

Water Service

Potable water in Sutter County is provided from the Feather River by groundwater and surface water, although most of Sutter County uses groundwater for potable water supplies that are pumped by privately owned wells. Several municipal and community potable water systems operate within Sutter County, but the project area is not served by any of them. The County's groundwater supply is at risk due to a variety of naturally occurring

contaminants, which are currently being addressed through the preparation of a groundwater management plan to help protect the county's groundwater resources.

Several irrigation water companies and districts provide irrigation water within Sutter County. Their main source of water is diversion from the Feather and Sacramento Rivers. When surface water supplies are reduced or not available during the summer, groundwater is also used.

The South Sutter Water District is a public agency that provides irrigation water to 52,000 acres of land and serves the project area. Located on the eastern side of Sutter County, the South Sutter Water District's surface water is taken from the Camp Far West Reservoir, located within their service area. South Sutter has also purchased surplus water from the Nevada Irrigation District in the past. (Sutter County, 2008)

Wastewater Service

Wastewater in Sutter County is treated at individual parcels with septic systems (on-site treatment facilities) or at community or city wastewater treatment plants. The project area is not within the service area of any community or city wastewater treatment plants, and is entirely served by private septic systems. (Sutter County, 2008)

Stormwater Drainage

The portion of the project area in Sutter County is in the RD 1001 watershed, which is located in southeast Sutter County and includes an area of approximately 54 square miles. This watershed drains south to the Verona Pump Station, which has a total capacity of 577 cubic feet per second and lifts the water into the Cross Canal. RD 1001 also has three small pump stations that lift stormwater from the northern portion of the watershed into the Yankee Slough. Minor and infrequent flooding of agricultural fields has occurred; flooding of homes and other structures has not occurred. (Sutter County, 2008)

Solid Waste Service

The Yuba-Sutter Disposal, Inc. (YSDI) provides for the collection, recycling and disposal of municipal solid waste in Sutter County. YSDI is discussed in greater detail above. The Ostrom Road Landfill is owned and operated by Norcal Waste Systems and would be used for waste disposal in the project area. The landfill is also discussed in greater detail above. (Sutter County, 2008)

Impact Analysis

This section describes the impact analysis relating to public utilities and service systems for the proposed project. It describes the impacts of the project and lists the thresholds used to conclude whether an impact was considered significant. Although no potentially significant impacts were identified, measures to further reduce less than significant impacts accompany this impact discussion.

Methods

Existing conditions were determined from a review of published literature, examination of aerial photographs, and site-specific field inspection of the locations of project components. Descriptions of public utilities in the project area were derived from current and draft general plans of the city of Oroville and Butte, Yuba, and Sutter Counties.

Significance Criteria

For this analysis, significance criteria are based on Appendix G of the State CEQA Guidelines (*14 CCR 15000 et seq*). An impact pertaining to public utilities was considered potentially significant if the project would result in:

- Construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- The need for a new or expanded water supply.
- Exceeding the wastewater treatment requirements of the Regional Water Quality Control Board.
- The need for new or substantially altered water or wastewater treatment facilities or storm drainage facilities.
- A breach of published national, state, or local standards relating to solid waste or litter control.
- Extension of a sewer trunk line with capacity to serve new development.
- Inadequate access to a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Contact and/or disturbance of underground utility lines and/or facilities during construction activities.

Impacts and Mitigation Measures

The proposed project will result in relatively small impacts on water, wastewater, storm drainage, and solid waste during construction. Potential impacts will be caused by water use for cement mixing, increased impervious surfaces for access roads, and increased waste from both the removal of existing structures and general waste created by PG&E employees.

USS Impact 1: Construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; the need for a new or expanded water supply; and/or the need for new or substantially altered water facilities—less than significant

Project construction will require the use of small amounts of water for making cement footings for the new structures, as well as dust control and drinking water for construction employees. The principal water available to the proposed project is local water. Water used during dust suppression on PG&E access roads will be minimal, and because this water will evaporate or be absorbed by the ground, disposal will not be required. The short period of use will negligibly affect local water supplies and create no need for water treatment facilities. Because the project is an electrical utility line and does not require water to operate, the project will not generate a substantial demand for water.

Although the project is not expected to displace any known existing permitted water wells nor create substantial alteration of a well field during construction activities, PG&E will implement the following measure to further reduce less than significant impacts.

APM USS-1: Conduct a pre-construction records search/field survey to identify specific locations of water wells and well fields

To ensure minimal disturbance or alteration of water wells or well fields within the project alignment, PG&E will conduct a pre-construction records search and field survey to identify specific locations of water wells and well fields.

USS Impact 2: Construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects; exceeding the wastewater treatment requirements of the Regional Water Quality Control Board; the need for new or substantially altered wastewater treatment facilities; and/or extension of a sewer trunk line with capacity to serve new development—less than significant

Project construction will negligibly affect wastewater because construction crews will use portable toilets. No other sources of wastewater are anticipated for construction, and the project will not exceed wastewater treatment requirements of the Central Valley Regional Water Quality Control Board (CVRWQCB).

No changes to wastewater treatment facilities will be required because of the small amount of waste generated by construction crews. The project does not require construction of new wastewater facilities or pipelines and will not require moving of any such lines or the extension of any sewer trunk lines. As the project is a utility line and does not require water to operate, the project will not generate substantial amounts of wastewater.

The placement of concrete footings for the new structures is not expected to significantly alter septic field drainage should they be present. As the majority of project construction activity takes place in existing easements, any damage to septic fields is unlikely.

USS Impact 3: The need for new or substantially altered storm drainage facilities—less than significant

Prior to power line construction, lay down (staging) areas will be prepared to provide space for materials delivery, storage, and preparation; equipment storage; crew parking; and offices prior to installation. In addition, there will be helicopter landing zones, pull sites and temporary access roads for construction vehicles and workers.

These construction areas and access roads will involve vegetation maintenance such as mowing, trimming and blading, and may affect drainage temporarily (see Chapter 4.03 for discussion of sizing of construction areas that may be prepared for staging areas). The temporary effects to vegetation should regenerate naturally with little restorative effort. However PG&E will obtain the appropriate permits for potential drainage impacts due to the staging areas. Additionally, construction areas and access roads will be temporary, will be restored, and will not result in a permanent impact to drainage in the area. It is expected that new or expanded storm water drainage facilities will not be required. Therefore, impacts are considered less than significant.

USS Impact 4: Inadequate access to a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs or a breach of published national, state, or local standards relating to solid waste or litter control—less than significant

For the few existing wood poles to be removed, PG&E will make the poles available for reuse or, if demand does not exist for the poles, will dispose of them in an appropriate landfill with sufficient capacity to accept the material. Butte County's Neal Road Landfill is anticipated to continue to receive solid waste until at least the year 2033. The permitted maximum disposal amount at the Neal Road is 1,500 tons per day. Yuba and Sutter Counties' Ostrom Road Landfill can accept a maximum of 3,000 tons of waste a day; and is estimated to have enough capacity to remain open until the year 2066 with only about three percent in use as of 2006.

Other miscellaneous non-hazardous construction materials that cannot be reused or recycled likely will be acceptable for disposal at these county landfills. PG&E will attempt to make wood poles available for reuse to limit the volume sent to the landfill while increasing recycling efforts.

A minor amount of solid waste will be generated over the years, such as replacement of worn or damaged equipment. However, this amount of solid waste will be very similar to the amount of solid waste currently generated by the existing power line, and would be disposed of in the same manner, in accordance with all state and local regulations. Therefore, the proposed project will not be in conflict with statutes or regulations related to solid waste.

Any hazardous materials and wastes will be recycled, treated, and disposed of in accordance with federal, state, and local laws. The proposed project would be in accordance with all published national, state or local standards relating to solid waste or litter control.

