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DRAFT ENVIRONMENTAL IMPACT REPORT

Northern San Joaquin 230 kV Transmission Project

SCH # 2024010207

Prepared for:

California Public Utilities Commission
Energy Division – Infrastructure and Permitting

December 2024

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December 2024

19010160.01

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LIST OF ABBREVIATIONS

°C	Celsius
15 ppmw sulfur	low-sulfur highway fuel
2022 Scoping Plan	2022 Scoping Plan for Achieving Carbon Neutrality
A/G	General Agriculture
AAQA	ambient air quality analysis
AAQS	ambient air quality standard
AB	Assembly Bill
AC/DC	alternating current and direct current
ACC II	Advanced Clean Cars II
ACC	Advanced Clean Cars
ACC	all-aluminum conductor
ACM	asbestos-containing material
ADA	Americans with Disability Act
AES	Aesthetics
AGR	Agriculture and Forestry Resources
AIR	Air Quality
ALUC	Airport Land Use Commission
ALUCP	San Joaquin County Airport Land Use Compatibility Plan
ALUP	Airport Land Use Plan
ANSI	American National Standards Institute
APM	applicant-proposed measure
AQMP	Air Quality Management Plan
ATCM	airborne toxics control measure
BAAH	bay breaker-and-a-half
BACT	best available control technology
BESS	battery energy storage solution
bgs	below ground surface
BIO	Biological Resources
BMP	best management practice
BNSF	Burlington Northern Santa Fe
BP	Before Present
BPS	best performance standard
BSA	biological study area
C&D Ordinance	Construction, Demolition, and Landscaping Debris Recycling and Diversion Ordinance
CA HSC	Hazardous Waste Fee Health and Safety Code
CA MUTCD	*California Manual on Uniform Traffic Control Devices*
CA SDWA	California Safe Drinking Water Act
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CAFE	Corporate Average Fuel Economy
CAISO	California Independent System Operator
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emission Estimator Model

CalEPA	California Environmental Protection Agency
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	climate action plan
CAAQS	California Ambient Air Quality Standard
CARB	California Air Resources Board
CBC	California Building Standards Code
CCAA	California Clean Air Act
CCaIC	Central California Information Center's
CCR	California Code of Regulations
CCT	Central California Traction
CDF	California Department of Forestry
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEC	California Energy Commission
Central Valley RWQCB	Central Valley Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	California Fire Code
CFR	Code of Federal Regulations
CGP	Construction General Permit
CGS	California Geological Survey
CH_4	methane
CHP	California Highway Patrol
CHWMP	County Hazardous Waste Management Plan
CI	carbon intensity
CIWMA	California Integrated Waste Management Act
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CPCN	Certificate of Public Convenience and Necessity
CPUC	California Public Utilities Commission
CRFPD	Clements Rural Fire Protection District
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CRS	Cultural Resources Specialist
CUL	Cultural Resources
CUPA	Certified Unified Program Agency
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
CWA	Clean Water Act
dB	decibels
dBA	A-weighted decibels
DCTL	double-circuit transmission line
DERI	distribution energy resources improvement
DHS	California Department of Health Services
diesel PM	diesel particulate matter
DOT	Department of Transportation

Draft EIR	draft environmental impact report
DREAM	Demonstration Recharge, Extraction and Aquifer Management
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EBMUD	East Bay Municipal Utility District
EMF	electromagnetic field
EMFAC 2021	Emissions Factor Model 2021
EO	California Executive Order
EPA	US Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
ESA	environmental site assessment
ESA	federal Endangered Species Act
ESJGWA	Eastern San Joaquin Groundwater Authority
EV	electric vehicle
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FIA	fire index area
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FOCA	Swiss Federal Office of Civil Aviation
FPI	fire potential index
ft	Feet
FTA	Federal Transit Administration
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GCC	grid control center
General Permit	NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities
GEO, PAL	Geology, Soils, and Paleontological Resources
GHG	greenhouse gas
GIE	gas-insulated equipment
GO	General Order
GSA	groundwater sustainability agency
GWh	gigawatt hour
HAP	hazardous air pollutant
HAZ	Hazards, Hazardous Materials, and Public Safety
HDD	horizontal directional drilling
HFHSZ	High Fire Hazard Severity Zone
HFTD	High Fire Threat District
HMBP	Hazardous Materials Business Plan
HRA	health risk assessment
HYD	Hydrology and Water Quality
HVAC	heating, ventilation, and air conditioning
Hz	hertz
I	Industrial

I-205	Interstate 205
I-5	Interstate 5
IEEE	Institute of Electrical and Electronics Engineers
IEPR	Integrated Energy Policy Report
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
ISR	Indirect Source Review
KOP	key observation point
kV	kilovolt
LAN	Land Use and Planning
lb/day	pounds per day
LCFS	Low Carbon Fuel Standard
LDIGR	Local Development Intergovernmental Review
L_{dn}	day-night sound level
L_{eq}	equivalent continuous sound level
LEU	Lodi Electric Utility
LFD	Lodi Fire Department
LHMP	Local Hazard Mitigation Plan
L_{max}	maximum sound level
Lodi General Plan	City of Lodi General Plan
LOS	level of service
LPD	Lodi Police Department
LRA	Local Responsibility Area
LTC	load tap changer
LUST	leaking underground storage tank
LZ	Landing Zone
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant level
MEI	maximally exposed individual
MEIR	maximally exposed individual resident
MFHSZ	Moderate Fire Hazard Severity Zone
MGCC	minimum ground conductor clearance
MLD	most likely descendant
$MMTCO_2e$	million metric tons of carbon dioxide equivalent emissions
mPa	micro-Pascals
mph	miles per hour
MRFPD	Mokelumne Rural Fire Protection District
MRZ	Mineral Resource Zone
MS4	municipal separate storm sewer system
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
MVA	megavolt-ampere
MW	megawatt
N_2O	nitrous oxide
NAAQS	national ambient air quality standards
NAHC	Native American Heritage Commission
NASA	National Aeronautics and Space Administration
NCP	National Contingency Plan

NEHRP	National Earthquake Hazards Reduction Program
NERC	North American Electric Reliability Corporation
NESC	National Electric Safety Code
NESHAP	National Emission Standards for Hazardous Air Pollutant
NFIP	National Flood Insurance Program
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NOI	Noise
NOP	notice of preparation
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRHP	National Register of Historic Places
NSJWCD	North San Joaquin Water Conservation District
NWS	National Weather Service
O&M	operation and maintenance
OEHHA	Office of Environmental Health Hazard Assessment
OES	San Joaquin County Office of Emergency Services
OPGW	Optical ground wire
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PEA	Proponent's Environmental Assessment
PG&E	Pacific Gas and Electric
PM_{10}	respirable particulate matter with an aerodynamic diameter of 10 micrometers or less
$PM_{2.5}$	fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less
Porter-Cologne Act	Porter-Cologne Water Quality Control Act of 1970
ppm	parts per million
PPV	peak particle velocity
PQP	Public/Quasi-Public
PRC	California Public Resources Code
project	Northern San Joaquin 230 Kilovolt (kV) Transmission Project
PV	photovoltaic
PVC	polyvinyl chloride
RACM	reasonably available control measure
RCRA	Resource Conservation and Recovery Act
RFP	reasonable further progress
RHNA	Regional Housing Needs Allocation
RMS	root mean square
ROG	reactive organic gases
ROW	right-of-way
RPS	Renewable Portfolio Standard
RTD	San Joaquin Regional Transit District
RTIP	Regional Transportation Improvement Program
RWQCB	regional water quality control board
SARA	Superfund Amendments and Reauthorization Act
SB	Senate Bill

SCADA	supervisory control and data acquisition
SCAQMD	South Coast Air Quality Management District
SDS	safety data sheet
SDWA	Safe Drinking Water Act
SF_6	sulfur hexafluoride
SGMA	California Sustainable Groundwater Management Act
SIP	state implementation plan
SJCEHD	San Joaquin County Environmental Health Department
SJCOG	San Joaquin Council of Governments
SJCSO	San Joaquin County Sheriff's Office
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SJVHCP	San Joaquin Valley Habitat Conservation Plan
SLF	Sacred Lands File
SO_2	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasure
SPFC	State Plan of Flood Control
SPL	sound pressure level
SR	state route
SRA	state responsibility area
SRTP	Short-Range Transit Plan
SWMP	stormwater management program
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resource Control Board
TAC	toxic air contaminant
TCR	Tribal Cultural Resources
TMDL	total maximum daily load
TMP	Traffic Management Plan
TPP	Transmission Planning Process
tpy	tons per year
TRA	Transportation
TSP	tubular steel pole
UCMP	University of California Museum of Paleontology
UPRR	Union Pacific Railroad
USA	Underground Service Alert
USACE	US Army Corps of Engineers
USC	US Code
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
UST	underground storage tank
UWMP	urban water management plan
UWMPA	Urban Water Management Planning Act
V	volt
VdB	vibration decibels
VHFHSZ	Very High Fire Hazard Severity Zone
VMT	vehicle miles traveled
WDR	waste discharge requirement

WEAP	worker environmental awareness training program
WECC	Western Electricity Coordinating Council
WFR	Wildfire
WMP	Wildfire Mitigation Plan
WQO	water quality objectives
WSA	water supply assessment
WUI	Wildland Urban Interface
yd^3	cubic yards
ZEV	zero-emission vehicle

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This draft environmental impact report (Draft EIR) evaluates the environmental impacts of the proposed Northern San Joaquin 230 Kilovolt (kV) Transmission Project (project). CEQA requires the preparation of an EIR when there is substantial evidence that a project could have a significant effect on the environment. The purpose of an EIR is to provide decision makers, public agencies, and the general public with an objective and informational document that fully discloses the potential environmental effects. As required by Section 15123 of the California Environmental Quality Act Guidelines (State CEQA Guidelines), this summary includes (1) a brief description of the project, (2) a synopsis of environmental impacts and recommended mitigation measures (Table ES-1), (3) identification of the alternatives evaluated and of the environmentally superior alternative, and (4) a discussion of the areas of controversy associated with the project.

ES.2 PROJECT OVERVIEW

ES.2.1 Project Location

The project area spans unincorporated areas of northeastern San Joaquin County and an industrial area in the city of Lodi. Northeastern San Joaquin County is predominantly used for agricultural production, with associated retail wineries, rural and semirural residential development outside of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors.

ES.2.2 Background and Need for the Project

Beginning in 2012, the California Independent System Operator (CAISO) identified system reliability issues that did not meet certain thermal and voltage performance requirements established by the North American Electric Reliability Corporation (NERC)[1] in the project area. In the CAISO 2012-2013 Transmission Planning Process assessment, five Pacific Gas and Electric (PG&E) 60 kV lines between the PG&E Lockeford and PG&E Lodi substations (Lockeford/Lodi, or 230/60 kV system) in northern San Joaquin County (Northern San Joaquin area) were identified as having existing overload and high voltage deviation. To address these reliability issues, CAISO selected a 230 kV reinforcement for the 230/60 kV system.

CAISO's 2017-2018 planning cycle reevaluated the need for a 230 kV reinforcement project based on the latest system planning assumptions, which had changed since the 2012-2013 Transmission Planning Process because of grid-wide evolving load forecasts and distributed energy resource growth scenarios. Additional reliability assessments reaffirmed the need for a 230 kV reinforcement for the area to address reliability and forecasted capacity increases and approved a revised scope for the project that refined the original project components. The project is the solution identified in CAISO's 2017-2018 Final Transmission Plan (CAISO 2018). In its transmission planning documents, CAISO refers to the project as "Lockeford-Lodi Area 230 kV Development."

The purpose of PG&E's Northern San Joaquin 230 kV Transmission Project is to address reliability and capacity issues identified by CAISO on the existing PG&E 230 kV and 60 kV systems serving the area between the PG&E Lockeford and PG&E Lodi substations (Lockeford/Lodi, or 230/60 kV system) in northern San Joaquin County (Northern San Joaquin area). PG&E currently implements operational procedures to temporarily address the potential for 60 kV systemwide outages during peak-loading conditions over approximately 165 megawatts (MW) of load. This

[1] NERC's transmission system planning performance requirements for normal system operation include assessment and planning for events that could impact a system's stability and service.

temporary operational procedure draws from a single strong PG&E 230 kV source and can serve up to approximately 180 MW of load. If the 60 kV system load exceeds 180 MW, or if the single PG&E 230 kV line has an issue and cannot provide transmission, then the area's power load needs are not met.

The project is necessary to address current and projected voltage issues and thermal overloads on PG&E's 230/60 kV system, as well as forecasted demand growth. The project would shift approximately 148 MW of load from the existing PG&E 60 kV system to a new PG&E 230 kV source. Moving the load to the PG&E 230 kV source would reduce demand on the PG&E 60 kV system, which would provide greater reliability to other existing PG&E customers within northern San Joaquin County. Adding the proposed new PG&E 230 kV source to the area would result in increased 230/60 kV system reliability and an expected normal load-serving capability of approximately 404 MW under normal operating conditions that would accommodate the forecasted power demand from agricultural, industrial, and residential growth in northern San Joaquin County.

ES.2.3 Characteristics of the Project

The project consists of the construction and operation of a new 230 kV transmission system with approximately 10.6 miles of new double-circuit 230 kV transmission lines, an expanded substation, a modified substation, a new substation, a new switching station, reconfiguration of four existing 60 kV lines, relocation or extension of two existing 12 kV lines, and upgrades at four remote-end substations and one repeater station. Refer to Chapter 2, "Project Description," of this Draft EIR for a detailed description of the project.

The project would loop PG&E's existing overhead Brighton-Bellota 230 kV Transmission Line through the PG&E Lockeford Substation and install a new overhead double-circuit 230 kV transmission line between PG&E Lockeford Substation and a new PG&E switching station (PG&E Thurman Switching Station) at the City of Lodi's Lodi Electric Utility's (LEU's) existing Fred M. Reid Industrial Substation (Industrial Substation) in Lodi, California. LEU would construct the LEU Guild Substation, a new 230/60 kV substation, between the existing LEU Industrial Substation and the new PG&E Thurman Switching Station. At LEU Guild Substation, the new PG&E 230 kV transmission line would terminate, and LEU transformers would step down the power to 60 kV to connect with the LEU Industrial Substation. When the new 230 kV system is operating, the existing local PG&E 60 kV system would be reconfigured within existing alignments, including disconnecting as a source to LEU at the LEU Industrial Substation. Existing LEU and PG&E 12 kV service/feeder lines and a third-party telecommunication line within Lodi would be modified during construction to allow reuse of an existing alignment, continuation of existing service, and construction of a new permanent secondary station service. PG&E would also perform proposed project-related work to update the system-protection scheme at four remote-end PG&E substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, California, respectively, and conduct project-related telecommunication work at the existing PG&E Clayton Hill Repeater Station (communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into the PG&E Thurman Switching Station in support of PG&E's system-protection scheme.

ES.2.4 Project Objectives

CPUC'S PROJECT OBJECTIVES

As the CEQA lead agency, CPUC is responsible for defining project objectives for the purpose of the CEQA analysis. These objectives may differ from PG&E's and LEU's objectives, as stated in the section below. According to its understanding of the purpose of the proposed project, CPUC has identified the following project objectives:

- substantially reduce existing thermal overload and voltage issues during P1 and P6 contingencies and maintain compliance with NERC standards in the Northern San Joaquin County area, including Lodi, as identified by CAISO in its 2017-2018 Transmission Plan;

- accommodate expected future increased electrical distribution demand in the Northern San Joaquin County area, including Lodi; and
- separate PG&E's 60 kV system from LEU's 60 kV system.

APPLICANT'S PROJECT OBJECTIVES

PG&E stated in the Proponent's Environmental Assessment (PEA) that its basic project objective is to address voltage issues and thermal overloads on PG&E's Lockeford/Lodi system during normal operation (Category P0) and during Category P1 and P6 contingency scenarios with a 230 kV reinforcement and substation, as identified by CAISO in its 2017-2018 Transmission Plan.

The following specific project objectives were identified in the PEA for the project:

- Meet PG&E's legal obligation to implement the CAISO-approved project.
- Improve system reliability for PG&E's approximately 10,000 electrical customers, one of which is LEU, which itself serves approximately 28,000 customers.
- Increase capacity to accommodate projected growth in demand and minimize future reliability issues for Lodi, as well as for PG&E customers.
- Address thermal overloads and voltage concerns on PG&E's 60 kV transmission system identified during P1 contingencies[2] and maintain compliance with NERC standards.
- Address thermal overloads on PG&E's 60 kV transmission system identified during P6 contingencies[3] and maintain compliance with NERC standards.
- Reinforce the PG&E 60 kV system in the Lodi area by constructing a new 230 kV double-circuit line to provide an additional source of power.
- Construct a new 230 kV switching station to receive the new 230 kV double-circuit line and provide power to a new 230/60 kV substation to be constructed by LEU.
- Separate PG&E's 60 kV system at the LEU Industrial Substation from LEU's 60 kV system.
- Construct a safe, economical, and technically feasible project that minimizes environmental and community impacts.

ES.3 SUMMARY OF PUBLIC INVOLVEMENT

ES.3.1 Pre-Filing Consultation and Public Outreach

Pre-filing consultation and public outreach occurred with CAISO, CPUC, public agencies with jurisdiction over the project area, Native American tribes affiliated with the project area, other utility owners and operators, and the local community and public. Information received from the public and interested parties supported the development and refinement of routes proposed by PG&E in the PEA.

ES.3.2 CEQA Noticing and Outreach

In accordance with CEQA requirements, CPUC circulated a notice of preparation (NOP) to agencies and interested members of the public on January 10, 2024. Circulation of the NOP initiated the 30-day scoping period, which lasted until February 9, 2024. CPUC transmitted copies of the NOP via certified mail to 20 agencies, including the planning departments of Alameda, Amador, Contra Costa, Sacramento, San Joaquin, Solano, and Stanislaus counties; and the

[2] A single outage, or a NERC Category P1 contingency, is defined as the loss of a generator, the loss of one transmission circuit, the loss of one transformer, the loss of one shunt device, or the loss of a single pole of direct current lines (NERC 2018).

[3] NERC Category P6 contingency, or outage, is defined as two overlapping single outages (transmission circuit, transformer, shunt device, or single pole of a direct current line) (NERC 2018).

cities of Escalon, Lathrop, Manteca, Ripon, Stockton, and Lodi. The Central Valley Regional Water Quality Control Board (RWQCB), San Joaquin Valley Air Pollution Control District, California Department of Transportation, and California Department of Fish and Wildlife were also directly mailed the NOP via certified mail. Copies of the NOP were sent to the Union Pacific Railroad and Central California Traction Company. CPUC also mailed copies of the NOP to the last known mailing address of 119 property owners within 300 feet of the proposed transmission line alignment. The NOP was also posted with the San Joaquin County Clerk and distributed to state agencies through the State Clearinghouse, a division of the Governor's Office of Land Use and Climate Innovation (formerly known as the Office of Planning and Research).

CPUC conducted two virtual public scoping meetings for the project on January 30, 2024, at 2:30 p.m. and 6:30 p.m. The meetings were open to the public, with attendees representing landowners, organizations, and other interested parties. The meeting format consisted of a presentation by CPUC and consultant staff followed by an opportunity for attendees to provide oral comments. The presentation included basic information about the project, ways interested parties can stay informed and engaged, and avenues by which to submit questions or comments. A total of about 45 individuals attended both virtual meetings.

Throughout development of this EIR, CPUC has maintained a website dedicated to the project that provides related materials, status updates, and contact information. CPUC has also organized separate informational meetings with the City of Lodi, the California Department of Fish and Wildlife, and the US Fish and Wildlife Service.

ES.4 AREAS OF CONTROVERSY

Most of the scoping comments (more than 80 percent) include mention of topics related to alternatives, generally including non-wire options that the City of Lodi could implement independently, route modification requests, suggestions to upgrade existing lines instead of constructing new ones, and requests to pursue undergrounding of the transmission line. In addition, several common topics raised in the comments related to property value, conflicts with agricultural production (including limiting the use of aerial spraying), the effect of the project on the aesthetic qualities of the project area, and human health hazards from potential exposure to electromagnetic fields.

Specific areas of controversy identified through the scoping process include:

- Concern that the proposed overhead power lines would have aesthetic impacts and would be visually prominent on the landscape.
- Conflict between overhead electrical lines and certain agricultural practices.
- Potential for the project to negatively impact Lodi's expanding agrotourism and wine industry.
- The necessity of the project and the potential for alternative solutions to supply Lodi with electrical power.
- Land ownership, easements, and perceived potential for effects on property value.

New project components would require land acquisition, new rights of way, and permanent and temporary construction easements. PG&E would establish permanent and temporary construction easements, use franchise rights, or seek encroachment permits or easements for construction and operation of its new and existing electrical facilities associated with the project. LEU's project-related activities would occur on City of Lodi property, city streets, or on LEU customer property. PG&E would acquire land from the City of Lodi for the new PG&E Thurman Switching Station. Otherwise, all PG&E substation and repeater station work would occur within existing PG&E property owned in fee. Note that land rights issues are not part of the current regulatory proceeding, in which CPUC is considering whether to grant or deny PG&E's application for a Certificate of Public Convenience and Necessity to upgrade existing electrical facilities. Rather, any land rights issues will be resolved in subsequent negotiations or condemnation proceedings in the proper jurisdiction, following the decision by CPUC on PG&E's application.

ES.5 ISSUES TO BE RESOLVED

State CEQA Guidelines Section 15123(b)(3) requires that an EIR identify issues to be resolved, including the choice among alternatives and whether or how to mitigate significant impacts. With regard to the project, the major issues to be resolved include decisions by CPUC, as lead agency, related to:

- Whether the identified mitigation measures should be approved or modified.
- Whether there are other mitigation measures that should be applied to the project besides those mitigation measures identified in this EIR.
- Whether there are any alternatives to the project that would substantially lessen any of the significant impacts of the project and achieve most of the basic project objectives.

In rendering a decision on the project, CPUC will consider input provided by the public, other agencies, community planning groups, and individuals.

ES.6 SUMMARY OF IMPACTS

This Draft EIR has been prepared to evaluate the physical environmental effects associated with implementation of the project. The project would not result in any significant and unavoidable impacts. Table ES-1, below, summarizes the potential impacts evaluated in this Draft EIR and mitigation identified to reduce significant effects on the environment.

ES.7 SUMMARY OF ALTERNATIVES

The following reasonable range of alternatives has been evaluated in detail in this Draft EIR.

- Alternative 1: No-Project Alternative assumes the continuation of baseline conditions. There would be no new 230 kV transmission lines or associated substation facilities, updates to PG&E's system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), or new 6-foot dish antennas installed on an existing microwave tower. The project area would remain in its current condition.
- Alternative 2: Central Route Alternative would involve routing the western portion of the new 230 kV line to the north of the proposed project alignment between PG&E Lockeford Substation and LEU Industrial Substation. It would parallel portions of the existing PG&E Lockeford-Industrial 60 kV Power Line. For the eastern segment between PG&E Lockeford Substation and PG&E Brighton-Bellota 230 kV Transmission Line, this alternative would parallel the existing PG&E Lockeford-Bellota 230 kV Transmission Line, the same eastern alignment as the project. The total length of new PG&E 230 kV transmission lines would be approximately 10.04 miles. All other components of this alternative would be the same as the project.
- Alternative 3: Northern Route Alternative would involve routing the western portion of the new 230 kV corridor, between the PG&E Lockeford Substation and LEU Industrial Substation, to the north of the proposed project alignment. It would parallel portions of the existing PG&E Lockeford-Industrial 60 kV Power Line on the western segment. Most of the eastern portion of the Northern Route Alternative 230 kV transmission line would be the same as the project. Approximately 1 mile west of PG&E Brighton-Bellota 230 kV Transmission Line (approximately 0.25 miles west of North Linn Road), the corridor would turn north and then east on East Sargent Road. The total length of new PG&E 230 kV transmission line would be approximately 10.39 miles. All other components of this alternative would be the same as the project.

Further details on each of these alternatives, including an evaluation of their environmental effects relative to the proposed project, are provided in Chapter 6, "Alternatives."

Table ES-1 Summary of Impacts and Mitigation Measures

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Aesthetics			
Impact AES-1: Result in a Substantial Adverse Effect on a Scenic Vista	LTS	No mitigation is required for this impact.	LTS
Impact AES-2: Substantially Degrade the Existing Visual Character or Quality of Public Views of the Site and Its Surroundings	LTS	No mitigation is required for this impact.	LTS
Impact AES-3: Create a New Source of Substantial Light or Glare That Would Adversely Affect Day or Nighttime Views	LTS	No mitigation is required for this impact.	LTS
Agriculture			
Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to Nonagricultural Use	LTS	No mitigation is required for this impact.	LTS
Impact AG-2: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract	LTS	No mitigation is required for this impact.	LTS
Impact AG-3: Involve Other Changes in the Existing Environment That Could Result in Conversion of Important Farmland to Nonagricultural Use	LTS	No mitigation is required for this impact.	LTS
Air Quality			
Impact AIR-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Plan	LTS	No mitigation is required for this impact.	LTS
Impact AIR-2: Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region Is Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard	LTS	No mitigation is required for this impact.	LTS
Impact AIR-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations	LTS	No mitigation is required for this impact.	LTS
Impact AIR-4: Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People	LTS	No mitigation is required for this impact.	LTS
Archaeological, Historical, and Tribal Cultural Resources			
Impact ARC-1: Cause a Substantial Adverse Change in the Significance of a Historical Resource	LTS	No mitigation is required for this impact.	LTS
Impact ARC-2: Cause a Substantial Adverse Change in the Significance of Unique Archaeological Resources or Archaeological Resources as Defined in State CEQA Guidelines Section 15064.5	S	**Mitigation Measure 3.5-2a [PG&E and LEU]: Inadvertent Archaeological Resource Discoveries** **Mitigation Measure 3.5-2b [LEU]: Establish a No-Disturbance Buffer for Unevaluated Archeological Resources**	LTS/M

NI = No impact LTS = Less than significant S = Significant SU = Significant and unavoidable

Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact ARC-3: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource	S	**Mitigation Measure 3.5-3: Inadvertent Discoveries of Tribal Cultural Resources**	LTS/M
Impact ARC-4: Disturb Human Remains	LTS	No mitigation is required for this impact.	LTS
Biological Resources			
Impact BIO-1: Result in Disturbance to or Loss of Special-Status Plants and Habitat	LTS	No mitigation is required for this impact.	LTS
Impact BIO-2: Result in Disturbance to or Loss of Special-Status Wildlife and Habitat	S	**Mitigation Measure BIO-2a [PG&E]: Conduct Survey for Estivating California Tiger Salamanders and Monitor Initial Ground Disturbance** **Mitigation Measure BIO-2b [PG&E and LEU]: Conduct Focused Surveys for Special-Status Birds, Nesting Raptors, and Other Native Nesting Birds and Implement Protective Buffers** **Mitigation Measure BIO-2c [PG&E and LEU]: Conduct Protocol-Level Surveys for Burrowing Owl and Implement Avoidance Measures** **Mitigation Measure BIO-2d [PG&E and LEU]: Implement Limited Operating Period, Conduct Focused Surveys, and Implement Avoidance Measures for Crotch's Bumble Bee** **Mitigation Measure BIO-2e [PG&E]: Implement Avoidance Measures for Valley Elderberry Longhorn Beetles or Compensate for Unavoidable Impacts Associated with Construction Activities** **Mitigation Measure BIO-2f [PG&E]: Conduct Focused Bat Surveys and Implement Avoidance Measures** **Mitigation Measure BIO-2g [PG&E]: Conduct Focused American Badger Surveys and Establish Protective Buffers**	LTS/M
Impact BIO-3: Have A Substantial Adverse Effect on State or Federally Protected Wetlands	S	**Mitigation Measure BIO-3 [PG&E]: Implement Avoidance Measures for State and Federally Protected Wetlands**	LTS/M
Impact BIO-4: Interfere with Wildlife Movement Corridors or Impede the Use of Wildlife Nurseries	S	**Mitigation Measure BIO-2f [PG&E]: Conduct Focused Bat Surveys and Implement Avoidance Measures**	LTS/M
Impact BIO-5: Conflict with Local Policies and Ordinances	S	**Mitigation Measure BIO-5 [PG&E]: Compensate for Removal of Protected Oak Trees Consistent with the San Joaquin County Ordinance Code**	LTS/M

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact BIO-6: Conflict with the San Joaquin Multispecies HCP or the PG&E San Joaquin Valley HCP	S	**Mitigation Measure BIO-2a [PG&E]: Conduct Survey for Estivating California Tiger Salamanders, Install Amphibian Exclusion Fencing, and Monitor Initial Ground Disturbance** **Mitigation Measure BIO-2b [PG&E and LEU]: Conduct Focused Surveys for Special-Status Birds, Nesting Raptors, and Other Native Nesting Birds and Implement Protective Buffers** **Mitigation Measure BIO-2c [PG&E and LEU]: Conduct Protocol-Level Surveys for Burrowing Owl and Implement Avoidance Measures** **Mitigation Measure BIO-2e [PG&E]: Implement PG&E Valley Elderberry Longhorn Beetle Conservation Program, Memorandum of Understanding, and Incidental Take Authorization Terms and Conditions** **Mitigation Measure BIO-2f [PG&E]: Conduct Focused Bat Surveys and Implement Avoidance Measures** **Mitigation Measure BIO-2g [PG&E]: Conduct Focused American Badger Surveys and Establish Protective Buffers**	LTS/M
Impact BIO-7: Create a Substantial Collision or Electrocution Risk for Birds or Bats	S	**Mitigation Measure BIO-7: [PG&E and LEU] Develop and Implement an Avian Protection Plan**	LTS/M
Energy			
Impact EN-1: Result in Wasteful, Inefficient, or Unnecessary Consumption of Energy	LTS	No mitigation is required for this impact.	LTS
Impact EN-2: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency	LTS	No mitigation is required for this impact.	LTS
Geology, Soils, and Mineral Resources			
Impact GEO-1: Directly or Indirectly Cause Potential Substantial Adverse Effects due to Liquefaction	LTS	No mitigation is required for this impact.	LTS
Impact GEO-2: Result in Substantial Erosion or Loss of Topsoil	LTS	No mitigation is required for this impact.	LTS
Impact GEO-3: Be Located on a Geologic Unit That Is Unstable, or That Would Become Unstable as a Result of the Project, and Potentially Result in On- or Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse	LTS	No mitigation is required for this impact.	LTS
Impact GEO-4: Be Located on Expansive Soil, Creating Substantial Direct or Indirect Risks to Life and Property	LTS	No mitigation is required for this impact.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact GEO-5: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature	LTS	No mitigation is required for this impact.	LTS
Greenhouse Gas Emissions			
Impact GHG-1: Generate Greenhouse Gas Emissions, Either Directly or Indirectly, That May Have a Significant Impact on the Environment or Conflict with an Applicable Plan, Policy or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases	LTS	No mitigation is required for this impact.	LTS
Hazards and Hazardous Materials			
Impact HAZ-1: Create a Risk to the Public or the Environment from the Routine Use, Transport, Storage, and Disposal of Hazardous Materials	LTS	No mitigation is required for this impact.	LTS
Impact HAZ-2: Create a Risk to Human Health and the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials	LTS	No mitigation is required for this impact.	LTS
Impact HAZ-3: Impair or Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan	LTS	No mitigation is required for this impact.	LTS
Impact HAZ-4: Expose People or Structures to a Significant Risk of Loss, Injury, or Death from Wildland Fires	LTS	No mitigation is required for this impact.	LTS
Impact HAZ-5: Expose Workers or the Public to Excessive Shock Hazards	LTS	No mitigation is required for this impact.	LTS
Hydrology and Water Quality			
Impact HYD-1: Violate Any Water Quality Standards or Waste Discharge Requirements or Otherwise Substantially Degrade Surface or Ground Water Quality	LTS	No mitigation is required for this impact.	LTS
Impact HYD-2: Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management of the Basin	LTS	No mitigation is required for this impact.	LTS
Impact HYD-3: Substantially Alter the Existing Drainage Pattern of the Site or Area, Including through the Alteration of the Course of a Stream or River or through the Addition of Impervious Surfaces, in a Manner Which Would Result in Substantial Erosion, Flooding, or Excessive Runoff	LTS	No mitigation is required for this impact.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Impact HYD-4: Risk Release of Pollutants due to Project Inundation in Flood Hazard Zones	LTS	No mitigation is required for this impact.	LTS
Impact HYD-5: Conflict with or Obstruct Implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan	LTS	No mitigation is required for this impact.	LTS
Land Use and Planning			
Impact LAN-1: Conflict with Applicable Land Use Plans, Policies, or Zoning Not Analyzed Elsewhere in This EIR	LTS	No mitigation is required for this impact.	LTS
Noise			
Impact NOI-1: Expose Persons to or Generate Temporary or Permanent Noise Levels in Excess of Established Standards	LTS	No mitigation is required for this impact.	LTS
Impact NOI-2: Expose Persons to or Generate Excessive Groundborne Vibration	LTS	No mitigation is required for this impact.	LTS
Population, Employment, and Housing			
Impact POP-1: Directly or Indirectly Induce Substantial Unplanned Population Growth and Housing Demand	LTS	No mitigation is required for this impact.	LTS
Public Services and Recreation			
Impact PUB-1: Substantially Change the Character of a Recreational Facility or Area by Reducing the Scenic, Biological, Cultural, Geologic, or Other Important Characteristics That Contribute to the Value of Recreational Facilities or Areas	LTS	No mitigation is required for this impact.	LTS
Transportation			
Impact TRA-1: Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle, and Pedestrian Facilities	LTS	No mitigation is required for this impact.	LTS
Impact TRA-2: Conflict or Be Inconsistent with State CEQA Guidelines Section 15064.3(b) Regarding Vehicle Miles Traveled	LTS	No mitigation is required for this impact.	LTS
Impact TRA-3: Substantially Increase Hazards Due to a Geometric Design Feature or Incompatible Uses	LTS	No mitigation is required for this impact.	LTS
Impact TRA-4: Result in Inadequate Emergency Access	LTS	No mitigation is required for this impact.	LTS

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Impacts	Significance before Mitigation	Mitigation Measures	Significance after Mitigation
Utilities and Service Systems			
Impact UTL-1: Result in Relocated, New, or Expanded Water, Wastewater Treatment, Stormwater Drainage, Electric Power, Natural Gas, or Telecommunications Facilities That Could Cause Significant Environmental Effects	LTS	No mitigation is required for this impact.	LTS
Impact UTL-2: Have Insufficient Water Supplies Available to Serve the Project and Reasonably Foreseeable Future Development	LTS	No mitigation is required for this impact.	LTS
Impact UTL-3: Exceed Capacity of Solid Waste Facilities and Be Incompliant with Solid Waste Statutes and Regulations	LTS	No mitigation is required for this impact.	LTS
Wildfire			
Impact WFR-1: Exacerbate Wildfire or Uncontrolled Spread of Wildfire due to Slope, Prevailing Winds, and Other Factors	LTS	No mitigation is required for this impact.	LTS
Impact WFR-2: Require the Installation or Maintenance of Associated Infrastructure That May Exacerbate Fire Risk or That May Result in Temporary or Ongoing Impacts to the Environment	LTS	No mitigation is required for this impact.	LTS

NI = No impact LTS = Less than significant S = Significant LTS/M = Less than Significant with mitigation incorporated

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1 INTRODUCTION

This draft environmental impact report (Draft EIR) evaluates the environmental impacts of the proposed Northern San Joaquin 230 Kilovolt (kV) Transmission Project (project). This Draft EIR has been prepared under the direction of the California Public Utilities Commission (CPUC) in accordance with the requirements of the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000 et seq.) and the CEQA Guidelines (California Code of Regulations [CCR] Section 15000 et seq.).

1.1 PROJECT REQUIRING ENVIRONMENTAL ANALYSIS

The proposed project is intended to address reliability and capacity issues on the existing Pacific Gas and Electric (PG&E) 230 kV and Lodi Electric Utility (LEU) 60 kV systems serving the area between the PG&E Lockeford and PG&E Lodi Substations (Lockeford/Lodi, or 230/60 kV system) in northern San Joaquin County (Northern San Joaquin Valley area). The project consists of the construction and operation of a new 230 kV transmission system with approximately 10.6 miles of new double-circuit 230 kV transmission lines, an expanded substation, a modified substation, a new substation, a new switching station, reconfiguration of four existing 60 kV lines, relocation or extension of two existing 12 kV lines, and upgrades at four remote-end substations and one repeater station. Refer to Chapter 2, "Project Description," of this Draft EIR for a detailed description of the project.

1.2 PURPOSE OF THIS DRAFT EIR

According to CEQA, preparation of an EIR is required whenever it can be fairly argued, based on substantial evidence, that a proposed project may result in a significant environmental impact. An EIR is an informational document used to inform public-agency decision makers and the general public of the significant environmental impacts of a project, identify possible ways to minimize the significant impacts, and describe reasonable alternatives to the project that could feasibly attain most of the basic objectives of the project while substantially lessening or avoiding any of the significant environmental impacts. Public agencies are required to consider the information presented in the EIR when determining whether to approve a project.

This Draft EIR has been prepared to meet the requirements of a project EIR as defined by Section 15161 of the CEQA Guidelines. A project EIR focuses on the changes in the physical environment that would result from the implementation of a project, including its planning, construction, and operation.

As explained further in Section 2.7, "Intended Uses of This EIR," CPUC is the lead agency under CEQA with primary authority for whether to approve the proposed project and issue a Certificate of Public Convenience and Necessity (CPCN) to PG&E in accordance with CPUC's General Order (GO) 131-D, Section III.A, which contains CPUC's permitting requirements for the construction of transmission and power line facilities.

LEU is a publicly owned municipal utility operated by the City of Lodi and is not regulated by CPUC; LEU does not need authorization from CPUC to construct and operate its components of the project. However, because the PG&E components and the LEU components are intended to be constructed together and are interconnected, the actions by both constitute the "whole of the action" for purposes of CEQA review. As a public agency, the City of Lodi must comply with CEQA and is considered a responsible agency under CEQA.

1.3 SCOPE OF THIS DRAFT EIR

This Draft EIR includes an evaluation of the following environmental issue areas, as well as other CEQA-mandated issues (e.g., cumulative impacts, growth-inducing impacts, significant and unavoidable impacts, alternatives):

- aesthetics;
- agriculture;
- air quality;
- archaeological, historical, and tribal cultural resources;
- biological resources;
- energy;
- geology, soils, and mineral resources;
- greenhouse gas emissions;
- hazards and hazardous materials;
- hydrology and water quality;
- land use and planning;
- noise;
- population, employment, and housing;
- public services and recreation;
- transportation;
- utilities and service systems; and
- wildfire.

Under CEQA and the CEQA Guidelines, a lead agency may limit an EIR's discussion of environmental effects when such effects are not considered potentially significant (PRC Section 21002.1[e]; CEQA Guidelines Sections 15128, 15143). The determination of which impacts would be potentially significant and therefore evaluated in detail in this EIR was made for this project based on review of the Proponent's Environmental Assessment (PEA), applicable planning documents, fieldwork, feedback from public and agency consultation, comments received on the notice of preparation (NOP) (see Appendix A of this Draft EIR), research, and analysis of relevant project data.

1.4 PUBLIC REVIEW PROCESS

An NOP for the project was distributed on January 10, 2024, to responsible agencies, interested parties, and organizations, as well as private organizations and individuals who may have an interest in the project. During the 30-day public review period of the NOP, two virtual public scoping meetings were held on January 30, 2024. The purpose of the NOP and the scoping meetings was to provide notification that an EIR for the project was being prepared and to solicit input on the scope and content of the environmental document. As a result of the review of existing information and the scoping process, it was determined that each of the issue areas listed above should be evaluated fully in this Draft EIR.

This Draft EIR is being circulated for public review and comment for a period of 60 days, beginning on December 10, 2024, and ending on February 8, 2025. During this period, comments from the general public, as well as organizations and agencies, on environmental issues may be submitted to the lead agency.

Upon completion of the public review and comment period, a Final EIR will be prepared that will include comments on the Draft EIR received during the public review period, responses to those comments, and any necessary clarifications or revisions to the Draft EIR in response to public comments. The EIR for the project will comprise both the Draft EIR and Final EIR documents.

Before approving the Northern San Joaquin 230 kV Transmission Project, the lead agency is required to certify that the EIR has been completed in compliance with CEQA, that the decision-making body reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the lead agency.

1.5 DRAFT EIR ORGANIZATION

This Draft EIR is organized into chapters, as identified and briefly described below. Chapters are further divided into sections (e.g., Chapter 3, "Environmental Impacts and Mitigation Measures," and Section 3.7, "Energy"):

Executive Summary: This chapter introduces the Northern San Joaquin 230 kV Transmission Project; provides a summary of the environmental review process, effects found not to be significant, and key environmental issues; and lists significant impacts and mitigation measures to reduce significant impacts to a less-than-significant level, where feasible.

Chapter 1, "Introduction": This chapter provides a description of type, purpose, and intended uses of this Draft EIR; the scope of this Draft EIR; agency roles and responsibilities; and the public review process.

Chapter 2, "Project Description": This chapter describes the location, background, and goals and objectives for the project and describes the project elements in detail.

Chapter 3, "Environmental Impacts and Mitigation Measures": This chapter evaluates the expected environmental impacts that would occur as a result of project implementation, arranged into sections by subject area (e.g., aesthetics, air quality). Within each section of Chapter 3, the regulatory background, existing conditions, analysis methodology, and thresholds of significance are described. The anticipated changes to the existing conditions after development of the project are then evaluated for each subject area. For any significant or potentially significant impact that would result from project implementation, mitigation measures are presented and the level of impact significance after mitigation is identified. Environmental impacts are numbered sequentially within each section (e.g., Impact 3.2-1, Impact 3.2-2, etc.). Any required mitigation measures are numbered to correspond to the impact numbering; therefore, the mitigation measure for Impact 3.2-2 would be Mitigation Measure 3.2-2.

Chapter 4, "Cumulative Impacts": This chapter provides information required by CEQA regarding cumulative impacts that would result from implementation of the project together with other past, present, and probable future projects.

Chapter 5, "Other CEQA Considerations": This chapter evaluates growth-inducing impacts and irreversible and irretrievable commitment of resources and discloses any significant and unavoidable adverse impacts.

Chapter 6, "Alternatives": This chapter evaluates alternatives to the project, including alternatives considered but eliminated from further consideration, the No-Project Alternative, and three alternative development options. The environmentally superior alternative is identified.

Chapter 7, "Preparers": This chapter identifies the preparers of this document.

Chapter 8, "References": This chapter identifies the documents and individuals used as sources for the analysis.

1.6 STANDARD TERMINOLOGY

This Draft EIR uses the following standard terminology:

- "No impact" means no change from existing conditions (no mitigation is needed).
- "Less-than-significant impact" means no substantial adverse change in the physical environment (no mitigation is needed).
- "Significant impact" means a substantial adverse change in the physical environment that would occur (mitigation is recommended).
- "Less than significant with mitigation incorporated" means that the project as proposed would result in a significant impact that could be reduced to a less-than-significant level through the adoption and incorporation of feasible mitigation measures identified in this Draft EIR.
- "Significant and unavoidable impact" means a substantial adverse change in the physical environment that would occur and that cannot be avoided, even with the implementation of all feasible mitigation.

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2 PROJECT DESCRIPTION

2.1 PROJECT OVERVIEW

The Northern San Joaquin 230 kV Transmission Project is proposed by Pacific Gas and Electric (PG&E) to address reliability and capacity issues identified by the California Independent System Operator (CAISO) on the existing PG&E 230 kilovolt (kV) and 60 kV systems in northern San Joaquin County, California. PG&E, an investor-owned utility regulated by California Public Utilities Commission (CPUC), is the applicant for this project and proposes to construct new 230 kV lines and associated substation facilities. Lodi Electric Utility (LEU), a publicly owned municipal utility operated by the City of Lodi and a member of the Northern California Power Agency, is a participating utility that is not regulated by CPUC. In a related action, LEU proposes to construct new 230 kV facilities to replace its 60 kV facilities that currently receive electricity from PG&E.

The project would loop the existing overhead PG&E Brighton-Bellota 230 kV Transmission Line through an expanded PG&E Lockeford Substation and install a new overhead double-circuit 230 kV transmission line between PG&E Lockeford Substation and the proposed PG&E Thurman Switching Station adjacent to LEU's existing Fred M. Reid Industrial Substation (Industrial Substation). LEU would construct the LEU Guild Substation, a new 230/60 kV substation, between its LEU Industrial Substation and the new PG&E Thurman Switching Station. At LEU Guild Substation, the new PG&E 230 kV transmission line would terminate, and LEU transformers would step down the power to 60 kV to connect with the LEU Industrial Substation.