USS Impact 5: Potential contact and/or disturbance of underground utility lines and/or facilities during construction activities—less than significant

Construction activities could inadvertently contact underground facilities, such as water and sewer utility lines, during excavations and placement of concrete foundations and direct burial structures that could lead to short-term service interruptions. The likelihood of such an occurrence is low, and implementation of standard practices such as contacting Underground Service Alert before excavation, will further ensure that the impact is less than significant. PG&E will implement the following measure:

APM USS -2: Notify underground service alert at least 14 days prior to initiation of construction activities in the underground portion of the power line

PG&E will ensure that Underground Service Alert is notified at least 14 days prior to initiation of construction activities of the underground

portion of the power line. Underground Service Alert verifies and physically marks the location of all existing underground utilities in the area of anticipated construction activities to prevent accidental disturbance.

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Growth-Inducing and Cumulative Impacts

Growth-Inducing Impacts

The basic objectives of the Palermo–East Nicolaus 115 kV Transmission Line project include:

- **Ensure transmission system reliability:** The main project objective is to ensure that the Yuba/Sutter/Butte Counties area transmission system will continue to meet planning standards and criteria established by the California Independent System Operator and North American Electric Reliability Council to ensure the safety and reliability of the transmission system. These planning criteria must be met by the project.
- **Replacement of aging facilities:** The second objective is to replace aging and dilapidated facilities in a cost effective and environmentally sensitive manner.
- **Implement the CAISO Board of Governor’s [May 21, 2008] Resolution:** The third objective is to implement the [May 21, 2008] California CAISO Board of Governors resolution approving the project for addition to the CAISO-controlled grid.

The proposed reconductoring work will help meet future demand, maintain compliance with applicable grid reliability criteria, and make it easier to maintain the transmission system. The project will not directly induce growth by creating new opportunities for local industry or commerce.

Growth in the project area is carefully planned and regulated by city and county general plans, with land use policies to protect the region’s open spaces and agricultural traditions and to control urban development. The project is designed to meet immediate and projected electrical power needs in the Palermo–Rio Oso service area based on current and projected future demand.

Like other utilities and public service providers, PG&E plans and upgrades electrical facilities incrementally based on growth projections provided by local government agencies. These projections reflect economic and residential developments that are planned and approved by city and county governments with jurisdiction over land uses. Local planning policies and zoning regulations have the biggest influence in controlling the pace and ultimate amount of growth in the project area. The project will provide short-term employment for

construction workers, but no additional permanent workers who would require new housing. Construction will require a minimal amount of workers over a single season. PG&E's existing workforce, contractors, and a few other workers from the local labor pool will construct the project. Non-local labor will be used only for specialized skills not readily available locally; these individuals likely will stay in hotels or rent housing on a short-term basis. The limited, temporary construction crew is not expected to result in long-term growth or housing demands in the area. Therefore, the project is not considered growth inducing.

Cumulative Impacts

Project-Related Impacts

The Palermo–East Nicolaus project includes the following.

- Replacement of existing steel towers with a combination of new hybrid tubular steel poles, tubular steel poles, and lattice steel poles on the Palermo–East Nicolaus 115kV double-circuit power line.
- Replacement of a limited number of existing lattice steel towers on the adjacent single-circuit line with new steel poles for consistency with the spans on the Palermo–East Nicolaus 115kV transmission line.
- Conductor replacement.
- Construction of temporary access roads and limited improvements to permanent access roads.
- Revegetation of disturbed areas following construction.

The primary impacts associated with the project will occur during the construction phase because changes to ongoing operations and maintenance activities related to the reconductoring will be negligible. The existing infrastructure has been in place for a very long time, and routine maintenance has been conducted on a regular basis. Linear construction will require no more than a few days at any location along each segment and is expected to be completed within 12 to 18 months. No significant effects on any environmental resource are associated with the project. Potential project-related impacts on all resources are less than significant because of environmental protection measures routinely implemented by PG&E and those specifically proposed for the project.

Other Reasonably Foreseeable Projects

A cumulative impact could occur if PG&E or another utility service implemented a concurrent project in the segments of the power line corridor affected by this project, or in segments of the power line corridor in the immediate project vicinity. Maintenance on other transmission lines in the vicinity is expected to continue in the same manner as it currently occurs. Necessary alterations to towers and structures on the adjacent Palermo–Pease single-circuit line are

included as a part of this project, and, the effects analyzed in this document. No other related or foreseeable projects are expected to occur that would result in cumulative impacts with the proposed project.

Analysis of Cumulative Impacts

Aesthetics and Visual Resources

Project impacts related to aesthetics and visual resources will not be significant. As there are no other projects in the vicinity of the proposed project that would result in changes in the visual character of the area, there would be no cumulative impact.

Agriculture Resources

From 2004 to 2006, Butte, Yuba and Sutter Counties have experienced net losses of agricultural land. During this time period, Butte County lost 1,502 acres of farmland, 1,338 of which were designated as Prime Farmland. Yuba County lost 2,299 acres of farmland, 683 of which were designated as Prime Farmland. Sutter County lost 385 acres of farmland designated as Prime Farmland, although Sutter County's net loss of all farmland was only 288 acres, as non-agricultural lands not designated as Prime Farmland were converted from non-agricultural uses to grazing land. Overall, the counties that the project area crosses lost 4,089 acres of farmland, 2,406 of which were designated as Prime Farmland. Further loss of farmland in the affected counties would be considered cumulatively considerable.

The proposed project alignment falls within an existing utility corridor, and expansion of right-of-way easements is not required to successfully replace the existing PG&E transmission line. However, the proposed project's construction phase would consist of temporary and permanent changes to agricultural lands in Butte, Yuba, and Sutter Counties.

Temporary changes in land use would affect approximately 219.99 acres, after which the lands would be returned to their former use. No land currently used for agricultural purposes would be permanently reduced. This amount is considered less than significant in relation to the available farmland in the affected counties. In the operational and maintenance phase, the proposed project would not violate existing agricultural zoning and would not induce conversion of agricultural land to urban development. Thus the project would not contribute to significant cumulative impacts related to agricultural resources in the project area.

Air Quality

Long-term GHG emissions associated with the operation of a substation would be limited to sulfur hexafluoride (SF6). SF6 is a non-hazardous, inert gas that is

used both as an arc quenching and insulating medium in high-voltage switchgear, circuit breakers and gas insulated substations. It is highly potent greenhouse gas with very long atmospheric lifetimes; thus, a relatively small amount of SF₆ can have a significant impact on global climate change. Because no changes are proposed that would affect the amount of SF₆ emissions from the existing substation, no air quality impacts are associated with operations. For this reason, the project would not contribute to cumulative air quality impacts.

Biological Resources

All biological impacts of the project will be less than significant with incorporation of the identified APMs. Impacts to special status species will be reduced to less than significant through compensation or avoidance. Therefore, the project will not contribute to any significant cumulative impacts on biological resources.

Cultural Resources

The project will not result in any impacts on cultural resources. For this reason, the project will not contribute to any cumulative impact related to cultural resources.

Geology, Soils, and Seismicity

Impacts related to geology, soils, and seismicity are generally site specific. Proper location of project components, design-level geotechnical investigations, and appropriate engineering and construction measures will avoid or reduce all potential impacts related to geologic hazards to a less than significant level.

Hazards and Hazardous Materials

The proposed project alignments falls within an existing utility corridor, and expansion of right-of-way easements will not be required to successfully replace an existing PG&E transmission line. There are no long-term significant impacts due to the use of existing easements and compliance with applicable hazards plans, policies and regulations. Thus the project will not contribute to significant cumulative impacts related to hazards and hazardous materials in the project area.

Hydrology and Water Quality

With implementation of the proposed APMs, all project impacts on hydrology and water quality will be less than significant. As the project will not result in

increases in flood hazards, increase in off-site drainage flows, or increased use of water, the project will not contribute to significant cumulative impacts.

Land Use and Planning

The proposed project alignments falls within an existing utility corridor, and expansion of right-of-way easements will not be required to successfully replace an existing PG&E transmission line. No long-term significant impacts exist due to the use of current easements and compliance with applicable land use plans, policies, and regulations. Thus the project will not contribute to significant cumulative impacts related to land use in the project area.

Mineral Resources

The proposed project alignments falls within an existing utility corridor, and expansion of right-of-way easements will not be required to successfully replace an existing PG&E transmission line. The proposed project will have no impacts on mineral resources, and for these reasons, will not contribute to significant cumulative impacts.

Noise

Project impacts related to construction noise will not be significant. The project will not result in any increase in operational noise. As there are no other projects in the vicinity of the proposed project that would result in substantial generation of noise during the construction period of the project, there would be no cumulative impact.

Population and Housing

The proposed project is needed to improve reliability of the transmission system in the Butte-Yuba-Sutter area. It also will have the effect of increasing transmission capacity in the area, which could accommodate additional economic or population growth. However, growth in the area is carefully planned and regulated by city and county general plans, which contain land use policies to protect the region's open spaces and agricultural traditions and to control urban development. The project is designed to meet immediate and projected electrical power needs in the Butte-Yuba-Sutter service area based on current and projected future demand.

Like other utilities and public service providers, PG&E plans and upgrades its electrical facilities incrementally based on growth projections provided by local government agencies. These growth projections reflect economic and residential

developments that are planned and approved by city and county governments, which have authority over land uses.

Local planning policies and zoning regulations have the biggest influence in controlling the pace and ultimate amount of growth in this area. The project will provide short-term construction employment, but no additional permanent workers that would require new housing, as the period of employment would be limited.

Construction will require a minimal number of workers over a limited time period. It is not anticipated that the limited, temporary construction employment would result in long-term growth in the area. Therefore, the cumulative impact of the proposed project is less than significant.

Public Services

Project impacts related to public services will not be significant. The project will not result in any increase in demand for public services during operation, and for these reasons, will not contribute to significant cumulative impacts.

Recreation

Cumulative impacts to park and recreational facilities would occur if the proposed project, as well as other projects in the area, would increase growth and in turn increase the need for and use of park and recreational facilities. Implementation of the proposed project would help to accommodate planned growth in the area due to the installation of increased electrical capacity, but it would not induce population growth in the area. Permanent adverse impacts to recreational resources are generally associated with population growth. Because the proposed project would not induce population growth, there would be no cumulatively considerable impacts.

Transportation and Traffic

Project impacts related to public services will not be significant with the incorporation of the identified APMs. The project will not result in any increase in traffic during operation, and for these reasons, will not contribute to significant cumulative impacts.

Utilities and Service Systems

Project impacts related to utilities will not be significant. The project will not result in any increase in demand for utilities during operation, and for these reasons, will not contribute to significant cumulative impacts.

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Chapter 5

Mitigation Measures

As part of PG&E's standard construction practices, environmental commitments have been incorporated into the project design and will be implemented to avoid or minimize impacts to biological resources. These commitments are listed below.

PG&E also has proposed resource-specific measures to ensure that potential impacts are less than significant. These APMs are included in the respective resource section, and a complete list is found below.

Implementation of the environmental commitments and applicant-proposed measures (APMs) will further ensure that all potential project-related impacts will be avoided or reduced to a less-than-significant level with the exception of temporary construction noise impacts and contribution to cumulative impacts associated with greenhouse gas emissions. No further feasible mitigation measures are available for the significant and unavoidable impacts and no additional mitigation is required for the less than significant impacts.

Environmental Commitments

As part of PG&E's standard construction practices, the following measures will be incorporated into the project design and will be implemented to avoid or minimize impacts to biological resources:

- An environmental awareness education program for construction crews will be conducted before beginning construction and will be ongoing during construction activities for new crew members. The education program will include information about the federal and state Endangered Species Acts, the consequences for noncompliance with environmental laws, identification of special-status plant and wildlife species and wetland habitats, and review of mitigation measures.
- Vehicles will be restricted to established roadways and approved access routes and staging areas.
- An environmental monitor will be onsite during any construction activity near sensitive habitat to ensure implementation of, and compliance with, mitigation measures. The monitor will have authority to stop construction activities and determine alternative work practices, in consultation with

construction personnel and resources agencies, if construction activities are likely to impact special-status species or other sensitive biological resources.

- Staging areas will be set back at least 50 feet from streams, creeks, or other water bodies to avoid impacts to riparian habitat. If grading takes place near wetlands, riparian habitat, or special-status plant or wildlife habitat, a biological monitor (a trained professional biologist) will approve the type and placement of environmental protections and will be present during grading activities.
- If special-status species are located prior to or during construction activities, construction personnel will contact the environmental monitor. If the environmental monitor determines that mitigation measures are not adequate to protect special-status species, the monitor will consult with USFWS and/or DFG regarding appropriate avoidance and mitigation measures.
- Photodocumentation of preconstruction habitat conditions will occur at all construction locations within sensitive habitats prior to the start of construction and immediately after construction activities.
- Trash, firearms, and pets will be prohibited in the project area during construction.

Additional mitigation measures (identified under *Biological Resources* below) to avoid, minimize, and mitigate specific potential impacts to biological resources will be implemented as necessary to reduce potentially significant impacts. In some cases, conducting preconstruction surveys to determine the presence or absence of special-status plant and wildlife species within the project area and avoidance of these resources will avoid significant impacts. Due to the extent of the project, however, specific project components will affect areas where the presence of special-status species is presumed based on occurrence of suitable habitat, CNDDDB occurrences in relation to the project area, or biological resource assessment surveys indicate presence.

Applicant-Proposed Mitigation Measures

Aesthetics

No significant impacts were identified related to agriculture.

Agriculture

No significant impacts were identified related to agriculture.

Air Quality

APM AIR-1: Implement BMPs to reduce construction tailpipe emissions

PG&E will implement all applicable and feasible measures to reduce tailpipe emissions from diesel-powered construction equipment. This requirement will be incorporated into the construction contract. These measures include:

- Shut down idling equipment that is not used for more than five consecutive minutes as required by California law.
- Maintain all construction equipment in proper tune according to manufacturer's specifications.
- Maximize to use of diesel construction equipment meeting CARB's 1996 or newer certification standard for off-road heavy-duty diesel engines.
- Use emission control devices at least as effective as the original factory-installed equipment.
- Locate stationary diesel-powered equipment and haul truck staging areas as far as practicable from sensitive receptors.
- Utilize existing power sources (e.g., power lines) or clean fuel generators rather than temporary power generators.
- Substitute gasoline-powered for diesel-powered equipment when feasible.
- Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel.

The off-road construction equipment is assumed to operate at 12 hours per day for each construction phase. The construction equipment operation hours are expected to reduce to 10 hours per day by minimizing idling limit to no more than 5 consecutive minutes.

In order to reduce the daily NO_x emissions below the significance threshold during the tower removal phase (in which two heavy-duty helicopters and two light-duty helicopters could operate on the same day and contribute to majority of daily NO_x emissions) PG&G would ensure that each helicopter (if all are to be used on the same day) is not operated for more than four hours per day. In addition, the off-road construction equipment used for the tower removal phase would not operate for more than five hours on the same day. Table 5-1 summarizes estimated maximum daily emissions of each construction phase with the above mitigations.

Table 5-1. Estimated Construction Emissions with Mitigations

Construction Phase	Construction Emissions (pounds per day)					
	ROG	NO _x	CO	SO ₂	PM10 Fugitive Dust	DPM Exhaust
Staging area preparation ¹	8	67	32	0	15	3
Existing tower removal ^{2,3}	6	133	51	6	7	2
New pole construction ^{1,4}	8	131	65	5	34	3
Transmission line installation ¹	3	29	10	0	0	1
Staging area recovery ¹	8	65	31	0	10	3
Maximum daily emissions	8	133	65	6	34	3
BCAQMD thresholds of significance						
Level C – significant impacts	137	137	-	-	137	-
FRAQMD thresholds of significance						
	25	25	-	-	80	-

¹ Operation of off-road construction equipment is assumed to reduce to 10 hours per day by minimizing idling time to 5 minutes.