As part of this project, PG&E would also update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme.

2.2 PROJECT LOCATION

The proposed project is primarily located within unincorporated areas of northeastern San Joaquin County and partially within an industrial area of the City of Lodi. The project would include construction, modification, and operation of electrical infrastructure (including power lines, transmission lines, a switching station, and substations)[1] from an existing PG&E 230 kV transmission corridor that traverses roughly northwest-southeast of Atkins Road in unincorporated San Joaquin County to an existing substation in eastern Lodi, approximately 9 miles to the west. The transmission alignment roughly follows East Kettleman Lane, crossing State Route (SR) 88, Bear Creek, and Paddy Creek (Figure 2-1). Other improvements to update PG&E's system protection scheme would occur in existing facilities located in Linden, Sacramento, Lodi, Rio Oso, and in Contra Costa County.

2.3 PROJECT BACKGROUND, PURPOSE, AND NEED

Beginning in 2012, the California Independent System Operator (CAISO) identified system reliability issues that did not meet certain thermal and voltage performance requirements established by the North American Electric Reliability Corporation (NERC)[2] in the project area[3].

[1] In this document, electrical lines that are designed to operate at or above 200 kV are referred to as "transmission lines," lines designed to operate between 50 kV and 200 kV are referred to as "power lines," and lines designed to operate under 50 kV are referred to as "distribution lines."

[2] NERC's transmission system planning performance requirements for normal system operation include assessment and planning for events that could impact a system's stability and service.

[3] For the purpose of this EIR, the term "project area" is used to generally reference the entire right-or-way for the 230 kV alignment, including the temporary work areas, structures, and overhead lines, as well as the work at the new and expanded substations, and associated modifications to the 60 kV lines in the City of Lodi. Although part of the project considered in this EIR, remote end facilities are not included in the geography defined as "project area" and are referred to specifically.

In the CAISO 2012-2013 Transmission Planning Process (TPP) assessment, five PG&E 60 kV lines between PG&E Lockeford and PG&E Lodi Substations (Lockeford/Lodi, or 230/60 kV system) in northern San Joaquin County (Northern San Joaquin area) were identified as having existing overload and high voltage deviation. To address these reliability issues, CAISO selected a 230 kV reinforcement for the 230/60 kV system.

CAISO's 2017-2018 planning cycle reevaluated the need for a 230 kV reinforcement project based on the latest system planning assumptions, which had changed since the 2012-2013 TPP because of grid-wide evolving load forecasts and distributed energy resource growth scenarios. Additional reliability assessments reaffirmed the need for a 230 kV reinforcement to address reliability and forecasted capacity increases, and CAISO approved a revised scope for the project that refined the original project components. The proposed project is the solution identified in CAISO's 2017-2018 Final Transmission Plan (CAISO 2018). In its transmission planning documents, CAISO refers to the project as "Lockeford-Lodi Area 230 kV Development."

The project is necessary to address current and projected voltage issues and thermal overloads on PG&E's 230/60 kV system, as well as forecasted demand growth. The proposed project would shift the LEU load, approximately 148 megawatts (MW), from the existing PG&E 60 kV system to a new PG&E 230 kV source. Moving the LEU load to the PG&E 230 kV source would reduce demand on the PG&E 60 kV system, which would provide greater reliability to other existing PG&E customers in northern San Joaquin County. The normal load serving capability of the Lockeford/Lodi system would increase from 194 MW to approximately 404 MW with the proposed 230 kV system upgrade under normal operating conditions, and the emergency load serving capability would increase from 152 MW to approximately 456 MW when there is a single component (i.e., line or transformer) failure in the system.

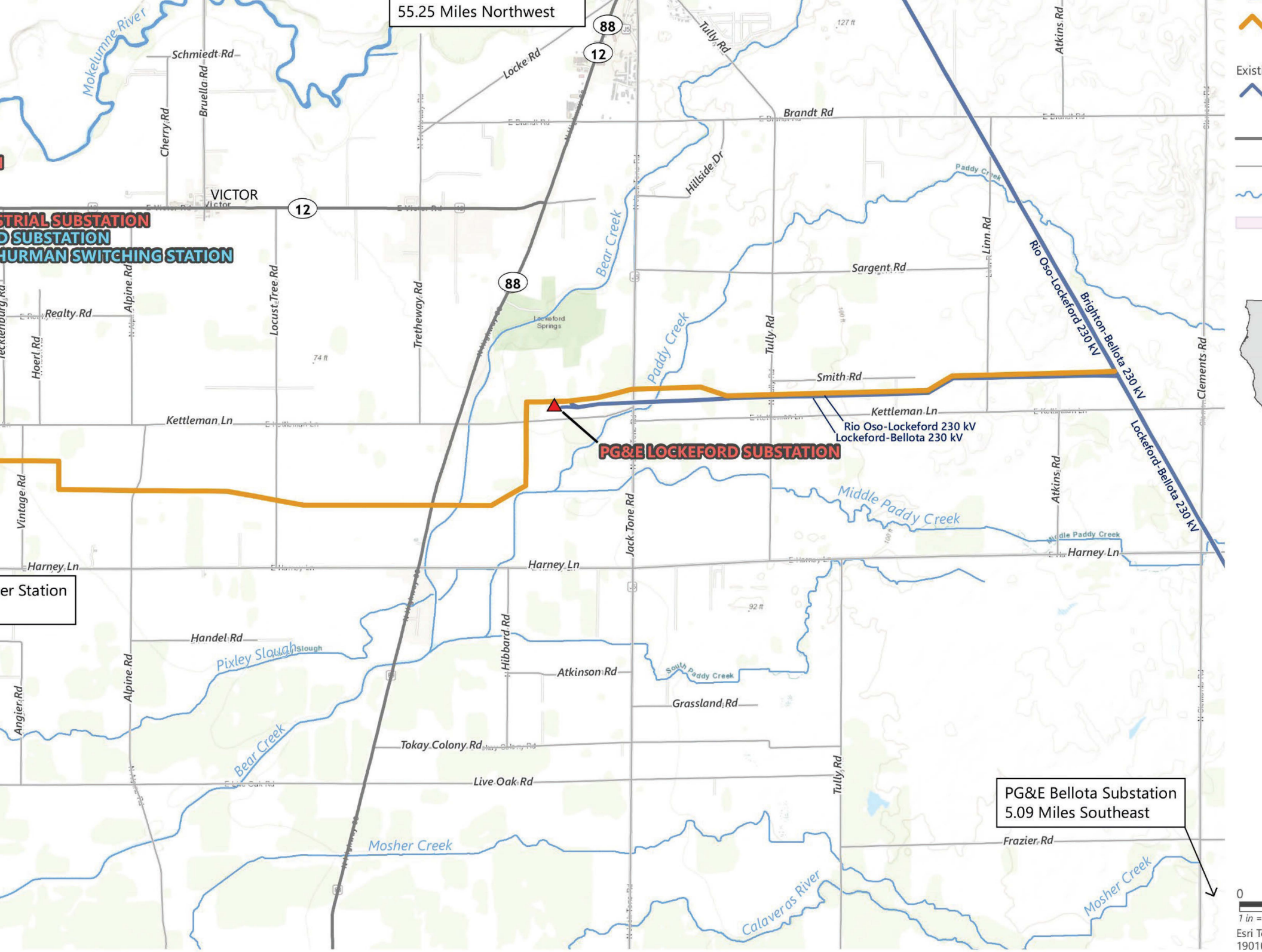
2.4 PROJECT OBJECTIVES

The basic objective of the proposed project is to address reliability and capacity issues on the existing PG&E 230 kV and 60 kV systems serving the area between PG&E Lockeford and PG&E Lodi Substations (Lockeford/Lodi, or 230/60 kV system) in northern San Joaquin County. The proposed project is needed because the existing PG&E 230/60 kV system is experiencing voltage issues and thermal overloads that could cause systemwide outages. The Northern San Joaquin area is forecasted to continue to grow its power load requirements, which will worsen these voltage and thermal overload issues.

2.4.1 CPUC's Project Objectives

As the CEQA lead agency, CPUC is responsible for defining project objectives for the purpose of the CEQA analysis. These objectives may differ from PG&E's and LEU's objectives, as stated in the section below. Based on its understanding of the purpose of the proposed project, CPUC has identified the following project objectives:

- substantially reduce existing thermal overload and voltage issues during P1 and P6 contingencies and maintain compliance with NERC standards in the Northern San Joaquin County area, including the City of Lodi, as identified by CAISO in its 2017-2018 Transmission Plan;
- accommodate expected future increased electrical distribution demand in the Northern San Joaquin County area, including the Lodi; and
- separate PG&E's 60 kV system from LEU's 60 kV system.



ided by PG&E in 2023.

2.4.2 Applicant's Project Objectives

PG&E stated in the PEA that its basic project objective is to address voltage issues and thermal overloads on PG&E's Lockeford/Lodi system during normal operation (Category P0) and during Category P1 and P6 contingency scenarios with a 230 kV reinforcement and substation, as identified by CAISO in its 2017-2018 Transmission Plan.

The following specific project objectives were identified in the Proponent's Environmental Assessment for the project:

- Meet PG&E's legal obligation to implement the CAISO-approved project.
- Improve system reliability for PG&E's approximately 10,000 electrical customers, one of which is LEU, which itself serves approximately 28,000 customers.
- Increase capacity to accommodate projected growth in demand and minimize future reliability issues for Lodi, as well as for PG&E customers.
- Address thermal overloads and voltage concerns on PG&E's 60 kV transmission system identified during P1 contingencies[4] and maintain compliance with NERC standards.
- Address thermal overloads on PG&E's 60 kV transmission system identified during P6 contingencies[5] and maintain compliance with NERC standards.
- Reinforce the PG&E 60 kV system in the Lodi area by constructing a new 230 kV double-circuit line to provide an additional source of power.
- Construct a new 230 kV switching station to receive the new 230 kV double-circuit line and provide power to a new 230/60 kV substation to be constructed by LEU.
- Separate PG&E's 60 kV system at the LEU Industrial Substation from LEU's 60 kV system.
- Construct a safe, economical, and technically feasible project that minimizes environmental and community impacts.

2.5 EXISTING CONDITIONS

Northeastern San Joaquin County is predominantly agricultural land use with retail wineries, rural and semirural residential development outside the City of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors. Agriculture primarily is wine grapes with some fruit and nut orchards and grain fields. Within the City of Lodi, the general plan land use designation and zoning for the project area is industrial and quasi-public with industrial, utility, and commercial businesses and associated railroad lines on adjacent parcels.

Major geographic features in the project area include the Mokelumne River, Bear Creek, SR 99, SR 88, and SR 12. The topography in the area generally is flat on the valley floor with rolling hills to the east. Elevation ranges from approximately 135 feet above sea level at the eastern end of the project to approximately 60 feet above sea level at the western end of the project.

2.5.1 Existing Electrical System Users

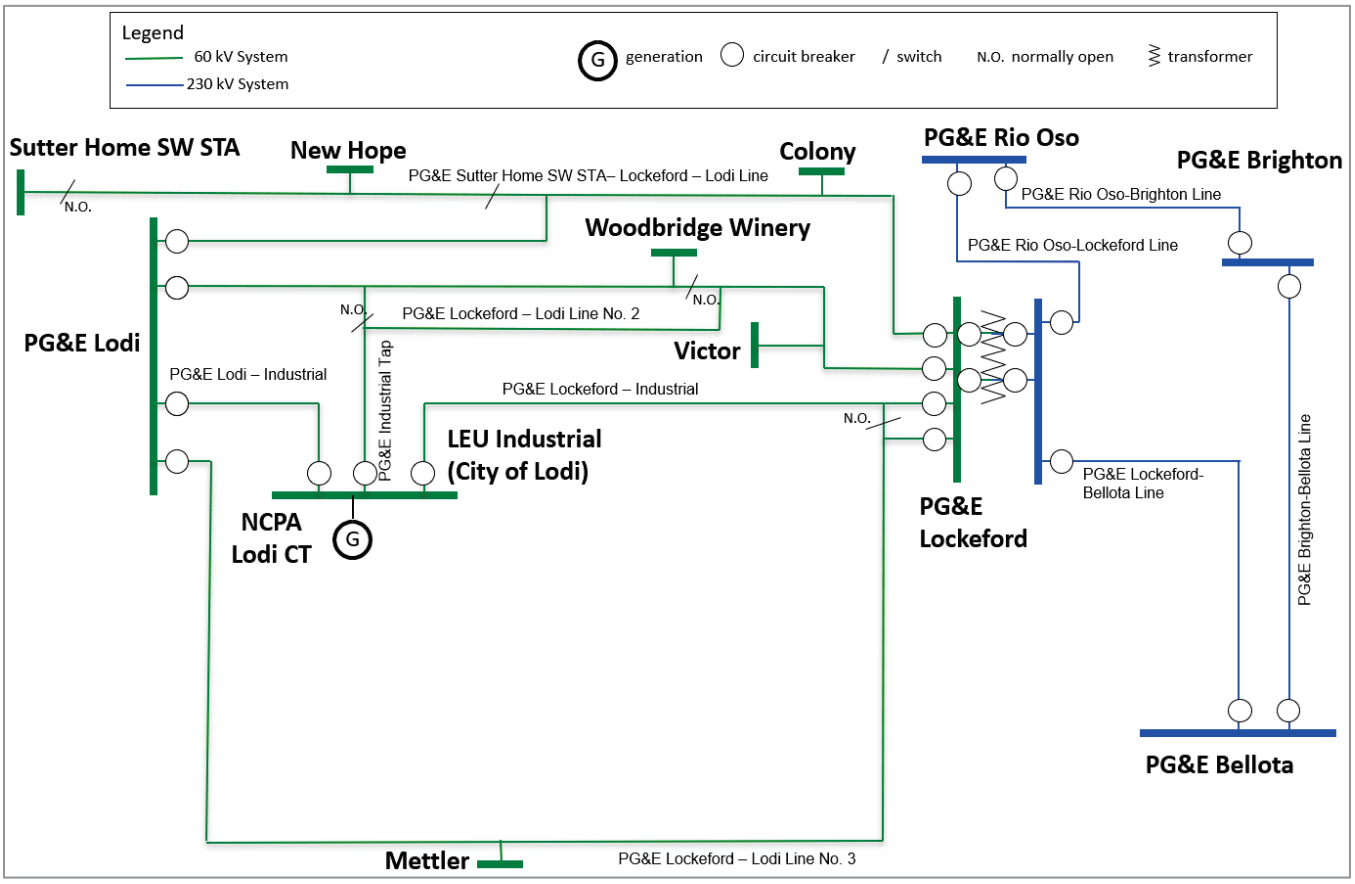
The project would be located in an area that serves approximately 38,000 electrical customers in the communities of Stockton, Lodi, Lockeford, Victor, Acampo, and Thornton. Approximately 10,000 of these customers are served directly by PG&E, including LEU, Mettler Winery, Sutter Home Winery, and Woodbridge Winery. LEU provides power to approximately 28,000 customers in the City of Lodi. LEU's customers are primarily residential (86 percent) and commercial (14 percent) accounts.

[4] A single outage, or a NERC Category P1 contingency, is defined as the loss of a generator, the loss of one transmission circuit, the loss of one transformer, the loss of one shunt device, or the loss of a single pole of direct current lines (NERC 2014).

[5] NERC Category P6 contingency, or outage, is defined as two overlapping single outages (transmission circuit, transformer, shunt device, or single pole of a direct current line) (NERC 2014).

2.5.2 Existing Electrical System Components

The existing PG&E system, as relevant to the proposed project, comprises four PG&E 230 kV transmission lines, one PG&E substation, four PG&E 60 kV power lines, various PG&E remote-end facilities (one PG&E repeater station and four PG&E substations), one PG&E 12 kV service line, one LEU substation, two LEU 12 kV feeder lines, and one Comcast communication line, each of which are described below. As described above, there are reliability and capacity issues on this system. Figure 2-2 provides an overview of the existing 230/60 kV electrical system components as a single line diagram. The location of existing PG&E substations, power lines, and transmission lines, as well as the existing LEU Industrial Substation, are shown in Figure 2-1.



Source: PG&E 2023.

Figure 2-2 Existing System Single Line Diagram

PG&E FACILITIES

PG&E 230 kV Transmission Lines

- **Brighton-Bellota 230 kV Transmission Line**. The existing PG&E Brighton-Bellota 230 kV Transmission Line is a single-circuit line that follows a roughly north-south alignment for approximately 42.5 miles between the PG&E Brighton Substation in Sacramento and the PG&E Bellota Substation in Linden. The PG&E Brighton-Bellota 230 kV Transmission Line marks the eastern limit of the project.
- **Lockeford-Bellota 230 kV Transmission Line**. The existing PG&E Lockeford-Bellota 230 kV Transmission Line is a single-circuit line approximately 12.3 miles long between the PG&E Lockeford and Bellota Substations in Lodi and Linden, respectively.

- **Rio Oso–Lockeford 230 kV Transmission Line**. The existing PG&E Rio Oso–Lockeford 230 kV Transmission Line is a single-circuit line approximately 65.1 miles long between the PG&E Rio Oso and Lockeford Substations in Rio Oso and Lodi, respectively.

PG&E Lockeford Substation

The existing PG&E Lockeford Substation, which has been in operation since 1948, is located at 12861 East Kettleman Lane in unincorporated San Joaquin County. The 20-acre property, which is owned by PG&E, is composed of two parcels (Assessor Parcel Map Numbers [APNs] 5126022 and 5126023). The substation includes an approximately 3-acre general construction yard along the western project boundary and 230 kV, 115 kV, and 60 kV facilities on approximately 7 acres in the center of the site. The existing facilities within the substation are terminals, poles, and a control enclosure, with the tallest existing structures (existing poles connecting to their respective terminals) approximately 100 feet above the ground. A 10-foot-tall perimeter gray chain-link fence with three strands of barbed wire along the top encloses and separates these two uses. Access to the western side yard and central yard is through two separate vehicle gates with entrances along East Kettleman Lane. Outside the fenced area, agricultural uses have encroached onto the northeast corner of the project site. The remainder of the site is undeveloped. Refer to Figure 2-3, which provides an aerial photograph of the existing substation site.

PG&E 60 kV Power Lines

LEU is currently connected to the PG&E system via 60 kV power lines, as follows.

- **Lockeford-Industrial 60 kV Power Line**. PG&E Lockeford-Industrial 60 kV Power Line is an approximately 6-mile wood pole line connecting the PG&E Lockeford Substation and the LEU Industrial Substation. Approximately 0.40 miles of the line is within the City of Lodi, and the remaining length is within unincorporated San Joaquin County. The wood poles are approximately 60–90 feet tall, have a base diameter of approximately 19 inches, and are buried approximately 9.5 to 11 feet deep. Some spans have underbuilt distribution and/or telecommunication (Comcast) lines, and these poles typically are 10–15 feet taller than poles without any underbuilt components.
- **Lodi-Industrial 60 kV Power Line**. The existing, approximately 1-mile-long PG&E Lodi-Industrial 60 kV Power Line is a single-circuit line in the City of Lodi that connects the PG&E Lodi Substation and the LEU Industrial Substation. The wood poles are approximately 60–85 feet in length and are buried approximately 9.5 to 11 feet deep.
- **Industrial Tap 60 kV Power Line**. The existing PG&E Industrial Tap 60 kV Power Line is approximately 1 mile long and connects PG&E Lockeford-Lodi No. 2 Line at SR 12/East Victor Road into the LEU Industrial Substation. The north end of the wood pole line starts at a PG&E Lockeford-Lodi No. 2 Line wood pole immediately north of SR 12/East Victor Road approximately 0.25 miles east of South Guild Avenue. From its north end, PG&E Industrial Tap continues south for approximately 0.50 miles before turning west along the north side of the railroad tracks, where it enters the City of Lodi and continues for approximately 0.5 miles into LEU Industrial Substation. The wood poles are approximately 55–85 feet tall and are buried approximately 8.5 to 10.5 feet deep. The approximately 0.5-mile length from south of PG&E Lockeford-Lodi No. 2 60 kV Power Line has underbuilt distribution lines and these poles typically are taller.
- **Lockeford-Lodi No. 2 60 kV Power Line.** The existing PG&E Lockeford-Lodi No. 2 60 kV Power Line is a single-circuit line that is approximately 7.8 miles long between PG&E Lockeford and PG&E Lodi substations. Where the line turns west along SR 12/East Victor Road, PG&E Industrial Tap Line begins from a Lockeford-Lodi No. 2 Line wood pole and heads south to LEU Industrial Substation.

PG&E 12 kV Service Line

- **12 kV Service Line.** An existing PG&E 12 kV overhead service line on the east side of South Guild Avenue in the City of Lodi terminates on a wood pole approximately 175 feet north of East Lodi Avenue.

LEU FACILITIES

- **Industrial Substation**. The existing LEU Industrial Substation is a 60 kV/12 kV substation in Lodi with connections to PG&E's Lodi-Industrial, Industrial Tap, and Lockeford-Industrial 60 kV Power Lines. LEU Industrial Substation was originally constructed in 1991 and is located on a 7.98-acre parcel (APN 04931008) owned by the City of Lodi at 1215 East Thurman Road. The existing substation includes a 60 kV substation yard, two 60/12 kV distribution transformers, 12 kV distribution feeders, a control enclosure, and an approximately 125-foot by 175-foot laydown yard within a fenced, 3.50-acre portion of the parcel.
- **12 kV Feeder Lines**. There are eight LEU 12 kV feeder lines extending from LEU Industrial Substation and two LEU 12 kV feeder lines are part of the proposed project. Portions of two of these lines are underbuilt on PG&E Lockeford-Industrial 60 kV Power Line, with the remaining portions underground.