² Operation of off-road construction equipment is limited to five hours per day helicopters are used on the same day.

³ Include the helicopter operation of two Bell 214 and two Hughes 500, which are assumed to operate at four hours per day for a total of 100 hours for each helicopter.

⁴ Include the helicopter operation of one Bell 214 and two Hughes 500. One Bell 214 is assumed to operate at four hours per day for a total of 100 hours and two Hughes 500 are assumed to operate at eight hours per day for a total of 200 hours for each helicopter.

APM AIR-2: Implement mitigation measures for construction fugitive dust emissions

PG&E will implement all applicable and feasible fugitive dust control measures required by the Butte County Air Quality Management District and Feather River Air Quality Management District, including those listed below. This requirement will be incorporated into the construction contract.

- Water all active construction sites at least twice daily in dry conditions, with the frequency of watering based on the type of operation, soil, and wind exposure.
- Prohibit all grading activities during periods of high wind (more than 20 miles per hour).
- On-site vehicles limited to a speed that minimizes dust emissions on unpaved roads.
- Cover all trucks hauling dirt, sand, or loose materials.
- Cover inactive storage piles.
- Install wheel washers at the entrance to construction sites for all exiting trucks.
- Sweep streets if visible soil material is carried out from the construction site.
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person would respond and

take corrective action within 48 hours. The phone number of the District also would be visible to ensure compliance with the District Rules (Nuisance and Fugitive Dust Emissions).

- Limit the area under construction at any one time.

APM AIR-3: Minimize greenhouse gas emissions during construction

PG&E will incorporate the following measures into the construction contract to reduce greenhouse gas emissions.

- Encourage the use of biodiesel fuel for diesel-powered equipment and vehicles.
- Encourage construction workers to carpool.
- Encourage recycling construction waste.

Biological Resources

APM BIO-1: Conduct a preconstruction tree survey and avoid or compensate for tree removal

Prior to construction, PG&E will conduct a tree survey to map and identify any protected trees in the project area that may be affected by the project. If feasible, the identified trees will be avoided during construction. If avoidance is not feasible, trees will be replaced or compensation will be provided, as stipulated in applicable local regulations.

APM BIO-2: Implement general protection measures for wetlands and other waters

During construction, PG&E will implement the following general measures to minimize or avoid impacts on wetlands and other waters:

- Establish exclusion zones and minimize the amount of area disturbed to the minimum amount necessary to complete the work.
- Restrict travel to established and temporary roads and work areas.
- Restrict construction personnel and equipment from entering fenced protected areas.
- Conduct all fueling of vehicles at least 100 feet from wetlands and other water bodies.
- To the extent feasible, complete road construction in wetlands and other waters in the dry season, generally from June 1 to October 15. If it is not feasible to complete road construction work during the dry season, appropriate erosion control measures for the site will be used.

Additionally, PG&E or its contractor will prepare and implement a SWPPP to prevent construction-related erosion and sediments from

entering nearby waterways. The SWPPP will include a list of BMPs to be implemented in areas with potential to drain to any water body in Butte, Yuba, or Sutter Counties. These BMPs will be selected to achieve maximum sediment removal and represent the best available technology (BAT) that is economically achievable. (See APM HYDRO-1).

APM BIO-3: Conduct mandatory contractor/worker awareness training for construction personnel

Before the start of construction activities, PG&E shall ensure that a qualified biologist will conduct mandatory contractor/worker awareness training for construction personnel. The awareness training will be provided to all construction personnel to brief them on the need to avoid impacts on wetlands and on the penalties for not complying with biological mitigation requirements. If new construction personnel are added to the project, the contractor will ensure that the personnel receive the mandatory training before starting work.

APM BIO-4: Install construction barrier fencing to protect wetlands and other waters adjacent to the project area

PG&E or its contractor will install construction barrier fencing that clearly identifies wetlands that are to be avoided. Wetlands located within work areas will be fenced off to avoid disturbance in these areas. Before construction, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the barrier fencing and will place stakes around the wetland areas to indicate their locations. The protected area will be designated an environmentally sensitive area and clearly identified on the construction specifications. Temporary fences will be furnished, constructed, maintained, and removed as shown on the plans, as specified in the special provisions, and as directed by the project engineer.

APM BIO-5: Restore temporarily impacted wetlands and other waters to pre-construction condition

- Minimize ground disturbance wherever possible.
- Remove construction materials.
- Save and replace topsoil and re-grade where necessary to pre-construction topographic contours.
- Re-seed with native local weed-free seed source in highly disturbed areas.

APM BIO-6: Monitor during and after disturbance in wetlands and other waters

- Monitor to avoid travel through wetlands and other waters wherever possible.
- Monitor to assure that restoration to pre-construction condition is completed.

- Monitor to make sure no noxious weed species are introduced. A Noxious Weed Survey was conducted prior to project initiation which contains a list of pre-existing weeds of concern. If weeds are introduced or spread initiate a treatment plan.

APM BIO-7: Compensate for permanent impacts on wetlands and other waters caused by new structures

Within the project study area there will be 14 new structures placed in wetlands and other waters. The placement of the new structures will result in a total of 0.012 acres of permanent impacts on wetlands and other waters. PG&E will compensate for permanent impacts on wetlands and other waters to ensure no net loss of wetland habitat functions and values. The compensation will be provided at a minimum ratio of 1:1 (1 acre restored or created for every acre filled), but final compensation ratios will be based on site-specific information and determined through coordination with state and federal agencies as part of the permitting process for the project.

Compensation may be a combination of onsite restoration and creation, off-site restoration, and mitigation credits. PG&E will retain an environmental consultant with the appropriate design/engineering experience (e.g., restoration ecologist, hydrologic engineer, landscape architect) as needed to evaluate the project study area and determine if onsite wetland habitat restoration/creation is feasible.

APM BIO-8: Complete spring surveys for special-status plants in all disturbance areas

Prior to construction, a qualified botanist will complete spring surveys during individual blooming timeframes to identify special-status plants at all locations not covered in 2005 surveys to determine the presence or absence of special-status plants. No construction activities shall occur in the 2008 project area until surveys for potentially occurring special-status plants have been performed. If surveys determine that no special-status plants are present then no further mitigation is required. If special-status plants are found to be present then measures APM BIO-9 (Avoid Impacts on Special-Status Plants), APM BIO-10 (Minimize impacts on special-status plants) and APM BIO-11 (Compensate for the loss of special-status plants) will be implemented.

APM BIO-9: Avoid impacts on special-status plants

Wherever possible, the project components will be redesigned to avoid impacts to special-status plants. PG&E will, under the direction of a qualified botanist and to the extent possible, adjust the location of work areas, access roads, and other project components to completely avoid impacts on brown fox sedge and other special-status plants that may be located within the study area prior to construction. If this avoidance measure is not feasible, the applicant will implement APM BIO-10 (Minimize impacts on special-status plants) and APM BIO-11 (Compensate for the loss of special-status plants).

APM BIO-10: Minimize impacts on special-status plants

If full avoidance of fox sedge and other special-status plants identified in the project area is not possible during construction, PG&E shall minimize impacts by limiting the work area to the smallest area necessary to complete the work and shall establish avoidance areas. Avoidance areas shall be clearly staked and flagged in the field by a qualified botanist prior to construction.

Where temporary disturbance is necessary, PG&E shall conduct project activities and necessary ground disturbance in a manner that is consistent with the successful reestablishment of the species to the extent feasible. A list of specific actions necessary to ensure successful reestablishment of the species following temporary disturbance, and the locations where these actions will be implemented, will be prepared by a qualified botanist prior to construction and implemented during construction. The environmental awareness education program should include information on the location of special-status plants in the project area and the measures that will be implemented to avoid or minimize impacts on the plants.