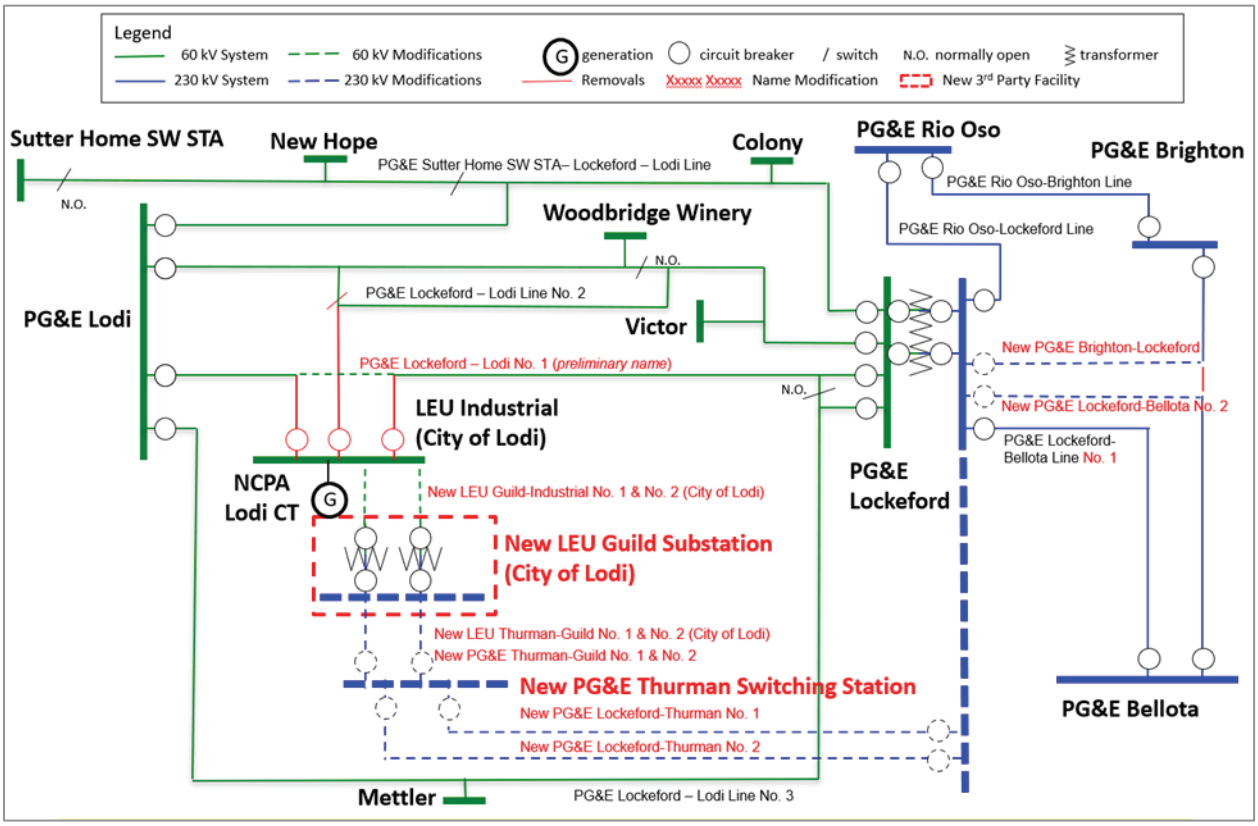
PG&E REMOTE-END FACILITIES

- **PG&E Bellota, Brighton, Lodi, and Rio Oso Substations.** The existing PG&E 230 kV lines and 60 kV line terminate in remote-end Bellota, Brighton, Rio Oso, and Lodi substations in Linden, Sacramento, Rio Oso, and Lodi, respectively.
- **PG&E Clayton Hill Repeater Station.** The existing PG&E Clayton Hill Repeater Station located in Contra Costa County is a communication tower with antennas providing system protection scheme communication paths between PG&E facilities. There is a four-sided, 90-foot microwave tower within the PG&E Clayton Hill Repeater Station that currently has six whip antennas (approximately 2-, 3-, 8-, or 10-foot height) and five dish antennas (approximately 6- or 8-foot diameter) positioned on the upper portions of the tower, from approximately 36 feet to 88 feet.


New 230 kV
Control
Enclosure
New
230 kV Bay
E23
PG&E Brighton-Lockeford
PG&E Lockeford-Bellota No. 2
W1
New Gate
New Battery
Enclosure
Modified
230 kV Bay
RO1
PG&E Rio Oso-Lockeford
PG&E Lockeford-Bellota No. 1
Modified Substation
Drainage Ditch
PG&E Gold Hill-Bellota-Lockeford
PG&E Gold Hill-Bellota-Lockeford
Expanded
Retention
Basin
Existing
115 kV Bay
PG&E Stockton A-Lockeford-Bellota No. 2
PG&E Stockton A-Lockeford-Bellota No. 1
Existing
60 kV Bay
Existing
Control
Enclosure
E Kettleman Ln
160
FEET

2.6 PROPOSED PROJECT

The project would loop the PG&E Brighton-Bellota 230 kV Transmission Line through a newly installed 230 kV bus (a node where different power lines are connected) at the PG&E Lockeford Substation and install a new overhead double-circuit 230 kV transmission line between PG&E Lockeford Substation and a new PG&E Thurman Switching Station at the LEU Industrial Substation. LEU would construct the LEU Guild Substation, a new 230/60 kV substation, between the existing LEU Industrial Substation and the new PG&E Thurman Switching Station. At the proposed LEU Guild Substation, the new PG&E 230 kV transmission line would terminate, and LEU transformers would step down the power to 60 kV to connect with the LEU Industrial Substation. When the new 230 kV system is energized, the existing local PG&E 60 kV system would be reconfigured within existing alignments, including disconnecting as a source to LEU at the LEU Industrial Substation by removing the connections with the PG&E Lockeford-Industrial, PG&E Industrial Tap, and PG&E Lodi-Industrial 60 kV Lines. By creating a new 230 kV source and separating PG&E's and LEU's 60 kV systems, current and projected voltage issues and thermal overloads on PG&E's 230/60 kV system would be remedied and forecasted demand growth would be accommodated. Figure 2-4 provides an overview of the proposed electrical system components.



Source: PG&E 2023.

Figure 2-4 Proposed System at Project Completion Single Line Diagram

Table 2-1, below, summarizes the proposed project in terms of the facilities that would be removed, modified or newly constructed at the various electrical system components. It also identifies which existing components would be renamed through reconfiguration of existing lines or construction of new lines and facilities. New transmission structures between the existing PG&E Brighton-Bellota 230 kV Transmission Line on the east and PG&E Lockeford Substation on the west are numbered from east to west as E1 through E23. Refer to Appendix B (page 1 through page 9).

Table 2-1 Summary of Proposed Removed, Modified, and New Facilities

Component	Facilities Removed	Facilities Modified[1]	New Facilities
PG&E Lockeford Substation	Replace fence	Expand permanent facility fence line by approximately 2.32 acres or approximately 1,330 feet. Replace all existing perimeter fence line in kind and install new sections for new fence line. Expand retention pond and rebuild existing concrete stormwater drainage. Build new 230 kV bay, control, and battery buildings with potential ground system expansion; reconfigure existing 230 kV bay; move existing 230 kV control equipment to new building. Improve existing western internal drive path for all-weather use; install interior gate between western side yard and central yard. Extend AT&T fiber lines within substation. Update system protection scheme in existing control facilities.	None
PG&E Brighton-Bellota 230 kV Line PG&E Brighton-Lockeford Line and Lockeford-Bellota No. 2 Line	Retire Brighton-Bellota 230 kV Line name	Install a dead-end structure (E1) starting an approximately 3.8-mile line extension, creating a double-circuit 230 kV line (E1 to E23) into PG&E Lockeford Substation. Operate the line extension so that the north circuit will be part of PG&E Brighton-Lockeford 230 kV Line and the south circuit will be part of PG&E Lockeford-Bellota No. 2 Line.	New PG&E double-circuit 230 kV extension of approximately 3.8 miles of PG&E Brighton-Bellota 230 kV Line with 23 new TSPs and conductor into PG&E Lockeford Substation.
PG&E Rio Oso-Lockeford 230 kV Line	Replace final structure at PG&E Lockeford Substation	Replace final line structure, RO1 (shared with PG&E Lockeford-Bellota), approximately 85 feet north of the existing structure on the substation parcel to reduce the current approximately 30-degree structure angle.	None
PG&E Lockeford-Bellota 230 kV Line	Replace final structure at PG&E Lockeford Substation Retire Lockeford-Bellota 230 kV Line name	Replace final line structure, RO1 (shared with PG&E Rio Oso-Lockeford), approximately 85 feet north of the existing structure on the substation parcel to reduce the current approximately 30-degree structure angle. Relocate PG&E Lockeford-Bellota 230 kV Line within PG&E Lockeford Substation Bay 1 position and rename it for operation as PG&E Lockeford-Bellota No. 1 Line.	None
PG&E Lockeford-Thurman No. 1 and PG&E Lockeford-Thurman No. 2 230 kV Transmission Lines	None	None	New PG&E double-circuit 230 kV line between PG&E Lockeford Substation and PG&E Thurman Switching Station by installing 49 new TSPs and conductor for approximately 6.8 miles.
LEU Industrial Substation	Remove terminal connections to: PG&E Lodi-Industrial PG&E Industrial Tap PG&E Lockeford-Industrial Remove overhead LEU 12 kV feeder (to northeast)	Expand ground system, replace eastern perimeter fence and install pedestrian gate. Install new 12 kV feeder underground riser, two single-circuit 60 kV TSPs, underground telecommunication conduits to LEU Guild Substation. Update relay setting. Phase transposition of existing LEU substation 60 kV lines.	None

Component	Facilities Removed	Facilities Modified[1]	New Facilities
PG&E Thurman Switching Station (230 kV)	None	None	New PG&E switching station on 5.75 acres to connect new 230 kV feed at Thurman Switching Station to the new LEU 230/60 kV Guild Substation and switch power from PG&E to LEU.
PG&E Thurman-Guild No. 1 and PG&E Thurman-Guild No. 2 230 kV Transmission Lines	None	None	New PG&E and LEU 230 kV lines between PG&E Thurman Switching Station and LEU Guild Substation, single span between 230 kV terminals, approximately 135 feet.
LEU Guild Substation (230/60 kV)	None	None	New LEU substation on 3.25 acres to receive PG&E 230 kV feed and transform 230 kV to 60 kV.
LEU Guild-Thurman No. 1 and LEU Guild-Thurman No. 2 60 kV Power Lines	None	None	New 60 kV lines between LEU Guild and LEU Industrial substations, two spans with one pole for each circuit between 60 kV terminals, approximately 180 feet.
LEU 12 kV Feeder Lines from LEU Industrial Substation	Remove LEU 12 kV underbuild on PG&E Lockeford-Industrial 60 kV Line Retire in place existing underground portion	Relocate aboveground 12 kV line (PG&E Lockeford-Industrial pole 2 to pole 6) to an underground configuration along existing alignment and connect to a separate existing LEU 12 kV line from LEU Industrial Substation. Remove LEU 12 kV span between PG&E Lockeford-Industrial pole 4 and LEU 12 kV wood pole.	None
Comcast Telecommunication Line	Comcast to remove its existing line on PG&E Lockeford-Industrial Line pole 4.	Comcast will use other existing Comcast telecommunication lines and other joint poles as needed.	None
PG&E 12 kV Service Line on South Guild Avenue north of East Lodi Avenue	None	Extend service from PG&E 12 kV wood pole approximately 500 feet underground within South Guild Avenue to new PG&E Thurman Switching Station.	None
PG&E Lockeford-Industrial 60 kV Line	Remove 10 spans and 9 poles (pole 1 to pole 9), including span into LEU Industrial Substation Retire PG&E Lockeford-Industrial 60 kV Line name	Install new span to connect PG&E Lockeford-Industrial pole 10 with PG&E Industrial Tap pole 13 near western end of East Sargent Road. Replace pole 10 (east end of new span) with light-duty steel pole the same approximate height with a new down guy. When PG&E Lodi-Industrial Line is disconnected from LEU Industrial Substation and connected with PG&E Industrial Tap, operate PG&E reconfigured 60 kV line as PG&E Lockeford-Lodi No. 1 Line (preliminary name).	None

Component	Facilities Removed	Facilities Modified[1]	New Facilities
PG&E Lodi-Industrial 60 kV Line	Remove terminal span and pole 1 outside LEU Industrial Substation Remove pole 2 horizontal guy and stub pole on north side of East Lodi Avenue Retire PG&E Lodi-Industrial 60 kV Line name	Replace arms of existing pole 2 and pole 3 along East Lodi Avenue to connect PG&E Lodi-Industrial to PG&E Industrial Tap pole 2 and install new conductor between existing pole 2. Operate the remaining portion of PG&E Lodi-Industrial Line as PG&E Lockeford-Lodi No. 1 Line (preliminary name).	None
PG&E Industrial Tap 60 kV Line	Remove terminal span and pole 1 outside LEU Industrial Substation Remove pole 2 horizontal guy and stub pole on north side of East Lodi Avenue Retire PG&E Industrial Tap 60 kV Line name	Reframe pole 12 and pole 13 and install a new down guy. Install new span to connect PG&E Industrial Tap pole 13 to PG&E Lockeford–Industrial pole 10 near western end of East Sargent Road. Replace arms of pole 2 along East Lodi Avenue to connect PG&E Industrial Tap to PG&E Lodi-Industrial pole 2 and install new conductor between poles. Modify the remaining northern portion of PG&E Industrial Tap (approximately 0.5 miles between East Sargent Road and East Victor Road/ SR 12), pole 14 to pole 21, with existing PG&E distribution underbuild. Remove 60 kV conductor and pole crossarms and top existing wood poles; northern portion of existing wood pole line will operate as distribution. Operate the remaining west-east portion of PG&E Industrial Tap Line as PG&E Lockeford-Lodi No. 1 Line (preliminary name).	None
PG&E Lockeford-Lodi No. 2 60 kV Line	Remove connecting PG&E Industrial Tap span	Reframe pole 22 and install new down guy. Install horizontal guy wire from pole 22 to existing PG&E distribution pole across SR 12/East Victor Road and new down guy on distribution pole.	None
PG&E Remote-End Substations (Bellota, Brighton, Lodi, and Rio Oso)	Remove or retire in place PG&E Bellota, Brighton, Rio Oso line tuner/wave trap equipment and associated structures	Extend existing fiber lines at PG&E Bellota, Brighton, and Rio Oso substations. Install updated system protection schemes in existing control facilities of PG&E Bellota, Brighton, Lodi, and Rio Oso substations.	None
PG&E Clayton Hill Repeater Station	None	Install two new antennas on existing south communication tower within the station fence line.	None

Notes: kV = kilovolts; TSP = tubular steel pole; SR = State Route.

[1] Refer to Appendix B for detailed mapping of all project components.

Source: PG&E 2023.

2.6.1 Proposed Electrical System Components

PG&E FACILITIES

PG&E Rio Oso–Lockeford 230 kV Line/PG&E Lockeford-Bellota 230 kV Line—Lockeford Terminal Structure Replacement

At the eastern end of the project, where the existing PG&E Rio Oso-Lockeford 230 kV Line and PG&E Lockeford-Bellota 230 kV Line turn west toward PG&E Lockeford Substation, on an existing double-circuit 230 kV lattice, the PG&E Rio Oso-Lockeford Line is in the north position and the PG&E Lockeford-Bellota Line is in the south position (refer to Appendix B, page 1). Structure RO1 is the last structure before PG&E Lockeford Substation. RO1 would be

relocated approximately 85 feet north of the existing structure to reduce the current approximately 30-degree angle. The reduction in angle is proposed as an improved design for this portion of the existing 230 kV facilities that would be reconfigured as part of the substation expansion for the new 230 kV lines. The existing dead-end approximately 105-foot-tall lattice steel tower would be replaced with a dead-end tubular steel pole (TSP) of approximately the same height. The conductor to RO1 would be moved from the existing structure to the new structure and retensioned.

PG&E Brighton-Lockeford 230 kV Line and PG&E Lockeford-Bellota No. 2 230 kV Line (New)

Approximately 8.5 miles north of PG&E Bellota Substation, the existing PG&E Brighton-Bellota 230 kV Transmission Line would be looped into the PG&E Lockeford Substation, creating 3.8 miles of new overhead double-circuit 230 kV line. To accomplish this, the span of the existing PG&E Brighton-Bellota Transmission Line would dead-end on a TSP that would begin the line extension to the west into PG&E Lockeford Substation. The existing conductor would be spliced to a new conductor but would not be otherwise modified. When the project is energized, the existing transmission lines would operate with the extension as PG&E Brighton-Lockeford 230 kV Transmission Line and PG&E Lockeford-Bellota No. 2 230 kV Transmission Line. The PG&E Brighton-Bellota 230 kV Transmission Line name would be retired.

New transmission structures between the existing PG&E Brighton-Bellota 230 kV Transmission Line and the PG&E Lockeford Substation are numbered from east to west as E1 through E23. Refer to Appendix B (pages 1–9).

PG&E Lockeford-Thurman 230 kV Lines No. 1 and No. 2 (New)

PG&E would construct a new approximately 6.8-mile-long double-circuit 230 kV line connecting the existing PG&E Lockeford Substation with the new PG&E Thurman Switching Station. The new lines would operate as PG&E Lockeford-Thurman 230 kV Lines No. 1 and No. 2.

The new PG&E Lockeford-Thurman 230 kV Line route would exit the PG&E Lockeford Substation on the northwest side of the substation. After proceeding west for approximately 0.24 miles, the proposed route turns south and then southwest for approximately 0.87 miles, staying west of Bear Creek. The line would turn west for approximately 4.10 miles with two jogs to the northwest-north before turning north for approximately 1.21 miles. The proposed line turns west and enters the City of Lodi after approximately 0.13 miles, continuing for another 0.34 miles to its termination in the PG&E Thurman Switching Station.

For identification within this document, the new transmission structures between the PG&E Lockeford Substation and the PG&E Thurman Switching Station are numbered from east to west as W1 through W49. Refer to Appendix B (pages 9-23).

PG&E Lockeford Substation

The existing substation would be modified with a reconfigured 230 kV ring bus[6] and other associated equipment to accommodate the new 230 kV lines (PG&E Brighton-Lockeford and PG&E Lockeford-Thurman). Modified and new electric equipment would include 230 kV disconnect switches, instrument transformers, protective relaying, metering and control equipment, remote supervisory control and data acquisition (SCADA) equipment, telecommunication fiber extension, telemetering equipment, an auxiliary alternating current and direct current (AC/DC) power system, an electric grounding system, and underground conduits or trench systems.

The existing 230 kV ring bus of approximately 1.25 acres is proposed to be effectively doubled, creating a four-bay breaker-and-a-half (BAAH) configuration to accommodate the new 230 kV lines. The two new 230 kV terminals would accommodate the extended PG&E Brighton-Bellota 230 kV Line from the east and the new PG&E Lockeford-Thurman 230 kV Lines to the west. The new 230 kV bays would have approximately the same design dimensions as the existing 230 kV bay and terminals for PG&E Rio Oso–Lockeford and Lockeford-Bellota Lines immediately to the south of the new 230 kV bay location. The substation's existing 230 kV yard would be expanded in the northeast

[6] In the ring bus configuration, the circuit breakers are connected to form a ring, with isolators on both sides of each breaker. Circuits terminate between the breakers and each circuit is fed from both sides. This scheme has good operational flexibility and high reliability, as any of the circuit breakers can be opened and isolated for maintenance without interruption of service.

corner of the site (approximately 21 feet east and 143 feet north along the western two-thirds of the northern property boundary) to accommodate a 230 kV BAAH bus configuration, and new control and battery enclosures. Approximately 2.65 acres of temporary ground disturbance would occur with the substation expansion. The proposed substation expansion is illustrated in detail in Figure 2-3. See also Appendix B (page 9).

The new 230 kV aboveground bus support and dead-end steel structures would include equipment ranging in height from approximately 16 feet to 55 feet, with concrete foundations installed 28 feet below ground. Each adjacent bay would be approximately 53 feet by 384 feet, with vehicle access of approximately 16 feet around the new 230 kV bays. An underground conduit system would be buried approximately 3–5 feet deep. The existing ground grid may be augmented with additional buried copper wires, which typically are placed in an approximately 10-foot by 10-foot grid, buried approximately 18 inches below the ground surface within the substation footprint; although this is assumed to be part of the project, the need for augmentations would be evaluated during the final design grounding system study.

PG&E Lockeford Substation's existing 60 kV, 115 kV, and 230 kV facilities would not be modified beyond activities related to the 230 kV expansion and updating the 60 kV system protection scheme with the reconfiguration of PG&E Lockeford-Industrial Line to PG&E Lockeford-Lodi No. 1 Line (preliminary name), which would include replacing the relay protection package and installing two new panels. No substation components would be removed or abandoned to complete the project.

New steel structures would be made from galvanized steel. Equipment would typically be American National Standards Institute (ANSI) 70 light gray, per PG&E and industry standards. The control enclosure, battery enclosure, and nonsteel substation equipment would be a nonreflective neutral gray color.

Lighting

The expanded 230 kV area within the existing substation would incorporate outdoor lighting for safety and security. New permanent structure lighting that is consistent with the existing bus 1 and bus 2 lighting would be installed. The battery and control enclosures would have exterior entrance lighting consistent with the existing control enclosure. Outdoor lighting would include nonglare or hooded fixtures and directional lighting. The new lighting would be operated as needed to support security technology and safety during unplanned work at night or in low-light conditions when directional lighting would improve safety for access and work.

Control and Telecommunication Equipment

The new fiber optic cable would be routed into the substation using a new underground conduit. The conduit would convey the cable into the substation, where it would continue underground to the new control enclosure. The fiber optic cable is needed for facilities communication during operation.

An existing AT&T fiber line located at PG&E Lockeford Substation would be extended either on existing structures at the street or from within the substation and to the new control enclosure. The fiber line extension would use existing aboveground structures and would have a similar appearance to existing fiber lines along East Kettleman Lane and within PG&E Lockeford Substation. The fiber line is needed for facilities communication during operation.

Stormwater Retention Basin and Drainage Ditch

The existing substation retention basin is approximately 7,500 square feet with a connecting concrete stormwater drainage ditch of approximately 450 feet. The existing substation retention basin would be expanded by approximately 2,742 square feet, for a total area of approximately 10,242 square feet to collect stormwater from the expanded substation footprint. Approximately 50 feet of the existing concrete stormwater drainage ditch would be removed where the basin is expanded to the east, and the modified connection between the ditch and basin would be stabilized with riprap. The existing concrete stormwater drainage ditch would be replaced in kind (replaced with an identical item or other alternative that meets the design specification) and extended north by approximately 134 feet to align with the eastern edge of the new 230 kV bay footprint.