APM BIO-11: Restore habitat for special-status plants disturbed during construction

If impacts on special-status plants are unavoidable, PG&E will develop a special status plant restoration plan in consultation with DFG (and USFWS in the event that a federally listed plant is found). No impacts to special-status plants shall be allowed until agency requirements are determined and implemented. The specific actions necessary will depend on the biology of the species in question and the type of impact; however, the actions will be designed to ensure successful reestablishment of the species following disturbance. The plan will be prepared by a qualified botanist prior to construction and will indicate when and where the actions will be implemented during construction. The plan will include a restoration and reseeding plan specific to the special-status plant habitat which is disturbed.

APM BIO-12: Implement management practices to control the introduction and spread of invasive plants

Prior to construction, PG&E will identify the location of noxious weed species of concern within areas that will be disturbed as part of the project. Appropriate management practices will be designed by a botanist and implemented during construction to reduce the likelihood of spreading already established weeds into new areas or increasing their abundance, and of introducing new weed species to the project area.

The SWPPP to be prepared for the project will include best management practices (BMPs) such as using construction equipment that has been cleaned of soil and plant parts, including seeds, before entering the project area; using weed-free straw for erosion control, weed free gravel or fill for road construction, and revegetating with appropriate seed mixes that may include native species and/or sterile nurse crops. A post-construction

survey for new weeds in areas that were disturbed during construction will also be conducted. If weed populations not previously found adjacent to project-disturbed areas are found following construction, they will be controlled using the most effective and least environmentally harmful methods. Implementing the management practices described above will reduce potentially significant impacts from invasive plants to a less-than-significant level.

APM BIO-13: Avoid or minimize effects on valley elderberry longhorn beetle during construction

Direct impacts to VELB will be avoided when feasible by minimizing the amount of suitable habitat that will be trimmed or removed. Suitable habitat is considered all elderberry stems greater than one-inch in diameter when measured at ground-level. Work areas and structure locations will be designed or selected such that elderberry shrubs are avoided whenever possible. The transmission line and construction area will avoid potential impacts by spanning riparian forest vegetation along the Yuba River and Bear River where many of the elderberry shrubs in the study area are located. Additional shrubs within the study area are separated from potential project effects by a distinct barrier, such as a railroad or canal.

Potential impacts to 44 elderberry shrubs located within 100 feet of the proposed project area but greater than 20 feet from the project area will be avoided through project design and implementation of BMPs. These shrubs are subject to potential indirect impacts from project construction; however, reconstruction and maintenance activities will not require ground disturbance within 20 feet of the drip-lines of these shrubs. PG&E does not expect impacts to VELB habitat located greater than 20 feet from the transmission facilities or project access routes.

Potential impacts to 26 elderberry shrubs located within 20 feet of the project area will be minimized through implementation of these measures and as detailed in the Valley Elderberry Longhorn Beetle Conservation Program (PG&E 2003).

- A qualified biologist will survey for the presence of elderberry plants within 20 feet of the work area and mark the minimum set-back distance with construction flagging.
- Field workers will be briefed on the location of elderberry plants in or near the work area and will review the appropriate avoidance, protection, and minimization measures.
- Ground-disturbing activities will include erosion control measures that prevent soil from leaving the work area or encroaching on an elderberry shrub.
- A qualified biologist will survey all project access roads prior to conducting routine road maintenance or road grading.
- Construction vehicles will avoid traveling near elderberry shrubs that are located within 20 feet of an existing or temporary access road.

Shrub numbers 1, 3-11, 26, and 55 are located directly beneath existing transmission towers. Most of these shrubs are greater than 25 feet in height, having grown up through and around portions of the tower structures. To avoid potential impacts from traditional demolition, these towers will be dismantled and removed only to ground level where feasible. Where the elderberry shrub has grown into or is entwined with the tower to the extent where the tower cannot be removed completely without trimming the shrub, that portion of the tower will be left in place. In order to protect public safety, PG&E's BMPs call for removal of non-functional facilities. Therefore, this measure will be implemented to the extent feasible without jeopardizing public safety. In general, metal tower structures will be dismantled and removed from the site while concrete footings will remain in place or be dismantled to ground-level.

APM BIO-14: Compensate for loss of valley elderberry longhorn beetle habitat and potential loss of individuals

PG&E will compensate for permanent and temporary loss of habitat and potential loss of individual VELB through participation in the Valley Elderberry Longhorn Beetle Conservation Program (PG&E 2003). The program was developed to compensate for trimming approximately 250 elderberry plants and removing approximately 20 plants per year.

PG&E will continue to fund the recovery of VELB and increase habitat through acquisition, restoration, or protection of lands in areas that provide the greatest conservation to the species. Habitat locations identified during technical studies for the project will be added to the PG&E database or VELB habitat. Elderberry shrub locations and project activities will be incorporated in PG&E's biennial monitoring report.

APM BIO-15: Avoid or minimize impacts on habitat for vernal pool species during construction

PG&E will implement measures that would substantially reduce the risk of incidental take of vernal pool fairy shrimp, vernal pool tadpole shrimp, and western spadefoot in the project area. Prior to and during construction, PG&E will perform the following actions:

- Where feasible, the project will be designed to avoid direct and permanent impacts to vernal pool species and their habitat; new structures will be located outside of suitable habitat features; and work areas and access routes will be designed to avoid vernal pool habitats.
- Where existing towers are located within a suitable habitat feature, the removal of those towers will be conducted in a way that minimizes potential ground disturbance. Lattice towers will be removed from habitat using a helicopter or crane lift so that construction equipment will not enter the habitat area. Existing foundations proposed to be removed from habitat will be demolished only to ground level to avoid unnecessary ground disturbances.
- Temporary construction disturbances to vernal pools, seasonal wetlands, and ponds will be minimized to the extent practicable. All

project-related vehicle traffic will be restricted to established roads, temporary access roads, or designated construction areas.

- Ground-disturbing activities within 250 feet of suitable aquatic habitat will be conducted during the dry season (generally May 1 to October 15).
- If construction activities occur during the wet season, temporary silt fencing should be installed at the limits of the affected work areas to prevent amphibians from moving into the work areas. The location of the fencing would be determined by the environmental monitor and the construction supervisor.
- An environmental monitor will monitor construction activities within 250 feet of suitable aquatic habitat for vernal pool species.
- Plastic monofilament netting (erosion control matting) or similar material will not be used for erosion control or other purposes in the construction area because amphibians may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or hydro-seeding.
- PG&E will implement BMPs to prevent sediment from entering aquatic habitat near the work areas. Measures include silt fencing, sterile hay bales, no cleaning of equipment in drainages or other wetlands, and temporary sediment disposal.
- Within 1 week of completion of the project, all habitats subject to temporary ground disturbances will be re-contoured, if appropriate in the opinion of the onsite biologist, and re-vegetated to promote restoration of the area to natural conditions.

APM BIO-16: Compensate for impacts to habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp

PG&E will preserve a compensatory amount of land supporting vernal pools and associated upland habitat supporting vernal pool species, or acquire mitigation credits at a USFWS-approved conservation area that supports vernal pool tadpole shrimp or vernal pool fairy shrimp. The typical compensation ratio implemented for direct impacts to vernal pool habitat is 3 acres preserved and 2 acres created at a USFWS-approved site, or 5 acre credits if purchasing from an approved mitigation bank.

However, the potential impacts associated with the project are substantially different from most projects that involve filling or trenching through vernal pool habitat. Due to the artificial habitat conditions present in the project area, the existing utility operation and maintenance practices, and type of construction activities proposed, the vast majority of potential habitat features located in the study area will continue to provide the same ecologic value to listed vernal pool species as they do prior to the project.

Therefore, a reasonable compensation ratio for potential impacts resulting from this project is 1 acre preserved and 1 acre created for each

acre impacted, or 2 acre credits purchased at an approved mitigation bank. Potential impacts to 6.77 acres of potential habitat for listed vernal pool species located within 50 feet of ground disturbing activities will be compensated through either preservation of 6.77 acres and creation of 6.77 acres of vernal pool habitat, or through the purchase of 13.54 acres of habitat. Potential direct and indirect impacts to 7.90 acres of potential habitat located within 50 feet of work areas and access roads will be avoided where possible; however, unavoidable indirect impacts will be compensated for at a similar ratio of 2 acres conserved per acre of impact. Impacts to 12.0 acres of potential habitat located greater than 50 feet from potential ground disturbances will be avoided. A summary of potential impacts to vernal pool habitat and proposed compensation is provided in Table 4.4-6.

If on-site preservation or creation is proposed to compensate for impacts to vernal pool habitat, adequate funding, monitoring, and adaptive measures will be incorporated into the compensation program that will ensure the protected habitat remains undisturbed in perpetuity.

APM BIO-17: Minimize potential impacts on giant garter snake during construction within suitable habitat

To avoid and minimize impacts on giant garter snake, PG&E will implement the following measures:

- As feasible, construction activity within giant garter snake aquatic and upland habitat in and around agricultural ditches will be conducted within the active period for giant garter snakes (between May 1 and October 1). Depending on weather conditions and consultation with USFWS and DFG, it may be possible to extend the construction period into mid or late October. This would reduce direct impacts on the species because the snakes would be active and may respond to construction activities by moving out of the way.
- Prior to any construction within suitable giant garter snake aquatic habitat (agricultural ditches), the habitat will be dewatered and must remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of dewatered habitat.
- A USFWS-approved biologist will conduct a preconstruction survey in suitable habitat no more than 24 hours before construction and will be onsite during construction activity in potential aquatic and upland habitat. The construction area will be resurveyed whenever there is a lapse in construction activity of two weeks or more.
- If a giant garter snake is encountered within the construction work area, construction activities must cease until the snake moves out of the work area unassisted. Capture and relocation of trapped or injured individuals can only be attempted by USFWS-permitted personnel. The applicant or its contractors will notify USFWS within 24 hours and submit a report, including dates, locations, habitat description, and any corrective measures taken to protect the snake(s) encountered. For each giant garter snake encountered, the

biologist will submit a completed CNDDDB field survey form (or equivalent) to DFG no more than 90 days after completing the last field visit to the project site.

- Construction personnel will participate in a USFWS-approved worker environmental awareness program. A qualified biologist will inform all construction personnel about the life history of giant garter snake and the terms and conditions of the BO. Proof of this instruction will be submitted to USFWS Sacramento field office.
- To ensure that construction equipment and personnel do not affect giant garter snake aquatic habitat outside the construction work area, orange barrier fencing will be erected to clearly delineate the aquatic habitat to be avoided.
- A post-construction compliance report prepared by a qualified biologist will be forwarded to the chief of the Endangered Species Division of USFWS Sacramento field office within 60 days after completion of the Project. This report will include dates that construction occurred, pertinent information about the applicant's success in implementing project mitigation measures, an explanation of any failures to implement mitigation measures, any known project impacts on federally listed species, any occurrences of incidental take of federally listed species, and any other pertinent information.

APM BIO-18: Compensate for loss of aquatic and upland habitat for giant garter snake

- To compensate for the permanent loss of suitable aquatic habitat for giant garter snake, PG&E will create habitat within the project site and purchase off-site giant garter snake habitat credits from a USFWS-approved conservation area servicing the project area (Table 4.4-7). Onsite restoration of aquatic habitat will include the removal of the old lattice tower structures that will be replaced with new structures. The new structures have a smaller permanent footprint than the old lattice towers. The area of the old towers will be restored to surrounding habitat function and value.
- An approved mitigation bank for giant garter snake within the project area is Westervelt Inc.'s property located in Sutter County. Permanent impacts will be compensated at a minimum ratio of 3:1. All temporary impacts to upland non-agricultural and agricultural habitat will be restored back to the pre-project condition within one year from the completion of the project. Disturbance to suitable habitat within 200 feet of a work area will be compensated for at a ratio appropriate for the duration of disturbance
- To comply with the federal Endangered Species Act, final compensation requirements and mitigation ratios for the proposed project will be determined through consultation with USFWS (including preparation of a biological opinion) before the issuance of grading permits for the affected area.

APM BIO-19: Conduct a preconstruction survey for western pond turtles and monitor construction activities within suitable aquatic and upland habitat

To avoid construction-related impacts on northwestern pond turtles, PG&E will retain a qualified wildlife biologist to conduct a preconstruction survey for western pond turtles no more than 48 hours before the start of construction in work areas that are within suitable upland habitat (grasslands within 1,300 feet of aquatic habitats). The preconstruction survey will be conducted in conjunction with giant garter snake and western spadefoot surveys. The wildlife biologist will look for adult pond turtles, in addition to nests containing pond turtle hatchlings and eggs. If an adult western pond turtle is located in the construction area, the biologist will move the turtle to a suitable aquatic site, outside the construction area. If an active pond turtle nest containing either pond turtle hatchlings or eggs is found, PG&E will consult DFG to determine and implement appropriate avoidance measures, which may include a “no-disturbance” buffer around the nest site until the hatchlings have moved to a nearby aquatic site.

APM BIO-20: Conduct preconstruction surveys for active burrowing owl burrows

DFG (1995) recommends that preconstruction surveys be conducted at all construction sites (except paved areas) in the project study area and in a 250-foot-wide buffer zone around the construction site to locate active burrowing owl burrows. PG&E will retain a qualified biologist to conduct preconstruction surveys for active burrows according to the DFG guidelines. Surveys typically include a nesting season survey and a wintering season survey. The surveys will cover all affected areas, including the transmission line route, staging areas, pull sites, and areas of access road improvements where ground disturbance is required. If no burrowing owls are detected, no further mitigation is required. If active burrowing owl burrows are detected, PG&E will implement APM BIO-22 (Implement DFG guidelines for burrowing owl mitigation, if necessary).

APM BIO-21: Implement DFG (1995) guidelines for burrowing owl mitigation, if necessary

PG&E will implement the following measures based on DFG Guidelines if active owl burrows are located within 250 feet of the project area.

- Occupied burrows will not be disturbed during the nesting season (February 1–August 31). PG&E will consult with DFG to determine the appropriate no disturbance buffer around active burrows, if owls are located near the project area.
- When destruction of an occupied burrow is unavoidable during the non-breeding season (September 1–January 31), unsuitable burrows will be enhanced (enlarged or cleared of debris) or new burrows created by installing artificial burrows at a ratio of 2:1 on protected lands approved by DFG. Newly created burrows will follow guidelines established by DFG.

- If owls must be moved away from the project construction area, passive relocation techniques, such as installing one-way doors at the burrow entrance, will be used instead of trapping the owls. At least 1 week will be necessary to accomplish the passive relocation and allow the owls to acclimate to alternative burrows.
- If active burrowing owl burrows are found and the owls must be relocated, PG&E will offset the loss of foraging and burrow habitat in the project construction area by acquiring and permanently protecting a minimum of 6.5 acres of foraging habitat per occupied burrow identified in the project construction area. The protected lands should be located adjacent to the occupied burrowing owl habitat in the project construction area or at another occupied site near the project construction area. The location of the protected lands will be determined in coordination with DFG. PG&E also will prepare a monitoring plan and provide long-term management and monitoring of the protected lands. The monitoring plan will specify success criteria, identify remedial measures, and require an annual report to be submitted to DFG.
- Avoidance will be the preferred method of addressing potential impacts. Avoidance will involve preventing disturbance within 160 feet of occupied burrows during the nonbreeding season (September 1–January 31) or within 250 feet during the breeding season. Avoidance also requires that at least 6.5 acres of foraging habitat (calculated based on an approximately 300-foot foraging radius around an occupied burrow), contiguous with occupied burrow sites, be permanently preserved for each pair of breeding burrowing owls or single unpaired resident bird. The configuration of the protected site will be submitted to DFG for approval.