Vehicle Access

The existing interior access within the substation's west side yard would be improved for all-weather access and connected through a new interior vehicle gate into the central yard allowing an alternate, all-weather access to the new 230 kV components from East Kettleman Lane. The approximately 780-foot length of the approximately 15-foot-wide existing interior access would be bladed (approximately 0.35 acres of temporary ground disturbance expected) to level the surface and rocked for all-weather access.

Exterior Fence Line

The substation fence line would be expanded to include an additional 2.32 acres on the northern and eastern sides of the currently fenced area to provide facility security and a public safety barrier. During operation, the permanent fence line would enclose approximately 12.6 acres. New fence material would have a similar finish to the existing gray chain-link fence with three strands of barbed wire along the top.

PG&E Lockeford-Lodi No. 1 60 kV Power Line (Preliminary Name)

As part of the proposed project, approximately 0.43 miles of PG&E Industrial Tap within the City of Lodi would be reconfigured to connect to segments of PG&E Lockeford-Industrial (to the east) and PG&E Lodi-Industrial (to the west) to create PG&E Lockeford-Lodi No. 1 60 kV Line (preliminary name), which would have increased capacity, allowing more reliable service to the PG&E 60 kV network in northern San Joaquin County. The reconfigured single-circuit 60 kV line would be approximately 6.82 miles long and connect the PG&E Lockeford and Lodi Substations.

PG&E Lockeford-Industrial 60 kV Power Line

A portion of the western end of the PG&E Lockeford-Industrial 60 kV Power Line (approximately 0.54 miles) into LEU Industrial Substation would be removed. Existing wood pole structures on the Lockeford-Industrial 60 kV Power Line that would be modified are numbered from west to east as pole 1 through pole 10, starting with the terminal structure outside LEU Industrial Substation toward PG&E Lockeford Substation. Pole 1 through pole 9 would be removed; refer to Appendix B (pages 23 and 25). The pole removal would occur when PG&E can take a single line 60 kV outage (typically November to March annually, when LEU load can be supplied by two existing PG&E 60 kV lines). These initial activities would be followed by construction of the remaining portion of the new PG&E 230 kV line within the existing utility corridor.

After the 230 kV line is in service and the other two PG&E 60 kV lines can be removed from service to LEU Industrial Substation, the remaining portion of PG&E Lockeford-Industrial Line (approximately 5.46 miles) from PG&E Lockeford Substation would connect to the nearby PG&E Industrial Tap 60 kV Line. A new span (approximately 115 feet) across the railroad tracks would connect PG&E Lockeford-Industrial pole 10, at the west end of East Sargent Road, to PG&E Industrial Tap pole 13. PG&E Lockeford-Industrial pole 10 would be replaced in-kind with a weatherized light-duty steel pole. The new pole, on the eastern side of the new span, would be replaced in-kind at approximately 85 feet in length, have a diameter at base of approximately 22 inches, and have a direct-bury depth of approximately 13.5 feet. On this replaced pole, new down guy wire would be installed to the east. The new pole would typically be located within approximately 5 feet from the existing pole and in-line with the existing power line alignment. Light-duty steel poles have a surface treatment designed to render the appearance of natural weathering (Corten). This pole design provides superior protection from wildfires, rotting, and woodpecker damage when compared to wood poles.

PG&E Industrial Tap 60 kV Power Line

The existing PG&E Industrial Tap 60 kV Power Line is approximately 1 mile long and connects PG&E Lockeford-Lodi No. 2 Line at SR 12 to the LEU Industrial Substation. The existing wood pole structures that would be modified are numbered from west to northeast as pole 1 through pole 22, starting with the terminal structure outside LEU Industrial Substation to and including the PG&E Lockeford-Lodi No. 2 60 kV Power Line wood pole at SR 12/East Victor Road. Refer to Appendix B (pages 23–25).

The PG&E Industrial Tap would be disconnected from LEU Industrial Substation after the 230 kV feed is in service and pole 1 is removed. The remaining western portion of the line (approximately 0.42 miles) would be connected at pole 2, which is on the western portion of PG&E Lodi-Industrial Line. The existing steel guy stub pole near 1303 East Lodi Avenue and the connecting horizontal guy wires to PG&E Lodi-Industrial pole 2 and PG&E Industrial Tap pole 2 are

expected to be removed as part of construction. PG&E Industrial Tap pole 13 would connect to the eastern portion of PG&E Lockeford-Industrial Line at its pole 10 to operate as Lockeford-Lodi No. 1 (preliminary name). The northern approximately 0.5 miles of the PG&E Industrial Tap Line would be modified between the PG&E Lockeford-Lodi No. 2 Power Line at SR 12 south to the alignment of new PG&E Lockeford-Lodi No. 1 Line. Approximately eight existing wood poles (pole 14 to pole 21) would be topped after the 60 kV conductors and framing are removed. These poles would remain in place due to existing underbuild. The existing PG&E 12 kV line would not be modified and would remain in service on the topped wood poles. The existing Industrial Tap line name would be retired.

PG&E Lockeford-Lodi No. 2 60 kV Power Line

Before the connecting span from PG&E Industrial Tap is removed, the angle pole on PG&E Lockeford-Lodi No. 2 (identified as PG&E Industrial Tap pole 22) would be reframed. To accomplish this, aerial horizontal guy wire would be installed to the south from pole 22 to an existing PG&E distribution pole to replace the existing tap line tension along with new down guy wire installed on the existing PG&E distribution pole. Where the new horizontal guy wire crosses SR 12/East Victor Road, the lowest point the span is expected to reach is approximately 37.5 feet aboveground on the southern edge of the road. Additionally, a new down guy would be installed on the south side of the existing PG&E distribution pole.

PG&E Lodi-Industrial 60 kV Power Line

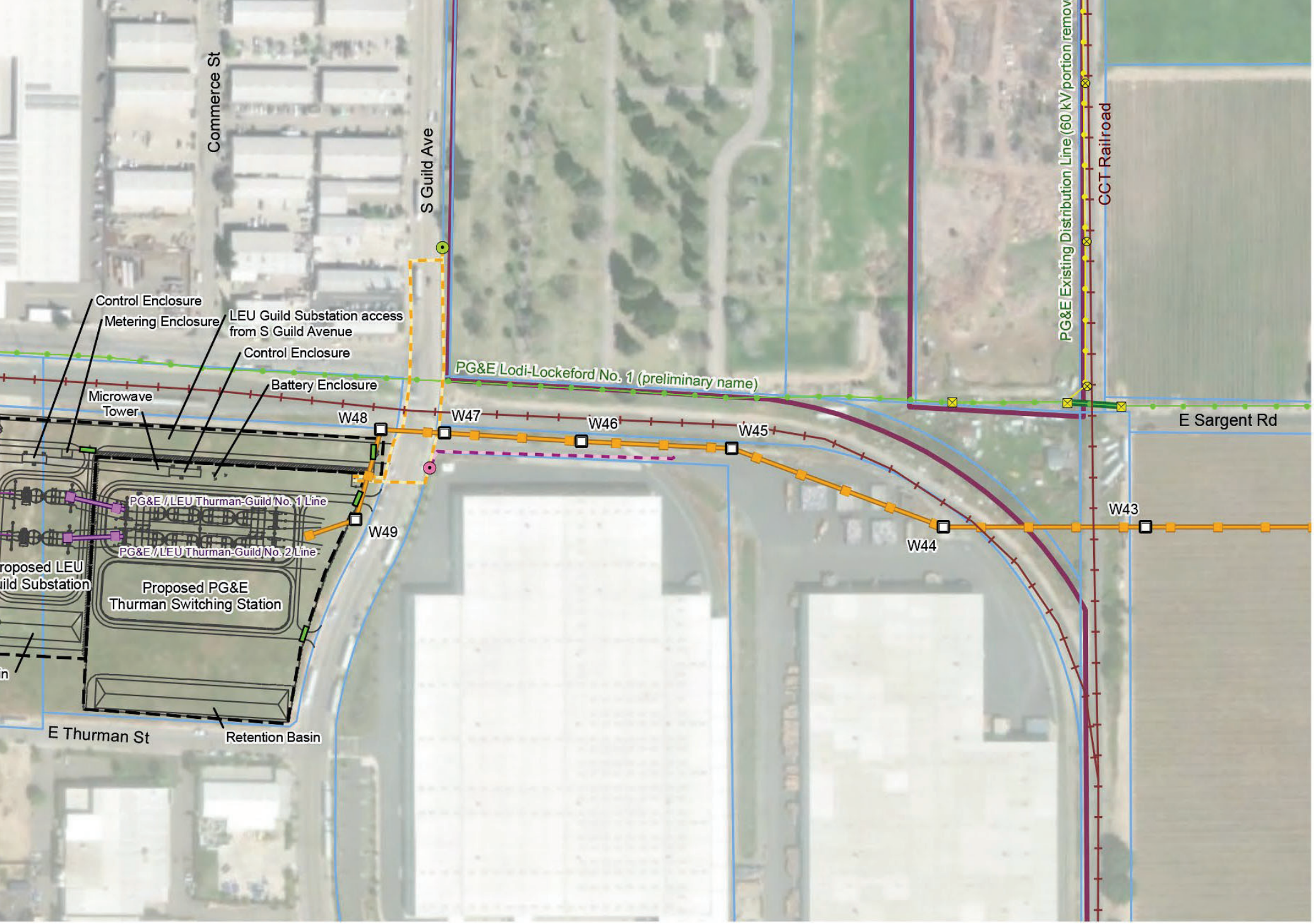
This existing connection into LEU Industrial Substation would be removed when the new 230 kV feed is operating and the 60 kV feed is no longer needed. For identification within this document, the existing wood pole structures that would be modified are numbered from south to north as pole 1 and pole 2, starting with the terminal structure outside LEU Industrial Substation to PG&E Lodi Substation. Refer to Appendix B.

The existing wood pole outside the substation (pole 1) would be removed. Pole 2 would have framing changed from an angle type (SV-PJ) to a through type (DV-PJ), and the existing down guy would be removed and not replaced. Pole 3 framing would change from SS-1 type to 3-HPD type. No changes would occur to the existing LEU underbuild on the PG&E Lodi-Industrial 60 kV Line. A new span of conductor would be installed from PG&E Lodi-Industrial pole 2 to PG&E Industrial Tap pole 2. The existing steel guy stub pole near 1303 East Lodi Avenue and the connecting horizontal guy wires to PG&E Lodi-Industrial pole 2 would be removed as part of construction because they would not be needed to provide tension. Tension would be adjusted on the existing conductor between PG&E Lodi-Industrial pole 2 and pole 3.

PG&E Thurman Switching Station (New)

The proposed PG&E Thurman Switching Station would be a 230 kV switching station with an approximate footprint of 5.75 acres (on a portion of parcel 04931009) to the northwest of the intersection of South Guild Avenue and East Thurman Road within the City of Lodi (See Figure 2-5). The switching station would switch the PG&E 230 kV feed from PG&E Lockeford-Thurman 230 kV No. 1 and No. 2 Transmission Lines to a lower voltage suitable for LEU's system. The station footprint acreage includes the permanent fenced area and paved driveways from South Guild Avenue. The new PG&E and LEU shared Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines would connect into the adjacent new LEU Guild Substation. New antennas on a new microwave tower located within the switching station yard would communicate with new antennas on the existing PG&E Clayton Hill Repeater Station. Refer to Figure 2-2.

Site development work would include site grubbing, excavation, and backfilling to install roads, final grade, and final crushed stone surface for the crushed-rock surface and asphalt access road inside the perimeter security fencing. Secondary containment for oil spill control would be local to applicable equipment. All steel structures supporting electrical equipment and wire would be installed on drilled-shaft foundations, with the exception of some equipment and structures that are supported on concrete-pad foundations, including circuit breakers, control enclosure, and battery enclosure.


Commerce St
S Guild Ave
PG&E Existing Distribution Line (60 kV portion remov
CCT Railroad
Control Enclosure
Metering Enclosure
LEU Guild Substation access from S Guild Avenue
Control Enclosure
Battery Enclosure
Microwave Tower
PG&E Lodi-Lockeford No. 1 (preliminary name)
W48
W47
W46
W45
W44
W43
W49
E Sargent Rd
PG&E / LEU Thurman-Guild No. 1 Line
PG&E / LEU Thurman-Guild No. 2 Line
roposed LEU
ild Substation
Proposed PG&E
Thurman Switching Station
n
E Thurman St
Retention Basin

200
FEET

Electric equipment at PG&E Thurman Switching Station would include 230 kV disconnect switches, instrument transformers, protective relaying, metering and control equipment, remote SCADA equipment, telemetering equipment, an auxiliary AC/DC power system, an electric grounding system, and underground conduits or trench systems. PG&E Thurman Switching Station would be uncrewed and have automated features and remote-control capabilities. During operation, the switching station facility would be within a permanently fenced area, and new access would be established from the adjacent city streets.

New steel structures, including the microwave tower, would be made from galvanized steel. Equipment typically would be ANSI 70 light gray, per PG&E and industry standards. The control enclosure, battery enclosure, and nonsteel switching station equipment would be a nonreflective neutral gray color. The new 230 kV aboveground bus support and dead-end steel structures would range in height from approximately 16 feet to approximately 55 feet, with concrete foundations as deep as approximately 28 feet. Each adjacent bay would be approximately 53 feet by 400 feet with vehicle access of approximately 16 feet around the new 230 kV bays. An underground conduit system would be buried approximately 3–5 feet deep. An underground grounding system, typically placed in an approximately 10-foot by 10-foot grid of copper wire, would be buried at a minimum of approximately 18 inches within the switching station property. Up to approximately four grounding wells would be installed up to approximately 100 feet in depth. Grounding rods typically have a diameter of approximately 1 inch to approximately 1.5 inches, and a drill rig would be used to excavate a narrow shaft to install the rod within the well.

Lighting

The new switching station would include outdoor lighting for safety and security. Design and layout for outdoor lighting would incorporate nonglare or hooded fixtures and directional lighting. New lighting that is consistent with standard station lighting would be installed at the new bays. All necessary yard lighting standards and lighting fixtures and associated foundations would be installed, along with station receptacle fixtures, providing 120/208-volt (V) AC power and connected to an outdoor lighting panel. The lighting would be operated only as needed to support security technology and safety during unplanned work at night.

Control and Telecommunication Equipment

The new fiber optic cable would be routed into the substation using a new underground conduit. The fiber optic cable would be installed down the structure, connecting to an underground conduit and into the switching station to the control enclosure.

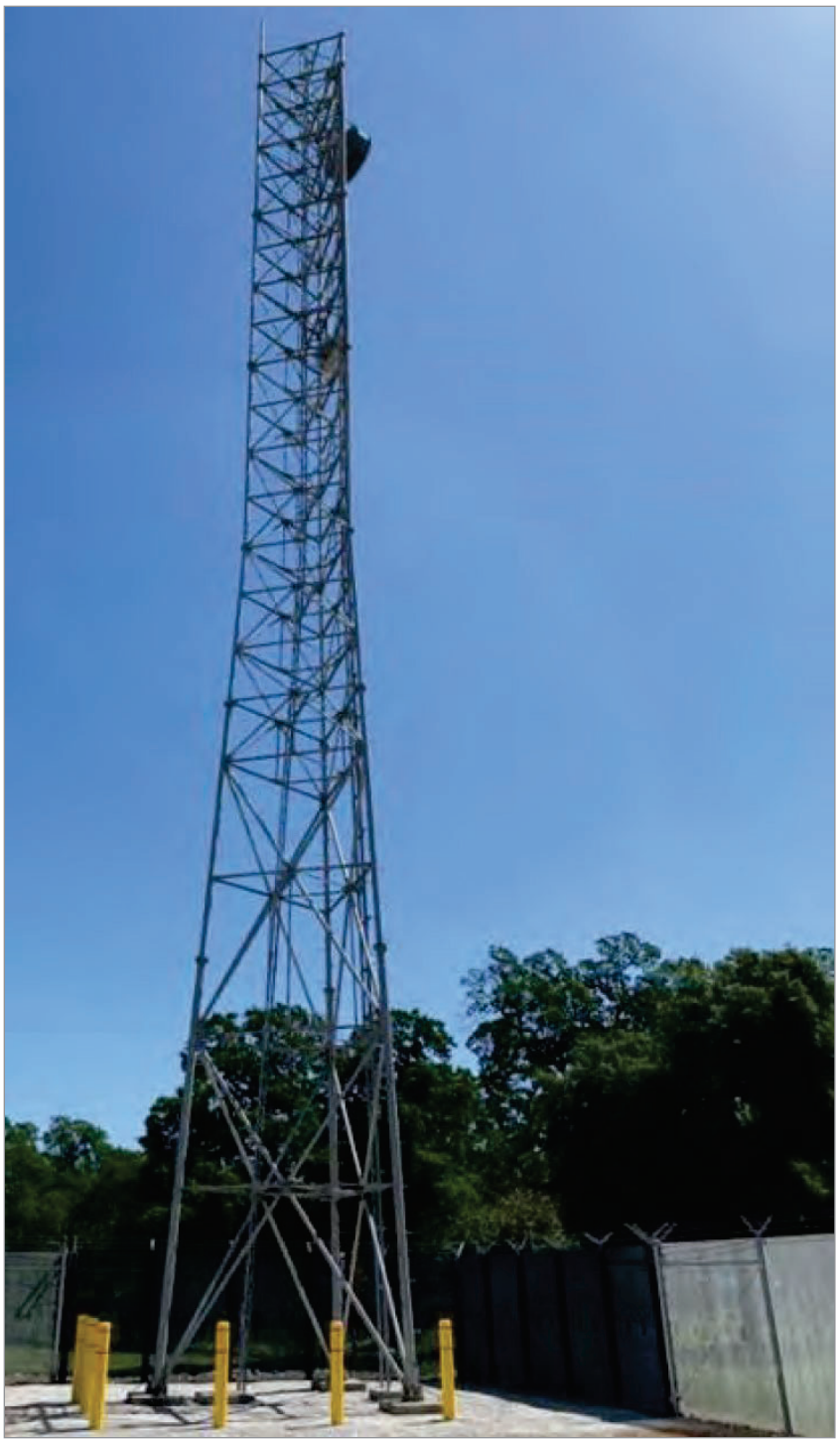
A new 125-foot-tall microwave tower with three or four legs would be installed on a 25-square-foot concrete slab foundation on the north side of the station. Figure 2-6 provides an example photograph of a similar microwave tower. The microwave tower would create a new digital microwave path to PG&E Clayton Hill Repeater Station to deliver the redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. The tower height and foundation details would be refined during design development. Two new 6-foot antennas would be installed on the southwest leg of the new tower at approximately 115 feet and approximately 125 feet.

Stormwater Retention Basin and Drainage

The preliminary design has the stormwater retention basin located at the southern side of the station.

Exterior Fence Line

An approximately 10-foot-tall security fence consisting of 3/8-inch wire mesh with approximately 1 foot of V-shaped barbed wire at the top would be installed to enclose approximately 5.71 acres of the PG&E property. The chain-link fence system would have isolated fence grounding and be installed per NERC and PG&E security standards and requirements. New fence material would have a similar finish to the existing gray chain-link fence with approximately three strands of barbed wire along the top.



Source: PG&E 2023.

Figure 2-6 Example 150-Foot Microwave Tower

PG&E Service Line Extension

The existing PG&E 12 kV overhead service line that terminates on the east side of South Guild Avenue north of East Lodi Avenue would be extended underground to provide secondary station service to the new PG&E Thurman Switching Station. The underground extension would be within South Guild Avenue and horizontal directional drilling (HDD) or other trenchless construction method would be used to cross under the railroad tracks and would occur in accordance with Union Pacific Railroad (UPRR) Guidelines for Horizontal Directional Drilling Under Union Pacific Railroad Right of Way.

PG&E Remote-End Facilities

Prior to placing the new transmission lines, modified power lines and substation, and new switching station components into service, PG&E must ensure that the components, as well as the overall system, have adequate protection from faults and other electrical abnormalities. At the new Thurman Switching Station, system protection equipment would be integrated into the final design and installed as part of the station construction. Existing AT&T fiber lines would be extended to support 230 kV communication at some substations, which would be minor modifications to the appearance of each substation.

PG&E Clayton Hill Repeater Station

An existing approximately 90-foot microwave tower within PG&E Clayton Hill Repeater Station, located roughly 3 miles southwest of Antioch and 2 miles east of Clayton within Black Diamond Mines Regional Preserve in unincorporated Contra Costa County would be modified as part of the project to create a communication path with PG&E Thurman Switching Station for operation. The four-sided self-supporting south tower currently has approximately six whip antennas (approximately 2-, 3-, 8-, or 10-foot height) and approximately five dish antennas (approximately 6- or 8-foot diameter) positioned on the upper portions of the tower, from approximately 36 feet to approximately 88 feet (Figure 2-7).



Source: PG&E 2023.

Figure 2-7 Existing PG&E Clayton Hill Repeater Station South Tower—Northwest and West Views

Approximately two new 6-foot dish antennas would be installed at approximately 50 feet and approximately 80 feet on the northeast leg of the existing tower. This new digital microwave path would deliver redundant communication into the new PG&E Thurman Switching Station in support of PG&E's system protection scheme. The addition of approximately two new antennas to an existing microwave tower with approximately 11 existing attachments is a minor modification to the appearance of the communication tower.

SHARED PG&E AND LEU FACILITIES

PG&E and LEU Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines (New)

The PG&E and LEU Thurman-Guild 230 kV No. 1 and 2 230 kV Transmission Lines are each a single span, approximately 135 feet long. These lines would connect 230 kV terminals within the proposed PG&E Thurman Switching Station to terminals within LEU Guild Substation. Refer to Figure 2-3.

LEU FACILITIES

LEU Guild Substation (New)

LEU would construct a new LEU Guild Substation adjacent to PG&E Thurman Switching Station. LEU Guild Substation would convert 230 kV to 60 kV and deliver 60 kV to the modified LEU Industrial Substation.

The proposed LEU Guild Substation would be a 230/60 kV substation with an approximate fenced footprint of 3.25 acres (on portions of parcels 04931008 and 04931009). LEU Guild Substation would have common fenced walkway areas shared with PG&E Thurman Switching Station to the east and would share a common chain-link fence with the existing LEU Industrial Substation to the west. The tallest structures within LEU Guild Substation would be the two 230 kV dead-end structures, at approximately 47 feet in height with approximately 16 feet underground.

The substation would include equipment laydown and storage, fencing, access and internal vehicle circulation, spill and stormwater management, and other operational considerations. LEU Guild Substation would install two transformer banks. Each would be a three-phase 230/60 kV 224 megavolt-ampere (MVA) autotransformer. The substation would have a protection and control enclosure that would measure approximately 50 feet long, approximately 16 feet wide, and approximately 14 feet high. The protection and control enclosure would have redundant air conditioning units installed to protect electronic components. The enclosure would be wrapped in corrugated metal and painted in a neutral color, which would be selected during design. LEU Guild Substation would be unmanned and have automated features and remote-control capabilities.

LEU Guild Substation would have its own sources of station power. Power required for construction and operation of LEU Guild Substation would be supplied by tapping into the existing LEU 12kV power lines adjacent to the substation site. LEU would provide electric service drops from two existing 12 kV distribution lines south of LEU Industrial Substation, adjacent to LEU Guild Substation. A permanent approximately 100 kW generator would be installed on-site that could provide power if local primary and secondary service drop sources are unavailable.

Electricity would be used for construction (to power construction trailers, lighting, and small hand-held machinery or tools) and for operation of primary and backup station service power. The electric power would be brought to the LEU Guild Substation on either overhead distribution poles or underground conduits. If overhead, up to six approximately 40-foot-tall wood distribution poles may be constructed between the existing distribution pole and LEU Guild Substation. The poles would be direct embedded up to approximately 6 feet deep. Pole location would be within the proposed LEU Guild Substation fence. If underground, the backup power and communications would be brought into LEU Guild Substation using up to three underground conduits from the existing distribution poles on the south side of the substation.

Lighting

Lighting would conform to National Electric Safety Code (NESC) requirements. NESC recommends illuminating substation facilities to a minimum of approximately 22 lux, or approximately 2 foot-candles. Lighting would be

sodium vapor or light-emitting diode fixtures and would be installed inside the facility and at the entry/exit gates to allow for safe access to the facility and its equipment. Lights would be controlled by a photocell that automatically turns the lights on in low-light conditions and off when conditions are brighter than the set foot-candles. All on-site lighting would be oriented downward to minimize glare into surrounding property. Additional manually controlled lighting would be provided to create safe working conditions at LEU Guild Substation when required. The fixtures would be mounted on legs of dead-end structures, switch support structures, or the control enclosure. The exact number of fixtures and their output and location would be determined during final facility design.

Control and Telecommunication Equipment

Telecommunications equipment would communicate information through fiber optic paths between the interconnected PG&E Thurman Switching Station and LEU Guild Substation, and between LEU Guild and LEU Industrial Substations. Two fiber optic lines would be installed underground to provide a fiber optic link between LEU Guild Substation and PG&E Thurman Switching Station. The communication cables would transition from PG&E Thurman Switching Station's control enclosure and enter a pull box positioned at the adjoining property line. The pull box would transition the fiber optic cable to underground approximately 4-inch conduits to LEU Guild Substation's control enclosure. These telecommunication cable pull boxes would be approximately 3-foot by 5-foot precast polymer concrete. LEU Guild Substation would also connect to existing telecommunication circuits (telephone and T1, either copper or fiber) at LEU Industrial Substation.

SCADA/remote terminal unit equipment would be installed to provide status and control of LEU Guild Substation equipment.

Stormwater Retention Basin and Drainage

Substation design includes a 231,500-gallon retention basin that would be 190 feet by 60 feet and approximately 4 feet deep.

Vehicle Access

Access to LEU Guild Substation would be from South Guild Avenue on a new permanent access road. The road would be included in the facility perimeter fence line and is included in the substation acreage total. The main access road would be crushed rock and would measure approximately 800 feet long and approximately 40 feet wide with approximately 10 feet between the road and fence on either side. Interior crushed-rock roads within the substation yard would measure approximately 875 feet long and approximately 16 feet wide. Areas outside the equipment foundations would be covered with approximately 4–6 inches of crushed rock. The private-access driveway would occupy approximately 0.75 acres, the interior roads would occupy approximately 0.33 acres, and the remaining 2.17 acres would support substation components.

The permanent access road would have a secure vehicle gate from South Guild Avenue that would be a minimum of 20 feet wide. Three 3-foot-wide personnel gates—one next to the vehicle gate, one next to the metering enclosure, and one leading into the existing LEU Industrial Substation laydown yard—would provide additional security. All gates would be locked, with keycard access only for qualified personnel. Warning signs would be posted on the perimeter chain-link fencing and gates in accordance with the NESC and the respective LEU guidelines.

Exterior Fence Line

An approximately 6- to 8-foot-tall chain-link fence with up to approximately 2 additional feet of barbed wire, for a total potential height of approximately 10 feet, would be installed around the perimeter of the substation.

LEU Industrial Substation

The LEU Industrial Substation would be interconnected to the new, adjacent LEU Guild Substation's 60 kV bus with the new Guild-Industrial No. 1 and No. 2 60 kV lines and disconnected from PG&E's three 60 kV lines. The lines would connect to two existing substation 60 kV buses each through a single-circuit 60 kV monopole approximately 65 feet high. The pole would have an approximately 4-foot diameter and approximately 20-foot drilled pier foundation. The LEU 60 kV interconnection would be constructed within the existing LEU Industrial Substation property. Minor modifications within the LEU Industrial Substation would include phase transposition of existing power line facilities,

power line terminations changing 60 kV feeds, installation of single-circuit 60 kV monopoles, expansion of the existing ground grid system, replacement of the existing eastern perimeter fence, and installation of underground conduits connecting LEU Industrial Substation's control enclosure with LEU Guild Substation's protection and control enclosure. The existing LEU Industrial Substation copper ground system would be expanded.

Two new single-circuit 60 kV monopoles (approximately 65 feet in height) would be installed within the existing LEU Industrial Substation footprint to connect to the new feed from LEU Guild Substation. These poles would support the new conductor, which would be installed between the 60 kV terminals in LEU Guild and LEU Industrial Substations. New monopole structures would be galvanized steel.

Lighting

The new area within the existing substation would incorporate outdoor lighting for safety and security similar to existing outdoor lighting. Design and layout for new outdoor lighting would integrate nonglare or hooded fixtures and directional lighting. The new lighting would be operated as needed to support security technology and safety during unplanned work at night.

Control and Telecommunication Equipment

A new telecommunication network would connect LEU Industrial and Guild Substations to allow communication between substations for operation. Each of the two underground communication cables would be approximately 315 feet long and would transition underground from each control enclosure in approximately 4-inch conduits at a minimum of approximately 2 feet below grade.

Exterior Fence Line

LEU Industrial Substation's existing eastern perimeter fence (approximately 400 feet) would be replaced by a common chain-link fence with the LEU Guild Substation to the east. An approximately 10-foot-tall fence consisting of approximately 3/8-inch wire mesh with approximately 1 foot of V-shaped barbed wire at the top would be installed where fencing is replaced.

LEU Guild-Industrial 60 kV No. 1 and No. 2 Power Lines

LEU would construct two spans of the new LEU Guild-Industrial 60 kV Power Line—No. 1 and No. 2—between the respective 60 kV bays within the new LEU Guild Substation and the existing LEU Industrial Substation. Two poles would be constructed within the existing LEU Industrial Substation yard to receive the 60 kV lines from LEU Guild Substation. Furthermore, new equipment would be a nonreflective neutral gray color and galvanized steel structures which would weather to a dull, nonreflective patina. Refer to Appendix B, page 25, for a map of these features.

LEU 12 kV Feeder Lines

Portions of two LEU 12 kV lines extending from LEU Industrial Substation and partially located on PG&E Lockeford-Industrial 60 kV Power Line (pole 2 to pole 6) would be removed and reconfigured by LEU to continue existing service. The overhead portion of a west-east LEU feeder line (pole 2 to pole 6) would be removed. The existing connecting underground lengths would be retired in place (west end) and extended to continue service (east end). The existing underground west portion between PG&E Lockeford-Industrial pole 2 and the LEU Industrial Substation would also be retired in place. A new LEU underground 12 kV line east segment would extend west from near PG&E Lockeford-Industrial pole 6 to connect to an existing overhead line segment on the existing LEU wood pole south of PG&E Lockeford-Industrial pole 4. The existing LEU wood pole has a single south-north LEU 12 kV span to PG&E Lockeford-Industrial pole 4. This span is not in service and would be removed without being replaced. Refer to Appendix B, page 25, for a map of these features.

2.6.2 System Design

230 KV TRANSMISSION STRUCTURES

The proposed PG&E Brighton-Lockeford Line and PG&E Lockeford-Bellota No. 2 Line would have an average span length of approximately 880 feet with approximately 23 structures. The new PG&E Lockeford-Thurman Line would be a double-circuit 230 kV line of approximately 6.8 miles in length and be supported by approximately 49 structures based on an anticipated average span length of approximately 720 feet. Longer or shorter spans may be required in certain locations to increase compatibility with existing land uses and/or to achieve required clearances at crossings. Proposed 230 kV structure types are provided with approximate anticipated dimensions in Table 2-2.

Table 2-2 Proposed 230 kV Structure Types with Approximate Anticipated Dimensions

Structure Type[a]	Average Height (ft)[b]	Range of Height (ft)[b]	Potential Maximum Height (ft) at 12 kV, 60 kV or 115 kV Crossings	Diameter (ft) at Pole Top, Base, and Excavation	Range of Excavation Depth (ft)
PG&E Brighton-Bellota Extension (Brighton-Lockeford and Lockeford-Bellota No. 2)					
Dead-End Monopole	131	120-140	145 (12 kV)	1-3, 3-7, 6-9	20-38
Tangent Monopole	137	120-155	165 (115 kV)	1-3, 3-7, 6-9	20-38
PG&E Rio Oso–Lockeford and Lockeford-Bellota (to be renamed Lockeford-Bellota No. 1)					
Dead-End Monopole	105	NA	NA	1-3, 3-7, 6-9	20-38
PG&E Lockeford-Thurman No. 1 and No. 2 Double-Circuit Line					
Dead-End Monopole	129	120-135	165 (60 kV)	1-3, 3-7, 6-9	20-38
Tangent Monopole	130	120-155	150 (60 kV) 170 (substation)	1-3, 3-7, 6-9	20-38
PG&E and LEU Thurman-Guild No. 1 and No. 2 Double-Circuit Line					
Substation bay	60	55-65	PG&E Thurman Switching Station and LEU Guild Substation	—	—

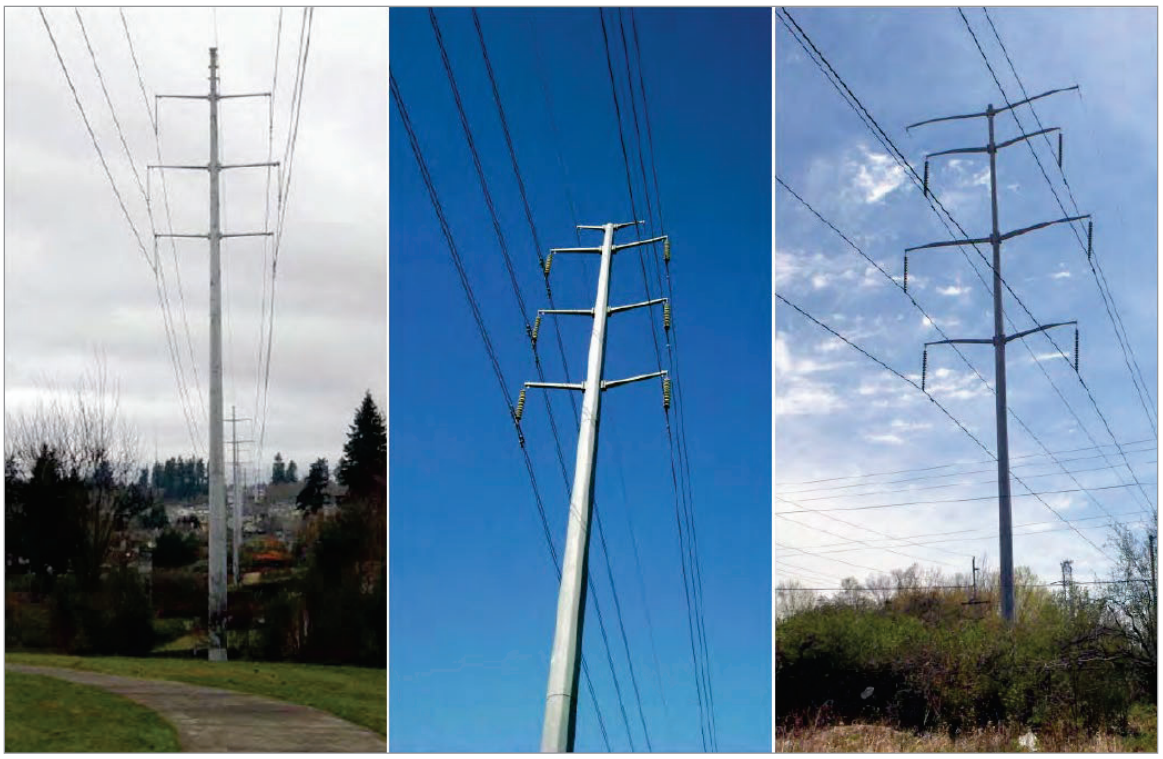
Notes: ft = foot/feet; NA = not applicable, kV = kilovolt.

[a] Component description provided by PG&E. Exact structure type, configuration, and dimensions subject to change based on CPUC requirements, final engineering, and other factors. Design modifications that affect the potential for environmental effects may be subject to additional analysis.

[b] Average and range exclude taller structure heights required when adjacent to PG&E Lockeford Substation (substation) or for clearance over PG&E 115 kV, 60 kV, and 12 kV lines. Refer to Potential Maximum Height column for anticipated adjacent structure height at line crossings and exiting the substation.

Source: PG&E 2023.

Transmission line segments would be constructed with self-supporting TSP monopole structures, which are typically constructed using galvanized steel. Refer to Figure 2-8 for photographs of existing example TSP monopole structures. Typical structure heights would generally range from approximately 110 to 170 feet (above the ground) to meet CPUC's General Order (GO) 95 clearance requirements and have a width at the base and at the top of approximately 3–7 feet and approximately 1–3 feet, respectively. The new structures would meet current raptor safety requirements. Exact heights would depend on span lengths and ground clearance requirements, which change with land uses (such as orchards, croplands, roadways, highways, and river crossings), topography, electrical clearances, and other design considerations.



Source: PG&E 2023.

Figure 2-8 Example 230 kV Monopole Structures

Each monopole foundation would be a single drilled-shaft reinforced-concrete caisson. Typical excavations for structure foundations would range from approximately 6 to 9 feet in diameter and approximately 18 to 30 feet in depth; some foundations could be larger depending on site-specific geotechnical conditions. Final design may change the structure type, typical span length(s), and/or total number of structures.

Two circuits (each circuit consists of three conductors or wires) would be installed on each side of each structure. An all-aluminum conductor (ACC) with non-specular finish would be arranged vertically in three phases on each side of the transmission structures. Insulators would be hung in an "I" configuration. The design for each structure would adhere to CPUC's GO 95 and PG&E's Overhead Transmission Line Design Criteria (Document 068177, revision 14), as well as the design criteria developed for the project.

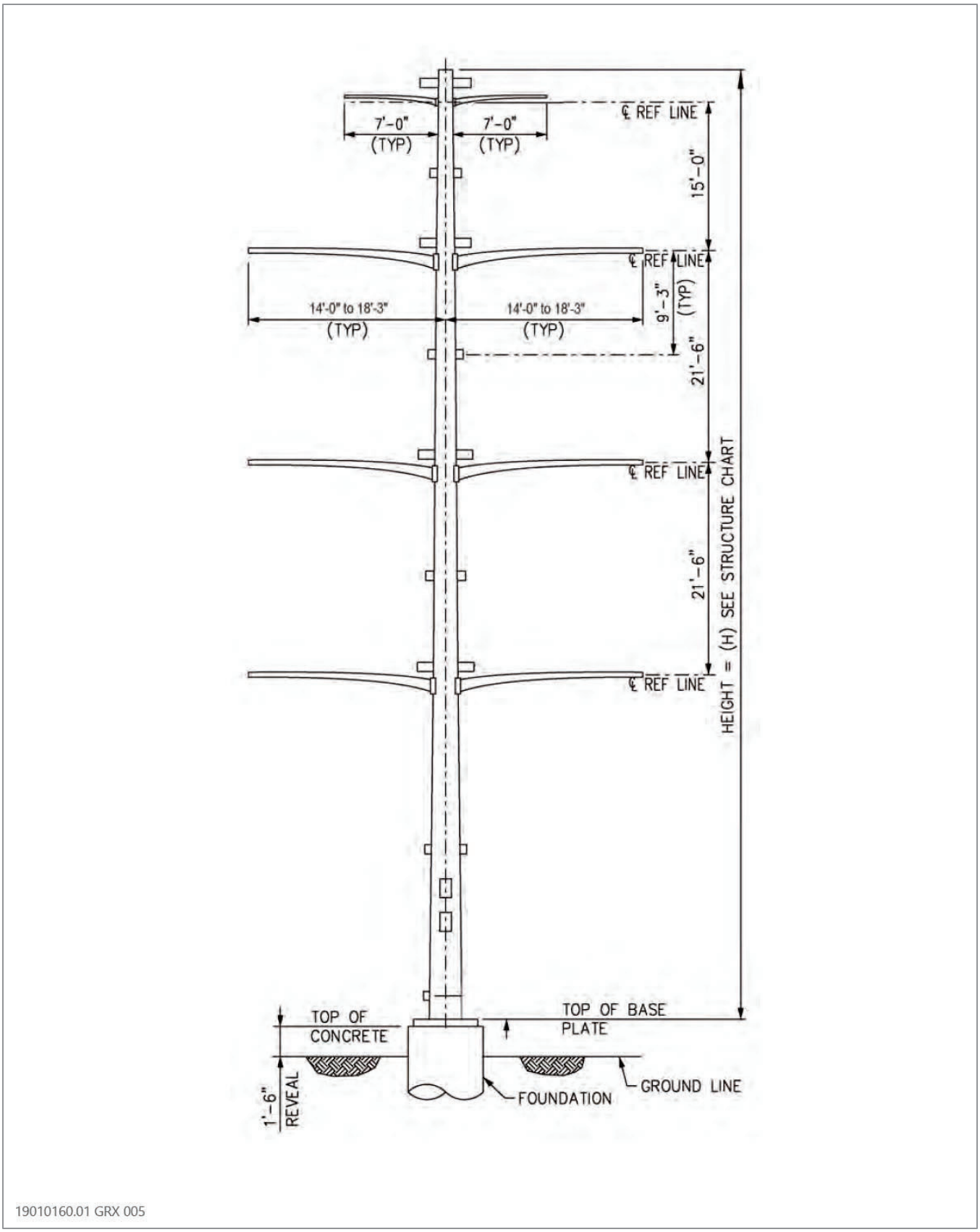
Structure types would include dead-end (or angle) and tangent (or in-line) structures. Dead-end structures would typically have longer crossarm sets that may range between approximately 14 feet and approximately 18 feet 3 inches in length from the pole. See Figure 2-9 for typical design of a 230 kV dead-end structure. Tangent structures typically would have three sets of crossarms that measure approximately 14 feet to approximately 14 feet 6 inches in length from the pole. See Figure 2-10 for typical design of a 230 kV tangent structure.

UNDERGROUND CONDUCTOR/CABLE INSTALLATIONS

Electric equipment at PG&E Lockeford Substation, LEU Industrial Substation, PG&E Thurman Switching Station, and LEU Guild Substation would include an underground polyvinyl chloride (PVC) conduit system or a prefabricated concrete trench system at ground level. All conduit and trench systems would be constructed at depths and in accordance with specifications appropriate for defined uses.

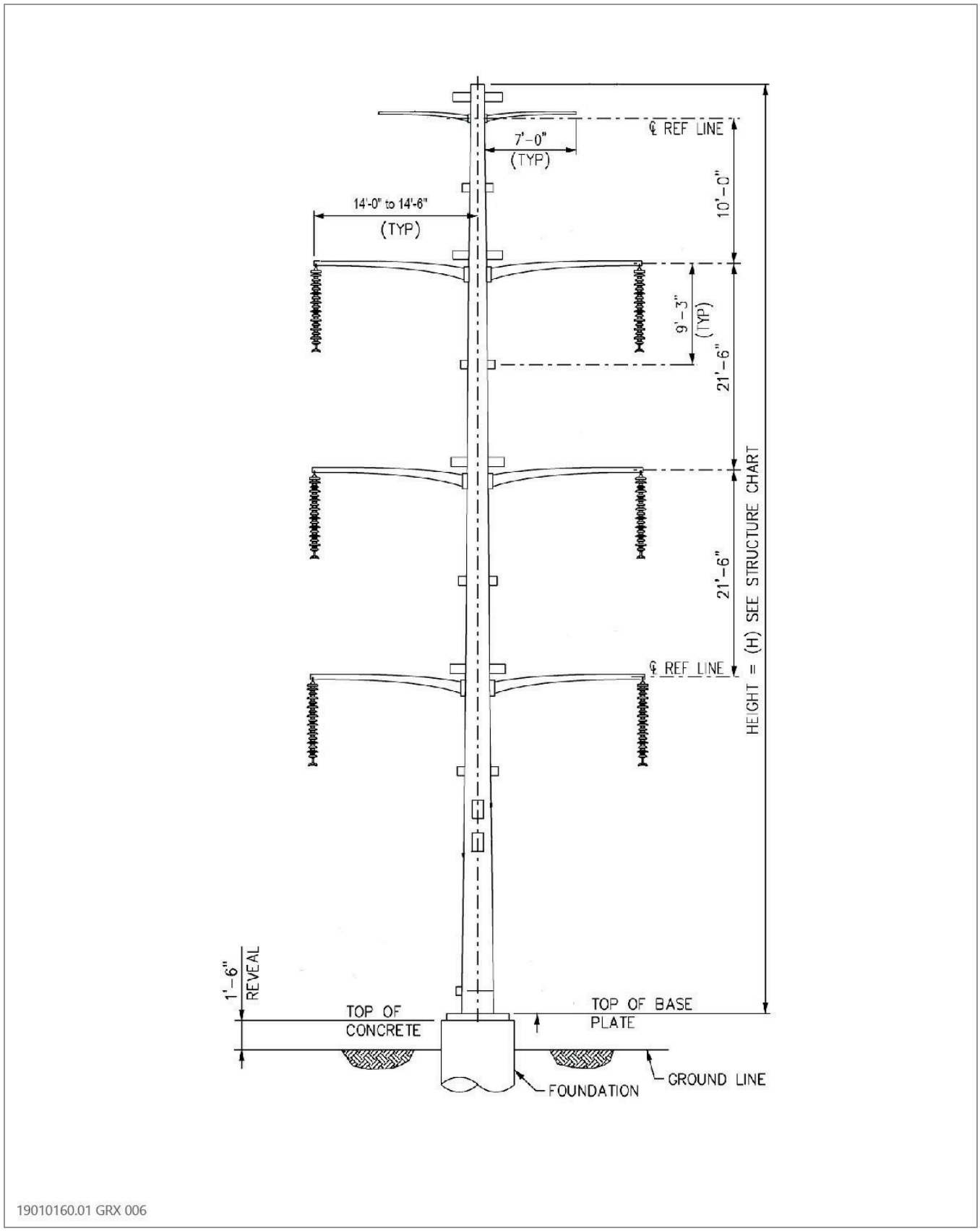
ELECTRIC SUBSTATIONS AND SWITCHING STATION

Construction of the new LEU Guild Substation would include two transformer banks, and each would be a three-phase 230/60 kV 200 MVA autotransformer. Each transformer bank would have one gas-insulated (or equivalent technology) circuit breaker.