APM BIO-22: Conduct tree trimming, vegetation removal, and, if possible, tower removal during the non-breeding season

To avoid removal of active nests, tree trimming, vegetation removal, and removal of towers with active nests or in close proximity to areas with active nest sites, should be conducted during the non-breeding season (generally August 16 through February 28).

APM BIO-23: Conduct preconstruction surveys for active special-status and non-special-status raptors and migratory birds

Construction activities are anticipated to occur mainly during the nesting season for migratory birds and raptors (March 1–August 15). PG&E will retain a qualified wildlife biologist to conduct preconstruction surveys for nesting birds, for all construction activities that occur within or near suitable breeding habitat. Due to the long linear nature of the project, construction activities will be conducted in distinct sections of the transmission line. The preconstruction surveys will be conducted for each section no more than 1 week prior to the start of construction activities in that section. Surveys will cover all affected areas, which is

the transmission line route, staging areas, pull sites, and areas of access road improvements where ground disturbance or vegetation clearing is required. Preconstruction surveys will be repeated if construction activities are dormant in a section for longer than 1 week.

If surveys indicate that migratory bird or raptor nests occur in areas that will be directly affected by construction activities, a no-disturbance buffer will be established around the nest site to avoid disturbance or destruction of the nest site until after the breeding season or until a wildlife biologist determines that the young have fledged. Generally, the buffer zones are 50–100 feet for nesting passerine birds, 300 feet for nesting raptors, and 500 feet for golden eagles. However, the extent of these buffers will be determined through coordination with DFG and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors will be analyzed to make an appropriate decision on buffer distances. All active nests occurring in or near the project area will be monitored during construction by the onsite monitor for signs of stress. If the onsite monitor determines that birds on the nest are stressed, construction will be halted and PG&E will contact DFG to determine a further course of action.

APM BIO-24: Avoid disturbance of active nests by helicopter use

Use of helicopters will be restricted to necessary trips to install and remove poles, install transmission lines, and deliver and remove equipment to areas lacking vehicle access. If active nests occur under planned helicopter flight paths, coordination with DFG will be required to determine whether modification of the flight path is necessary to avoid disturbance of active nests.

Cultural Resources

APM CR-1: stop work if previously unknown cultural resources are discovered

If buried cultural resources such as chipped or ground stone, historic debris, or building foundations are inadvertently discovered during site preparation or construction activities, work will stop in that area and within 100 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with PG&E and other appropriate agencies. (With the archaeologist's approval, work may continue on other portions of the site.) PG&E will be responsible for ensuring that the archaeologist's recommendations for treatment are implemented.

APM CR-2: stop work if human remains are discovered

If human remains are encountered during site preparation or construction, work will stop within a 100-foot radius of the find and the

county coroner will be notified immediately, as required by state law (*California Health and Safety Code [CHSC]. 7050.5*). A qualified archaeologist also will be notified immediately. If the county coroner determines that the remains are Native American, the coroner will contact the NAHC, pursuant to *CHSC 7050.5[c]*.

There will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie human remains until the county coroner has determined that (1) no investigation of the cause of death is required; and (2) if the remains are of Native American origin, the descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work for means of treating or disposing of with appropriate dignity the human remains and any associated grave goods as provided in *PRC 5097.98*—unless the NAHC was unable to identify a descendant or the descendant failed to make a recommendation within 48 hours after being notified by the commission.

Geology

APM GEO-1: Incorporate measures identified in geotechnical report/use of standard engineering practices to mitigate for individual site specific and design-specific hazards

For overhead transmission lines, tower replacement(s), and any other associated project activities, site-specific, design-level geotechnical investigations will be performed at specific locations where required to evaluate the potential for the presence of soft and/or loose soils, unstable slopes, surface fault rupture, ground shaking, liquefaction hazard, slope stability in the vicinity of river crossings, and expansive soils.

Where significant potential for these hazards exists, pole locations will be adjusted when possible in order to minimize any potential for damage.

Hazards and Hazardous Materials

APM HAZ-1: Implement a spill prevention plan

PG&E will implement a spill prevention plan (SPP) for each staging area and workers will receive written instructions and training on the plan. This measure will reduce the potential risk of accidental spills in construction areas. The SPP for each staging area will include the following.

- A hazardous substance control and emergency response plan addressing preparations for quick and safe cleanup of accidental spills. The plan will prescribe hazardous materials handling procedures for reducing the potential for a spill during construction and will include an emergency response program. The plan will

identify areas where refueling and vehicle maintenance activities and storage of hazardous materials, if any, will be permitted.

- An environmental training and monitoring program to communicate environmental concerns and appropriate work practices, including spill prevention, emergency response measures, and applicable BMPs to all construction and operations personnel. A monitoring program will be implemented to ensure that the plans are followed during the construction project.

APM HAZ-2: Conduct construction soil sampling and testing if soil contamination is suspected

PG&E will conduct soil sampling along the project alignments, as needed, before construction begins. Soil information will be provided to construction crews, to inform them about soil conditions and potential hazards. If hazardous substances are unexpectedly encountered during trenching, grading, or excavating work, work will be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. If excavation of hazardous materials is required, the materials will be handled, transported, and disposed of in accordance with federal, state, and local regulations.

APM HAZ-3: Conduct groundwater sampling and testing if suspected contaminated groundwater is encountered during construction

If suspected contaminated groundwater is encountered in the proposed project construction areas, samples will be collected and submitted for analysis of petroleum hydrocarbons, metals, volatile organic compounds, and semi-volatile organic compounds. If necessary, groundwater will be collected during construction, contained, and disposed of in accordance with all applicable regulations.

APM HAZ-4: Develop and Implement a helicopter lift plan

PG&E will require the helicopter vendor to prepare a helicopter lift plan for approval by the FAA prior to any construction helicopter operations. Any specific transportation needs (e.g., temporary road closures) will be identified in the plan and will be coordinated with the appropriate jurisdictions.

APM HAZ-5: Prepare a health and safety plan

PG&E will prepare a health and safety plan that will address emergency medical services to be provided in case of an emergency. The plan will list procedures, specific emergency response, and evacuation measures to be followed during emergencies. PG&E will prepare this manual and distribute it to all PG&E and contract workers involved in the project prior to construction and during operation of the proposed project.

PG&E will provide project maps to emergency personnel, which describe tower and pole locations as well as access roads, to ensure proper emergency response to all parts of the proposed project alignment.

APM HAZ-6: Develop and implement a fire risk management plan

PG&E follows a standard practice of developing and implementing a fire risk management plan that addresses fire-suppression equipment and procedures to be used during construction and training of construction and maintenance crews. Additionally, fire suppression equipment and materials will be kept adjacent to all areas of work and in staging areas, and will be clearly marked. Detailed information for responding to fires will be provided in the project's Fire Risk Management Plan.

Information contained in the Plan and location of fire-suppression materials and equipment will be included in as part of the employee environmental training discussed in APM HAZ-1.

Furthermore, water tanks will be sited in the project area to protect against fire, and all vehicles shall carry fire suppression equipment. PG&E will contact and coordinate with local and county fire departments to determine the minimum amounts of fire equipment to be carried on the vehicles and appropriate locations for the water tanks.

Hydrology and Water Quality

APM HYDRO-1: Prepare and implement a storm water pollution prevention plan

PG&E or its contractor will prepare and implement an SWPPP to prevent construction-related erosion and sediments from entering nearby waterways. The SWPPP will include a list of BMPs to be implemented in areas with potential to drain to any water body in Butte, Yuba, or Sutter Counties. These BMPs will be selected to achieve maximum sediment removal and represent the BAT that is economically achievable. BMPs to be implemented as part of the project-specific SWPPP may include, but are not limited to, the following control measures.

- Temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, grass buffer strips, high infiltration substrates, grassy swales, and temporary revegetation or other ground cover) will be employed to control erosion from disturbed areas.
- Drainage facilities in downstream offsite areas will be protected from sediment using BMPs acceptable to Butte, Sutter, and Yuba Counties and the CVRWQCB.
- Pervious/porous pavement would be used to reduce runoff when economically feasible. The pavement is a unique cement-based concrete product with a porous structure, which allows rainwater to pass directly through the pavement and into the soil.

Vegetative cover would be established on the disturbed areas as soon as possible after disturbance. Final selection of BMPs would be subject to review by PG&E.

APM HYDRO-2: Develop and implement a spill prevention control and countermeasure plan

PG&E or its contractor will develop and implement an SPCCP to minimize the potential for, and effects of, spills of hazardous, toxic, or petroleum substances during all construction activities. The SPCCP will be completed and included in the SWPPP before any construction activities begin. PG&E will routinely inspect the construction areas to verify that the control measures specified in the SPCCP are properly implemented and maintained. PG&E will notify its contractors immediately if there is a noncompliance issue and will require compliance.

If an appreciable spill occurs, a detailed analysis will be performed by a registered environmental assessor to identify the likely cause of contamination. This analysis would conform to American Society for Testing and Materials (ASTM) standards and would include recommendations for reducing or eliminating the source or mechanisms of contamination. Based on this analysis, PG&E and its contractors will select and implement additional measures to control contamination, with a performance standard that groundwater quality and surface water quality must be returned to baseline conditions.

APM HYDRO-3: Perform a drainage study and comply with setback requirements and county standards

A drainage study will be performed for all of the areas that require grading and new roadways in addition to placement of tower footings in the 100-year floodplain. The drainage study will include calculations for the potential increases in stormwater runoff from related construction activities. The study will also include drainage improvements to minimize the risk of flooding to downstream areas based on any potential increase in flood areas from the proposed project. PG&E will incorporate the recommendations for the drainage study into construction plans and will comply with county standards for construction in 100-year floodplains.

Land Use and Planning

No significant impacts were identified related to land use and planning.

Mineral Resources

No impacts were identified related to mineral resources.

Noise

APM Noise-1: Employ noise-reducing construction practices during temporary reconstruction activities

PG&E will employ noise-reducing construction practices so that noise produced by construction activities is in compliance with applicable local noise level standards and ordinances where feasible. Measures to be implemented may include but are not limited to the measures listed here.

- Ensure that all equipment is equipped with mufflers that meet or exceed factory new equipment standards.
- Locate stationary equipment as far as practical from noise sensitive receptors.
- Limit unnecessary engine idling.
- Use equipment that is specifically designed for low noise emissions and employ equipment that is powered by electric or natural gas engines as opposed to those powered by diesel or gasoline reciprocating engines.
- In the vicinity of noise-sensitive receptors, use cranes wherever feasible as opposed to helicopters to install poles and replace transmission towers.
- Design helicopter flight paths over land use areas that are not noise sensitive (i.e. agricultural and vacant).
- Locate helicopter staging areas as far from residential locations as is practical.
- Limit all construction activity to the hours of 7 a.m. to 7 p.m. Monday through Saturday.
- Use temporary enclosures or noise barriers (i.e. wood and/or noise blankets) around loudest pieces of equipment when practical and necessary.
- Notify communities and neighborhoods that will be most heavily impacted by construction activities, including but not limited to written notice and the posting of signs with contractor contact number on construction site fences.
- Locate vehicle access roads as far from noise sensitive receptors as practical.
- Schedule construction activities in the vicinity of schools and learning institutions (such as Yuba Community College) on days when these facilities are not occupied.

Population and Housing

No significant impacts were identified related to population and housing.

Public Services

APM PS-1: Maintain secured facilities during construction activities

PG&E will implement the following measures during construction activities.

- All unattended equipment will be locked and secured at the most secure locations available.
- Contract security will be made available for use at active pull/tension sites, lay-down, and storage areas outside work hours.
- All open holes will be covered and secured once activity at that location stops (after hours).
- Anchor bolts on foundations without structures will be capped.
- Safety structures will be placed at road crossings during overhead wire installation activity to protect traffic and pedestrians.

Recreation

No significant impacts were identified related to recreation.

Transportation and Traffic

APM TRAN-1: Restriction of Simpson Lane during p.m. peak hours

- During p.m. peak hours, Simpson Lane shall not be used by the project for construction related activities.

Sutter County

All county roadways are operating at LOS C or better and therefore currently meet the adopted Sutter County standard. Because of the project's temporary nature and the limited increase in traffic, LOS would not exceed thresholds due to project-related construction and impacts would be less than significant.

Utilities and Service Systems

APM USS-1: Conduct a pre-construction records search/field survey to identify specific locations of water wells and well fields

To ensure minimal disturbance or alteration of water wells or well fields within the project alignment, PG&E will conduct a pre-construction

records search and field survey to identify specific locations of water wells and well fields.

APM USS -2: Notify underground service alert at least 14 days prior to initiation of construction activities in the underground portion of the power line

PG&E will ensure that Underground Service Alert is notified at least 14 days prior to initiation of construction activities of the underground portion of the power line. Underground Service Alert verifies and physically marks the location of all existing underground utilities in the area of anticipated construction activities to prevent accidental disturbance.

Growth-Inducing Impacts

No significant growth-inducing impacts were identified.

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ICF Jones & Stokes

630 K Street, Suite 400
Sacramento, CA 95814

Project Management Team

- Gregg Roy—Project Director
- Sally Lyn Zeff, AICP—Project Manager
- Taryn Nance—Project Coordinator

Technical Team

- Taryn Nance—Project Description; Purpose and Need; Growth-Inducing Impacts
- Casey Mills—Agricultural Resources; Land Use and Planning; Mineral Resources; Population and Housing; Public Services; Recreation; Utilities and Service Systems
- Kai Ling Kuo, P.E.—Air Quality
- Patrick Stone—Biological Resources (Wildlife)
- Ramona Robinson—Biological Resources (Botany)
- Steve Avery—Biological Resources (Botany)
- Gabriel Roark—Cultural Resources
- Sacha Selim—Geographic Information Systems
- Dan Schiff—Geographic Information Systems
- Jeff Peters—Geology, Soils and Seismicity
- Shahira Askhar—Hazards and Hazardous Materials
- Tina Pitsenberger—Hazards and Hazardous Materials
- Nate Martin—Hydrology and Water Quality

- Joshua Carman—Noise
- Christine McGeever—Technical Editor
- Daniel Serrano—Transportation and Traffic

Environmental Vision—Visual Simulations

2550 Ninth, Suite 205
Berkeley, CA 94710

Pacific Gas and Electric Company

Land Planning and Routing
Technical and Land Services
350 Salem Street
Chico, CA 95928

Project Management Team

- Tom Marki—Project Manager
- Jesus Viscarra—Land Planner
- Jo Lynn Lambert—Legal Counsel

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Andrew Wetter, Butte County Sheriff's Office, October 23, 2008

Ryan Silva, Firefighter, Oroville fire department, October 23, 2008

Scott Bryan, Yuba County, Office of Emergency Services, October 24, 2008

Eric Miller Captain, Olivehurst Fire Department, October 24, 2008

Tim Taylor, Captain, Linda Fire Department, October 24, 2008

Arthur Paquette, Captain, Wheatland Fire Department, October 24, 2008

Trish Briel, Administrative Assistant, Oroville Fire Department, October 24,
2008

Ida Loyd, Public Safety Dispatcher, Sutter County Police Department, October
29, 2008

Curt Williges, Chief, Marysville Fire Department, October 29, 2008

Jerry Reed, Sheriff, Yuba County Sheriff's Department, October 29, 2008

Russ Fowler, Battalion Chief, Butte County Fire Department, October 29, 2008

Richard Herrington, Chief, East Nicolaus Fire Department, October 29, 2008

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