Source: PG&E 2023.

Figure 2-9 230 kV Dead-End Structure Design



Source: PG&E 2023.

Figure 2-10 230 kV Tangent Structure Design

TELECOMMUNICATION LINES

Existing AT&T fiber line located at PG&E Lockeford, PG&E Rio Oso, PG&E Bellota, and PG&E Brighton substations would be extended on existing structures at the street or would be extended from within the substation to the control enclosure. The fiber line extensions would occur using existing aboveground structures and would have a similar appearance to existing fiber lines within and outside the substations. No modification to existing pole structures within the substations is proposed. If additional pole structures are required for the fiber line extensions, the new structures would be similar in appearance and size to existing pole structures. In addition, two new 6-foot antennas would be installed on a leg of an existing microwave tower within the PG&E Clayton Hill Repeater Station and on a leg of the new microwave tower within the PG&E Thurman Switching Station.

EXISTING UTILITIES

The proposed project has been designed by PG&E and LEU in consideration of other utilities, including electric power, distribution (also service or feeder) lines; and existing infrastructure, including railroads, canals, and irrigation systems. In locations where the new 230 kV line would cross over existing PG&E power lines, including outside PG&E Lockeford Substation, the structures would be at the upper end of the approximate height and pole widths. New underbuild on existing or new lines is not proposed. Localized underground utilities would be identified during final design and would be either avoided or relocated in coordination with the utility/facility owner. A final determination on the need to relocate utilities to accommodate the new PG&E 230 kV lines would be made during final engineering. Approximately 24 overhead distribution lines would be crossed by the new PG&E 230 kV line outside of the City of Lodi; no aboveground distribution lines would be crossed within the City of Lodi. PG&E's 230 kV line would cross the proposed PG&E underground distribution line extension to PG&E Thurman Switching Station in South Guild Avenue.

Agricultural wells are common in the project area. The transmission line route avoids most of the known well locations, and where they cannot be avoided, appropriate vertical and horizontal clearances have been accounted for in the transmission line design to provide adequate clearance for well maintenance equipment. With project approval and final design, well information would be updated in coordination with landowners, and if necessary, the line design would be adjusted to accommodate newly identified wells. It is assumed that no wells would be relocated as part of the proposed project.

WATERCOURSE CROSSINGS

Where the project would cross over non-navigable canals or waterways, the proposed PG&E 230 kV transmission line crossings have been designed by PG&E to meet the GO 95 vertical clearance requirement of 28 feet. The PG&E Brighton-Bellota Line extension would cross over the channelized Paddy Creek, and PG&E Thurman-Lockeford Line would cross over the channelized Bear Creek. These two creeks are Central Valley Flood Protection Board (CVFPB) Regulated Streams and federal levees. The planned vertical clearance would exceed requirements, as would the distance of 230 kV structures and temporary work areas from the landward side of the landside levee toe to each side of the channelized non-navigable canals. The access route to staging and work areas would use established overland routes to avoid drainage ditches and constructed watercourses culverted beneath the access routes.

2.6.3 Construction

CONSTRUCTION ACCESS

During construction, the existing network of public and private roads would primarily be used to access stations, structure work areas, pull-and-tension sites, and staging areas. Temporary access routes may also be required, as described below. No permanent access roads (other than interior station access) would be installed as part of the

project. Table 2-3 summarizes the types and area of project access roads, routes, and overland access. In addition to the roads listed in Table 2-3, existing public paved roads throughout the area would be used to access the project site.

Table 2-3 Disturbance Area for Access Roads, Routes, and Overland Access

Road Type	Description	Disturbance Area (Acres)
Existing Dirt Road	Typically, agricultural road or double track. May have been graded previously. No other preparation required, although a few sections may need to be regraded and crushed rock may need to be applied in very limited areas for traction.	21.30
New Temporary Access Routes	Would be approximately 16 feet wide, bladed. No other preparation required, although crushed rock may need to be applied in very limited areas for traction.	2.63
Overland Access	No preparation required. Typically, grassy or field areas that are relatively flat. No restoration would be necessary.	1.21

Source: Jacobs Engineering 2023.

Existing Access Roads

All stations would be accessible from existing paved or all-weather roads. The new PG&E Thurman Switching Station and the new LEU Guild Substation would have paved driveway access from South Guild Avenue connecting to interior station access roads. Within the existing fenced west yard of PG&E Lockeford Substation, an all-weather road would be installed to connect to a new interior vehicle gate.

Most structure work areas would be parallel to or adjacent to agricultural, city, or county roads. As such, most work areas would be accessed directly from adjacent roads. Most of the existing paved and unpaved roads in the project area are currently used for large agricultural vehicle and equipment movement during field preparation, planting, maintenance, and harvesting. Within the City of Lodi, existing paved roads that would be used to access project work areas are used frequently by large vehicles accessing existing utility, industrial, and commercial properties.

Appendix B identifies the network of existing roads that are expected to be used during construction, along with expected access modifications or stabilization anticipated. Modification of existing roads is anticipated to occur on some unpaved agricultural roads, at certain intersections, and during the winter months as needed to improve access. The total acreage of existing dirt roads used for construction access, including any necessary modifications, is provided in Table 2-3. Minimal surface contouring may be required to level existing access roads. The following modifications would occur:

- Some of the agricultural roads to be used as temporary access would require widening up to approximately 16 feet, from an average existing approximately 12 feet, to accommodate construction equipment that may be larger than the typical agricultural vehicle.
- Where roads intersect at angles that cannot accommodate the turn radius of construction equipment (such as tractor-trailers hauling monopole sections), curve improvements at existing road intersections would be necessary.
- Unpaved roads may need to be winterized to accommodate heavy loads in winter. Based on final design and construction scheduling, winterizing of the existing roads may include blading, compaction, rocking, culvert installation, and aggregate placement.

Following construction, existing roads would be returned to pre-project conditions as reasonably feasible or as stipulated by landowner agreement. Any aggregate added to existing roads would be left in place, unless otherwise specified in landowner agreements.

New Temporary Access Roads

At road intersections, access roads to be used for construction may need to be widened to accommodate the turn radius of tractor-trailers hauling monopole sections. Earthen ramps may be required when crossing existing berms and embankments, as well as for placement of temporary culverts when crossing irrigation ditches. Installing a temporary culvert typically would include placing engineering fabric in the ditch, installing pipe with capacity that

allows flow and supports the weight of construction vehicles or equipment, and covering with rock aggregate. The rock, pipe, and fabric would be removed when construction is complete, as determined during coordination with the property owner. Ramps would be constructed using excess clean fill generated during construction and removed when construction is complete. Where roads must cross irrigation lines, the lines would be protected with steel plates or rerouted to maintain irrigation operations. If required, access roads would be cleared of crops or mowed, and vegetation would be trimmed/removed, as necessary for safe equipment operation. Adjacent orchard trees may be trimmed to avoid damage from construction vehicles and maintain safe lines of sight, as described further in the discussion of site preparation below. Minimal surface contouring may be required to level the access road following vegetation, orchard, or crop removal or trimming. If the access road is used in the wet season, construction matting or aggregate base may be laid over geotextile fabric, as needed, and these materials would be removed after construction.

Within row crop, orchard, and vineyard settings, temporary access roads and overland access are identified to minimize disruptions to irrigation infrastructure (including irrigation lines, wells, pumps, ditches, and drains). To the greatest extent feasible within orchards and vineyards, temporary access routes would be aligned with the planting layout to minimize the disruption to agricultural operations (for example, access would follow a single row of trees or two rows of vines instead of crossing multiple rows of trees and vines).

Where existing fencing needs to be removed for access, a temporary gate would be installed in coordination with the landowner. Temporary gates would be removed and removed fencing replaced in kind when construction is complete. No new permanent gates would be installed for project operation and maintenance outside of stations.

Overland Access Routes

Most of the temporary access would be via short overland access spurs, typically at least approximately 16 feet in width, from existing roads to project work areas, as shown on Appendix B (pages 8 and 12). At the intersection with existing roads, temporary access routes may be wider to accommodate the turn radius of tractor-trailers hauling monopole sections. Adjacent orchard trees may be trimmed to avoid damage from construction vehicles and to maintain safe lines of sight. Where routes must cross irrigation lines, the lines would be protected with steel plates or rerouted to maintain irrigation operations. Where existing fencing needs to be removed for access, a temporary gate would be installed in coordination with the landowner. If the access route is used in the wet season, construction matting or aggregate base may be laid over geotextile fabric as needed, and these materials would be removed after construction.

The estimated approximate area needed for overland access routes, approximately 1.21 acre, is based on an approximate 16-foot width as summarized in Table 2-3.

Helicopter Access

A light-duty helicopter (Hughes MD 500 or equivalent) is expected to be used for conductor stringing; helicopters would not be used to lift and transport structure components and poles. A light-duty helicopter has a load capacity of approximately 1,200 pounds. Within 500 feet of residences, helicopter operations would be limited to daylight hours. The helicopter flight path would generally follow the proposed transmission line alignment and avoid flying directly over residences.

Proposed temporary helicopter landing zones would be colocated with three staging areas, as shown in Appendix B and identified in Table 2-4. If not using these landing zones, helicopters would use existing nearby airstrips and commercial airports. In each temporary landing zone, there would be a designated area for helicopter take-off and landing. Dust suppressants or water would be applied as needed to control dust at the landing zone.

Helicopters would generally be staged and fueled at existing local airports, such as Lodi Airport, Lodi Airpark, or Kingdon Airpark. The helicopter would refuel primarily at nearby commercial airports; however, a fuel truck may be available at project staging areas to support refueling if needed. Spill prevention measures would be in place for any on-site helicopter refueling in compliance with the project Stormwater Pollution Prevention Plan (SWPPP).

PG&E estimates that a helicopter would be used on the project for approximately 50, likely nonconsecutive, days (for an average of approximately five flight hours per day) during construction, primarily supporting the activities

described previously. Conductor stringing typically proceeds in reel-length segments of the transmission line. To assist with conductor stringing, a helicopter would fly a lightweight sock line and thread it through traveler pulleys affixed to structure arms, which typically requires approximately 10–15 minutes of hover time at each structure.

Because helicopters are not proposed for lifting structure components, residents would not be required to temporarily vacate their residences.

CONSTRUCTION WORK AREAS

Construction work areas in PG&E Bellota, PG&E Brighton, PG&E Lockeford, and PG&E Rio Oso substations, PG&E Clayton Hill Repeater Station, PG&E Thurman Switching Station, LEU Guild Substation, and LEU Industrial Substation would be used for:

- vehicle and equipment parking;
- material delivery and staging;
- limited equipment and vehicle maintenance and fueling;
- equipment operation;
- structure foundation excavation, drilling, construction, or removal;
- equipment assembly and installation; and
- any structure-specific activities associated with pull-and-tension sites/stringing.

Work at PG&E Lodi Substation would be limited to within the control enclosure to update the system protection scheme.

Construction work areas outside of stations would be within new transmission line rights of way (ROW), existing adjacent transmission line ROW, and/or existing power line ROW or franchise. These transmission line structure and pull-and-tension site work areas may be used for:

- vehicle and equipment parking;
- material delivery and staging;
- limited equipment and vehicle maintenance and fueling;
- equipment operation;
- structure foundation excavation or drilling and construction;
- monopole assembly and installation;
- structure-specific activities associated with pull-and-tension sites/stringing; and
- pull-and-tension equipment and reel staging, temporary pole anchor installation, and pulling and tensioning of the conductor.

Powerline structure work areas may be used for:

- vehicle and equipment parking
- material delivery and staging;
- limited equipment and vehicle maintenance and fueling;
- equipment operation; and
- structure-specific activities, including reconfiguring the 60 kV lines, replacing or reframing existing wood poles, removing spans, connecting adjacent lines, and topping wood poles.

Service and feeder line work areas would include work areas at structures to transition between overhead and underground segments and to remove the existing distribution underbuild; pull-back areas for HDD; vault and trenching excavations, installation, and backfill; and cable reel staging and cable pulling.

Telecommunication activities by Comcast are expected to occur at the PG&E pole and at adjacent joint utility poles.

Temporary guard structures may be installed over roads, waterways, or other features during pull-and-tension activities.

Staging Areas

Staging areas include portions of the existing and proposed stations; PG&E's Victor Yard; warehouses; ruderal, paved, or graveled sites; or other existing commercially available off-site office, warehouse, or yard space. Additionally, three proposed staging areas are located outside of stations, totaling approximately 10–15 acres. Potential staging areas are identified in Appendix B. Most of the staging areas would be located within approximately 5 miles of the work areas; however, existing PG&E or LEU facilities or other locations currently used for staging or storage may be used as well.

Staging areas would typically be used for office trailers, crew and equipment assembly areas, safety and tailgate training areas, equipment and materials storage, and vehicle parking. Depending on the staging area, temporary perimeter fencing may be installed if none is currently in place.

Substation and switching station construction activities would use the existing substation and switching station yards and utility-owned lands for staging. The new LEU Guild Substation site (near potential Staging Area 3) would include one distinct staging area during construction that would be used for receiving, staging, laydown area, and construction worker parking inside the proposed fenced area (approximately 3.25 acres). Refer to Table 2-4 for details on the staging area that would be used during construction. Staging area sizes would vary depending on negotiations with landowners to establish the temporary construction easements; maximum areas are identified below.

Table 2-4 Potential Staging Areas

Potential Staging Area[a] (with Landing Zone, LZ)	Staging Area Use	Total Area Evaluated (acres)[b]	Existing Land Cover[c]
Staging Area 1 (LZ1) North of E Kettleman Ln PG&E Lockeford Substation	Receiving, staging, laydown area, construction worker parking, and helicopter landing/pick up materials	4.30*	Barren/Ruderal
Staging Area 2 (LZ2) East of N Locust Tree Rd	Helicopter landing/pick up materials	0.17	Barren/Ruderal
Staging Area 3 (LZ3) North of E Thurman Rd PG&E Thurman Switching Station	Receiving, staging, laydown area, construction worker parking, and helicopter landing/pick up materials	1.71*	Barren/Ruderal
Staging Area 4 West of Jack Tone Road	Receiving, staging, laydown area, construction worker parking	5.54	Barren/Ruderal
Staging Area 5 LEU Industrial Substation Yard	Staging and laydown area	0.49	Gravel
Staging Area 6 East of North Jory Road	Receiving, staging, laydown area, construction worker parking	6.25	Barren/Ruderal
Staging Area 7 North of E Kettleman Ln	Receiving, staging, laydown area, construction worker parking	6.25*	Barren/Ruderal
Staging Area 8 North of E Harney Ln	Receiving, staging, laydown area, construction worker parking	6.25	Abandoned vineyard
Staging Area 9 North of E Kettleman Ln	Receiving, staging, laydown area, construction worker parking	6.25	Barren/Ruderal

Notes: LZ = landing zone.

[a] Potential staging areas outside of station fence lines representative of approximately 10–15 acres that may be used.

[b] Includes total area evaluated for potential use; actual staging area footprint would be refined following discussions with landowners. Acreage with * indicates potential selection of areas totaling between approximately 10 and 15 acres.

[c] Land cover is based on the National Agriculture Imagery Program, 2019.

Source: PG&E 2023.

Staging Area Preparation

Prior to use, sites without a paved or stabilized surface would require minor site preparation, such as placement of aggregate base. If the area is used in the wet season, construction matting or up to approximately 6 inches of aggregate base may be laid over geotextile fabric, as needed, and removed after construction. If the area was previously disturbed or graveled, newly installed gravel may be left permanently in place with landowner approval. Some areas may require vegetation removal. If site conditions are uneven, minor grading could be required to establish a suitable surface for equipment operation and material laydown. For areas without existing fencing, a temporary chain-link fence with secured gates would be installed.

Power would be provided to staging areas through a temporary overhead service drop if existing distribution facilities allow. If grid power is not available, portable generators may be used to provide power (typically approximately 2,000 watts or less). Following their use, equipment, materials, matting, and supplies would be removed from staging areas, and the area would be returned to conditions that allow for pre-project land uses. All site improvements would be subject to conditions stipulated in easements obtained from landowners.

Nighttime work may be required when electrical clearances are available or for safe completion of a construction procedure. If nighttime work is necessary, temporary flood lighting would be situated and directed away from any adjacent properties.

Work Area Disturbance

Construction activities would result in temporary disturbance for pole placement, undergrounding lines, station construction, and staging. A portion of the disturbed work areas would remain permanently converted following project development. Table 2-5 summarizes the area of temporary and permanent disturbance by project feature. In total, 48.15 acres would be temporarily disturbed for construction. The total permanent footprint for (new and expanded) stations, poles, and pull boxes would be 11.39 acres.

For new tangent structures located in areas without orchards and vineyards, work sites of approximately 80 feet by 80 feet typically would accommodate framing the new monopole structure on the ground and setting the structure with one crane pick, which reduces the duration of the structure's construction. For each angle or dead-end structure, a larger work area that spans the project ROW, approximately 8,000–12,000 square feet (0.2 to 0.3 acres), would be required. Tangent structures are expected to be installed for approximately 70 percent of the lines. A smaller in-line structure work site footprint, including the 60 kV work areas, is estimated to be approximately 50 feet by 50 feet (approximately 2,500 square feet or 0.07 acres). Work area length and width would be adjusted to minimize agricultural impact and avoid unnecessary road or rail encroachment. Pull-and-tension sites would typically be at angle towers, certain dead-end structures, and at intervals of approximately 1 mile to approximately 2.5 miles along straight segments of the transmission line; each site would require approximately 0.11 to approximately 0.21 acres. The work site required for guard structure installation and removal, when netting is needed, would be approximately 100 square feet per pole, assuming four poles; guard structure work areas are estimated at approximately 4,500 square feet.

The approximately 12.04 acres of temporary ground disturbance and 11.32 acres of permanent ground disturbance associated with station development (see Table 2-5) would occur with construction and expansion of LEU Guild Substation, PG&E Lockeford Substation, and PG&E Thurman Switching Station. Temporary work area disturbance within LEU Industrial Substation, PG&E Bellota Substation, PG&E Brighton Substation, and PG&E Rio Oso Substation would occur within the existing fence line and would not add to the existing permanent facility disturbance. LEU Industrial Substation modification would be within the existing fence line on approximately 0.70 acre in the eastern portion of the facility. LEU Industrial Substation's construction activities, deliveries, and parking are planned to occur within this area. Work area disturbance is not expected for PG&E Lodi Substation or PG&E Clayton Hill Repeater Station. Approximately 10–15 acres of temporary disturbance would be associated with staging areas located outside of the stations. Appendix B provides the potential staging area locations.

Table 2-5 Estimated Footprint for Work Areas

Project Component: Poles	Approximate Metrics
Pole diameter:	
Wood (guard structure or construction power)	24 to 36 inches
Light-duty steel (60 kV line)	22 inches
60 kV monopole in LEU Industrial Substation	4 feet
Tubular steel (230 kV line)	3 to 7 feet
Auger hole depth:	
Wood (guard structure or construction power)	up to 7 feet
Light-duty steel (60 kV line)	13.5 feet
60 kV monopole in LEU Industrial Substation	20 feet
Tubular steel (230 kV line)	20 to 38 feet
Permanent footprint per pole:	
Light-duty steel (60 kV line)	2.6 sq. feet
60 kV monopole in LEU Industrial Substation	12.6 sq. feet
Tubular steel (230 kV line)	7.1 to 38.5 sq. feet
Number of poles:	
Wood (guard structure) outside of other work areas	20
Wood pole replaced with light-duty steel (60 kV line)	1
removed or modified (top cut off) existing 60 kV wood pole	27
60 kV monopole in LEU Industrial Substation	2
Tubular steel (230 kV lines and RO1 replacement)	73
Average work area around poles:	
Power line work areas	2,500 sq. feet
Guard structure wood pole work areas	4,500 sq. feet
Tangent transmission structure work areas	6,400 sq. feet
Angle/dead-end transmission structure work areas	8,000-12,000 sq. feet
Pull-and-tension work areas (approximately 20)	5,000-9,000 sq. feet
Total Temporary Pole Work Areas (outside of stations)	**20.92 acres**
Total Permanent Footprint for Poles (outside of stations) New permanent poles are 230 kV tubular steel poles (73). Existing 60 kV poles are removed, topped, or replaced in kind.	**0.06 acre**
Underground Lines	
Underground (12 kV) service or feeder line components:	
Underground PG&E secondary station service line, pull box	1 line, 2 boxes
Underground LEU customer feeder line, pull box	1 line, 1 box
Permanent footprint per pull box	15 sq. feet
Average work area for each end of underground lines:	
PG&E service line extension: HDD work area	900 sq. feet
PG&E service line extension: trench work area	3,800 to 6,160 sq. feet
PG&E service line extension: trench excavation area	245 to 300 sq. feet
PG&E service line extension: splice box excavation area	900 sq. feet
LEU feeder line relocation: HDD work area	24 sq. feet
PG&E service line extension: splice box excavation area	35 sq. feet
Total Temporary Service or Feeder Line Work Areas (outside of stations)	**7,419 sq. feet**
Total Permanent Footprint for Pull Boxes (within station or paved areas)	**45 sq. feet**
Stations	
Station work area disturbance:	
PG&E Lockeford Substation (temporary: grading or blading)	3.00 acres
PG&E Lockeford Substation (permanent: expanded fenced area, extended drainage ditch)	2.32 acres
PG&E Thurman Switching Station (temporary, grading, and permanent, fenced area, and driveways)	5.75 acres
LEU Guild Substation (temporary, grading, and permanent, fenced area and driveway)	3.25 acres
LEU Industrial Substation (temporary: grounding grid expansion)	1,600 sq. feet
PG&E Bellota, Brighton, and Rio Oso substations (temporary[a])	54 sq. feet each

Project Component: Poles	Approximate Metrics
Total Temporary Footprint for Stations	Approximately 12.04 acres
Total Permanent Footprint (new and expanded) for Stations	Approximately 11.32 acres
Construction Staging Areas outside of Station Fencelines	10 to 15 acres
Total Temporary Footprint for All Work Areas	Approximately 48.15 acres[b]
Total Permanent Footprint for (new and expanded) Stations, Poles, and Pull Boxes	Approximately 11.39 acres[b]

[a] Disturbance would not occur if line tuner/wave trap is retired in place.

[b] Approximate totals use the larger value when a range of area or length is shown.

Source: PG&E 2023.

TEMPORARY POWER

PG&E Bellota, PG&E Brighton, PG&E Lockeford, PG&E Lodi, and PG&E Rio Oso substations, PG&E Clayton Hill Repeater Station, and LEU Industrial Substation have existing station power that would be used for construction. PG&E does not expect to use generators. Power outside of stations would be obtained by PG&E from batteries or other on-equipment and vehicle power sources. Temporary power required for construction of LEU Guild Substation would be supplied by tapping into existing LEU 12 kV power lines at LEU Industrial Substation along the south side of East Thurman Road or the south side of East Lodi Avenue, which are the adjacent roads to the south and north of the substation site. Any poles would be within the area or included as substation work area disturbance. During construction at LEU Industrial and LEU Guild Substations, up to two approximately 100 kW each diesel generators may be used to supply temporary power.

SITE PREPARATION

Site preparation activities would include utility identification and relocation, work area access and structure location staking, vegetation clearing, tree trimming or removal, work area stabilization, and grading. Anticipated site preparation activities are described below.

Surveying and Staking

Surveying and staking would be the first step in site preparation. Surveying identifies the work area, access, or structure location for utility identification and construction, which are then marked by installing horizonal and vertical stakes.

Utility Identification

As described above, PG&E's engineering team and LEU's engineering team considered the location of known underground and overhead utilities in designing the proposed project. Localized conflicts with underground utilities identified during final design would be either avoided or relocated in coordination with the facility owner. Comcast would be contacted prior to the start of work on PG&E Lockeford-Industrial Line to coordinate the timing of the removal of its telecommunication line on pole 4.

Prior to beginning any ground-disturbing work, PG&E and LEU would each contact Underground Service Alert (USA), at 8-1-1, to notify utility companies to mark and locate existing underground structures within the staked area. In addition, PG&E and LEU would probe and expose existing utilities, in accordance with state law, before using power equipment. Prior to construction, PG&E or LEU would obtain emergency contact information for utilities that may be in close proximity or require monitoring during construction of the project. In case of accidental service interruption to another utility, PG&E or LEU would immediately contact the affected utility to coordinate actions to restore service in a safe and timely manner.

In the event of a known conflict, PG&E or LEU would avoid the conflict by realigning the areas of subsurface excavation or relocating the conflicting utility in agreement with the utility owner. Relocation of existing overhead or underground utilities that are not directly connected to the project is not expected.

Vegetation Clearing

Table 2-6 summarizes the estimated temporary and permanent disturbance of vegetation communities and includes the anticipated areas of vegetation removal. Temporary disturbance includes all work areas and access outside of existing station facilities and new and expanded station areas. Permanent disturbance includes pole footprints and new and expanded station footprints.

Table 2-6 Estimated Disturbance within Vegetation Communities

Vegetation Community Type	Temporary Disturbance (approximate acreage[a])	Permanent Disturbance (approximate acreage[a])
Agriculture	48.83	0.73
Developed/disturbed/rural residential land use	3.52	0.16
Grassland	25.86	10.23
Tree cover	0.25	0.07

[a] Vegetation community mapping conducted by PG&E through reconnaissance survey based on representative vegetation alliances from the Manual of California Vegetation, Second Edition (Sawyer et al. 2009). Some project components overlap in GIS and the totals in this table were adjusted to avoid double counting approximate acreage.

Source: PG&E 2023.

Trees, ornamental landscaping, and agricultural crops, such as orchards, row crops, and vines, and grasses or other organic matter may be trimmed or removed for facility installation, construction access, and/or clearance requirements for operations or maintenance access needs. PG&E would coordinate with landowners when planning tree, ornamental landscape, agricultural, or other vegetation trimming or removal on private property. LEU vegetation clearing would be limited to clearing ruderal vegetation where the LEU Guild Substation would be constructed. Vegetation trimming and removal would be kept to the minimum necessary for structure placement, transmission line operation, and access.

Table 2-7 summarizes the estimated agricultural crop removal needed to establish temporary work areas and permanent facility footprints and to maintain GO 95 conductor clearance. Permanent removal of vines and vegetation associated with structure footprint is estimated for the transmission line segments. Estimated agricultural crop removed to establish work areas and access would be replaced in kind after construction. Estimated agricultural crop removed for structure placement or GO 95 conductor clearance would not be replaced.

Table 2-7 Estimated Agricultural Crop Removal

Tree Type[a]	Approximate Count Removed to Establish Temporary Construction Work Areas and Access, Replaced in Kind[b]	Approximate Count Permanently Removed for Structure Placement or Conductor Clearance
Orchard – Almond	28 trees	7 trees
Orchard – Walnut	17 trees	42 trees
Orchard – Cherry	73 trees	37 trees
Orchard – Apple	154 trees	97 trees
Orchard – Olive	80 trees	108 trees
Vineyards – Grape vines	4,089 vines	2,695 vines

Notes: [a] Tree identification and count estimates provided by PG&E arborist as of December 2022.

[b] New trees would be planted where removed for construction work areas and access as mutually decided in a temporary construction easement agreement between the property owner and PG&E.

Source: PG&E 2023.

Site preparation of work areas would begin with confirming the estimated areas of vegetation to be removed either temporarily or permanently. Preconstruction bird nesting surveys and other preconstruction actions, such as coordinating with the property owner, would occur before vegetation removal would occur. Vegetation removal

areas would be surveyed and marked for clearing and grubbing and be scheduled to occur before construction activities at the location.

A site preparation crew would remove vegetation along with other site preparation activities, such as tree trimming, stabilizing access roads and routes, and installing stormwater erosion and sediment control measures. Following coordination with landowners and any preconstruction resource surveys, vegetation would be trimmed or removed with appropriate equipment, typically including manual clippers, chain saws, and forestry mulcher or flail mower (front-loader attachment). During clearing activities for temporary disturbance areas, vegetation would be mowed or grubbed, leaving root systems intact wherever possible to encourage resprouting and to minimize erosion. However, some stumps may need to be removed to provide access or a level work area. Mowers, crawler backhoes, front-end loaders, and bulldozers would be used to remove woody vegetation.

Generally, removed vegetation would be mulched or mowed in place and spread nearby or hauled off-site to either a commercial recycling/composting facility or landfill for proper disposal. Vegetation material may be stockpiled within the footprint of a substation or switching station and contained onsite until its removal for appropriate disposal.

Tree Trimming and Tree Removal

To ensure safe transmission line operation, GO 95 specifies the required minimum distance between ground and conductors that must be maintained for a variety of land uses beneath transmission lines. FERC Order No. 777 and NERC Standard FAC-003-3, which establish safety buffers for vegetation clearing, would also be followed. PG&E would seek to accommodate existing agricultural operations, such as by increasing the required minimum ground conductor clearance (MGCC) of 27 feet to maintain the necessary safety buffer zone for poles placed in cropland, vineyards, and orchards. In addition, system design includes use of monopoles in place of steel lattice towers in cropland, vineyards, and orchards to minimize the area of disruption.

Adjacent to established orchards, the height of the monopoles would be increased to provide an MGCC of up to approximately 45 feet to accommodate orchards planted with mechanically harvested nut trees, such as almonds and pistachios, as long as CPUC's GO 95 conductor safety buffer can be maintained without requiring pruning. If the MGCC cannot be sufficiently increased to provide the GO 95 conductor safety buffer, the trees would be removed. These determinations would be made on a case-by-case basis. Manually harvested fruit trees, such as citrus and persimmon, typically are maintained at an approximate 15-foot maximum production height, which is compatible with the MGCC of approximately 27 feet. Any tree that encroaches on the GO 95 conductor safety buffer zone would be removed.

A certified arborist would determine the need for tree trimming and removal and conduct or direct tree trimming and removal prior to construction activities at a work location based on existing conflict and potential for future hazards. PG&E would coordinate with landowners when planning tree trimming or removal on private property. Following coordination with landowners and any preconstruction resource surveys, trees would be trimmed or removed with appropriate equipment, typically including manual clippers, chain saws, and forestry mulcher or flail mower (front-loader attachments). Mowers, crawler backhoes, front-end loaders, and bulldozers could also be used to remove trees and process biomass. Tree and agricultural crop trimming and removal would be kept to the minimum necessary for structure placement and access for construction.

Current conditions would require trimming of landscape trees or non-orchard trees along access roads to create sufficient clearance for typical construction vehicle and equipment movement and turning and within electric line ROWs and facility footprints for GO 95 conductor clearance (refer to Potential Landscape Tree Trimming or Removal Required points shown in Appendix B and Table 2-8). One large eucalyptus near the west end of East Sargent Lane and three large eucalyptus adjacent to the span between structures W43 and W45 would be heavily trimmed or removed and not replaced to provide adequate GO 95 conductor clearance for the PG&E Lockeford-Lodi No. 1 60 kV Line (preliminary name) and the PG&E Lockeford-Thurman 230 kV Line, respectively (refer to Appendix B). On the PG&E Lockeford Substation parcel where the substation fence and modified drainage ditch would be located, an estimated 15–18 black walnut trees would be removed and not replaced (refer to Appendix B, page 9). Landscape tree removal along access roads is not anticipated; however, conditions at the time of construction may require some tree removal for safe access. Native oak trees would be trimmed or removed as necessary to protect electric lines and

facilities. Section 9-1505-8 (General Exemptions) of the County Code exempts tree removals by a public utility that are necessary to protect electrical or communication lines from the County's natural resource regulations.

Table 2-8 Potential Landscape Tree Trimming or Removal

Page[a]	Tree Location Description	Tree Type and Size	Qty[b]
	Potential Trimming Expected		
5	Between E10 and E11 in new 230 kV ROW	Oak (*Quercus* sp.), large	1
5	Along access to E11 off Smith Road	Weeping willow (*Salix babylonica*), large	1
5	East of E11 in new 230 kV ROW	Oak, large	1
7	Along access to E16 off East Kettleman Lane	Ornamental tree, large	1
8	Along access to E17 off East Kettleman Lane	Landscaped/row trees, small-medium	20
8	Along access to E18 off North Jack Tone Road	Shrub, small	1
9	Along access to E21 off East Kettleman Lane	Row trees, eucalyptus, large	2
9	Along access to E21 off East Kettleman Lane	Row trees, ornamental, small	4
9	Along access to E23 off East Kettleman Lane	Row trees, walnut (*Juglans* sp.), other, small	5
12	Along access to W9 off East Harney Lane	Mexican palm (*Washingtonia robusta*), large	2
12	Along access to W9 off East Harney Lane	Ornamental tree, medium	1
13	Along access to W13 off Route 88	Ornamental tree, medium	2
15	Along access to W18 off North Locust Tree Road	Oak, large	2
19	Along access to W29 off East Kettleman Lane	Sycamore (*Platanus* sp.), large	1
19	Along access to W31 off North Vintage Road	Pine (*Pinus* sp.), large	2
20	Along access to W32 off East Kettleman Lane	Ornamental trees, medium-large	5
	Potential Removal Expected		
9	PG&E Lockeford Substation property	Black walnut, medium and large	18
23	South of new 60 kV span near East Sargent Road	Eucalyptus, large	1
23	Between W45 and W44 near 230 kV ROW	Eucalyptus, large	3

Notes: [a] Refer to referenced page of Appendix B for potential landscaping points.

[b] Qty = Quantity, estimated quantity where trees are close together.

Source: PG&E 2023.

Work Area Stabilization

If a work area or access is used in the wet season, construction matting or up to approximately 6 inches of aggregate base would be laid over geotextile fabric, as needed, and removed after construction. Unpaved roads would be winterized to accommodate heavy loads, as needed. Based on final design and construction scheduling, winterizing of the existing roads would include blading, compaction, rocking, culvert installation, and aggregate placement as described previously. For example, approximately 4–6 inches of surface gravel would be imported and installed within the LEU Guild Substation footprint and along the new internal all-weather access road. Gravel placed in construction staging areas within the LEU Guild Substation would remain.

Grading

Earth moving or substantial grading (below an approximate 6-inch depth) is not expected to be necessary to establish the transmission line structure work or pull-and-tension areas. The expected limited surface blading, grading, and filling to create a stable and level work area—for instance, to create a stable crane platform—would occur on an as-needed basis as part of site preparation. At slope transitions, native fill, steel plates, construction mats, or earthen ramps would be placed to cross uneven terrain or abrupt changes in topography. For the purposes of

impact analysis, it is conservatively estimated that approximately 5,605 cubic yards (yd^3) would be offloaded for transmission line work, with approximately 22.5 acres to be graded, to create a level work area around each pole for safety. No grading would occur for 60 kV, service, or feeder line work areas.

At LEU Guild Substation, PG&E Lockeford Substation, and PG&E Thurman Switching Station, grading would occur to level each site and create or modify the facility's water retention pond and any associated stormwater drainage. No grading is proposed at PG&E Bellota, PG&E Brighton, PG&E Lodi, or PG&E Rio Oso Substations or at PG&E Clayton Hill Repeater Station, nor at LEU Industrial Substation.

To the greatest extent possible, all cut materials from the substations and switching station would be reused as fill following suitability testing. Representative samples of excess soil would be collected, analyzed, and profiled for disposal in accordance with all federal, state, and local regulations. Engineered fill material or clean fill would be imported as needed to accomplish the necessary compaction and final grade.

Based on preliminary grading design, earthwork activities for LEU Guild Substation would result in approximately 6,100 yd^3 of cut and fill, balanced on-site. Approximately 3,550 yd^3 would be cut from the substation site, with approximately 1,200 yd^3 from the approximately 190-foot by 60-foot by 4-foot retention basin. Approximately 1,000 yd^3 of the total cut material are planned to be reused, and the remaining approximately 2,550 yd^3 would be hauled off-site to North County Recycling Center and Sanitary Landfill in Lodi, or other appropriate facility. Approximately 1,500 yd^3 of clean fill are expected to be hauled to the project site.

For site grading activities at PG&E Lockeford Substation, the estimated cut and clean fill volume for site grading is 873 yd^3 and 1,777 yd^3, respectively, resulting in the total net clean fill volume of approximately 904 yd^3 to be imported to the site. The anticipated maximum cut and fill height in the general grading area is approximately 0.75 feet and approximately 1.2 feet, respectively. The maximum cut height of the retention pond expansion and drainage ditch modification is approximately 2.3 feet with the total cut volume of approximately 570 yd^3, which is included in the total cut volume mentioned previously.

At PG&E Thurman Switching Station, the estimated total cut and clean fill volumes are 4,890 yd^3 and 1,684 yd^3, respectively, with the net cut volume of approximately 3,206 yd^3 to be hauled off-site to the North County Recycling Center and Sanitary Landfill in Lodi or other appropriate facility. Clean spoils excavated for the project would be used on-site to balance cut and fill calculations, as feasible.

TRANSMISSION LINE CONSTRUCTION (ABOVEGROUND)

Replacement, Modification, or Removal of PG&E and LEU Power Poles

Replacement, modification, or removal of PG&E 60 kV power line wood poles would use ground-based construction. Pole modification would include replacing existing framing or topping an existing wood pole after removing the existing 60 kV conductor and framing. New LEU power pole installation is described similarly to the pole replacement description without the later step of moving the old conductor and removing the old pole.

Pole replacement consists of six basic steps, which are coordinated with line clearance(s):

- Deliver new pole at pole site.
- Auger new hole using line truck attachment.
- Install bottom section by line truck.
- Install top section by line truck.
- Install new, or move old, conductors to the new poles with a line truck or by hand with ropes.
- Remove old poles by line truck and fill hole.

A line truck with trailer and a potential second truck (crew cab truck and/or half-ton pickup) would be used to access the majority of the pole sites for pole installation and removal, or structure arm replacement on existing wood poles.

A maximum of approximately four or five truck trips are anticipated to each pole site to deliver the pole, auger the hole, set the new bottom section, set the new top section, and remove the old pole.

Each pole site is expected to be accessed for approximately one or two days during construction. Pole sections would be delivered in matched pairs to each new pole site. A line truck and trailer can transport between approximately two and three poles, respectively. When delivering and removing poles, the line truck would access approximately two or three sites per trip per day as schedule and conditions permit. Additionally, pole delivery, augering, and setting the bottom pole may occur in one day during a single trip.

New poles would be placed in holes made with a line truck auger attachment (highway digger with approximate 15- to 18-foot depth capacity); no separate foundations would be used. New poles would typically by placed within approximately 5 feet of existing poles and in line with the existing power line alignment. The new pole holes would typically be approximately 5–6 feet deeper than the existing pole depths. A water truck would be used during augering to keep the soil firm, if needed. Augered pole holes would be covered with a steel plate until the new pole is installed.

The two new 60 kV poles within LEU Industrial Substation would have an approximate 4-foot-diameter by 20-foot-deep drilled pier foundations. A hole digger would be used to excavate the foundation.

To assemble the light-duty steel poles, a line truck with a boom attachment would be positioned at the pole site to land the top section on the bottom section. A truck with a worker lift attachment would be positioned to allow a worker to guide the top section into place and to secure the two sections. Top sections would be installed when a line clearance can be scheduled. Clearances would be issued day to day during daylight hours and are not typically issued overnight during the summer or during peak load conditions. Setting the pole top sections may be performed on separate days to accommodate line clearance schedules and environmental seasonal work restrictions. If installed at separate times, the top section would remain at the pole site until assembled to the bottom section. Frame replacement on existing wood poles would use a line truck with a boom and an aerial lift. Old crossarms would be removed from the site by line truck and taken to the PG&E Victor Service Yard for processing, or to an appropriate landfill.

A hydraulic jack mounted on a line truck would be used to loosen old poles as needed. A line truck would be used to access and remove PG&E Lockeford-Industrial pole 13. The eight pole tops on PG&E Industrial Tap would be secured by the line truck, and a chainsaw would be used to remove the top portion of the pole after the 60 kV conductors and framing are removed. When entire poles are removed, they may be cut into sections on-site for removal on a line truck potentially with a trailer. Wood poles and sawdust generated by removing existing PG&E 60 kV wood poles would be considered treated wood waste. When old poles are removed, the soil removed while augering the replacement pole hole would be used to backfill the old pole hole; any unused soil would be feathered in around the replacement pole site.

Removal of LEU Training Poles

The LEU wood training poles, which are not treated with creosote, would be removed using bulldozer and excavator during substation site preparation. Poles may be cut into sections on-site for removal on a truck to an appropriately licensed landfill. The pole holes would be filled with compacted soil reused from substation site preparation grading cut. The existing footprint of these training poles is within the substation site, and the small existing footprint is not totaled separately.

Installation of PG&E Transmission Line Tubular Steel Poles

Monopole foundation types would be adjusted to address subsurface geotechnical conditions or to manage other constraints. Generally, a monopole foundation would be either directly embedded, with aggregate or slurry backfill, or would be a single drilled-shaft reinforced-concrete caisson. Drill rigs would be used for the type of monopole foundation excavation needed. Steel casings may be used to stabilize subsurface soils; these would be advanced by the drill rig or a vibratory hammer attached to a crane or a combination of these methods. The spoils created by the foundation excavation would be handled in a manner that would minimize impacts to crop productivity through soil profile management, as appropriate. The surface and subsurface layers would be stockpiled separately and returned to their approximate locations in the soil profile or would be disposed of off-site at an approved disposal location.

Typical excavations for structure foundations would range from approximately 6 to 9 feet in diameter and approximately 18 to 30 feet in depth; some foundations could be larger depending on site-specific geotechnical conditions. A conservative estimate of up to approximately 848 yd^3 per foundation is assumed. Foundation excavation spoils would be used for fill at station construction as feasible, spread on-site, or disposed of appropriately and handled in a manner that minimizes impacts to agricultural productivity and water quality. Where excavated soils cannot be spread on-site, they would be stockpiled and given to a nearby landowner or properly disposed of. A temporary stockpile of excavated soil may be located near an excavation.

For anchor-bolted caisson foundations, crews would place the cage support and formwork into the excavation; the steel reinforcement cage would be installed by crane. The cage would include full-length anchor bolts and ties (or shorter-length anchor bolts along with full-length steel reinforcement bars), as well as spacers to provide minimum concrete cover, as required by code, at all faces of the completed foundation. The cage would be assembled on-site or off-site at a project staging area. A typical monopole caisson foundation would require approximately 21 to 75 yd^3 of concrete depending on the pole. Concrete from a commercial concrete supplier would be delivered by truck directly to structure work sites. After the concrete has reached an acceptable strength, typically between approximately 7 and 28 days, the cage supports can be removed, and the pole sections would be installed.

Alternative foundation types may be considered where required by subsurface geotechnical conditions, project schedule, or other constraints. These could include screw piles and micropiles, rock anchors, pad and pedestal or shallow foundations, and grillages. If micropiles are required at a foundation location (approximately four to 16 or more per location is typical), these generally would extend deeper than piers. In addition, a concrete or steel cap is sometimes required to transfer the structure loads to the foundation elements. Shallow foundations may be used in areas where hard rock occurs or where conditions are difficult for excavation. Track-mounted shovels would be used for this type of excavation for shallow foundations. Preliminary geotechnical borings indicate that blasting is not anticipated for foundation construction. Embedded steel foundation types would be designed with consideration of corrosion potential over the design life of the structure.

Flatbed trucks would deliver materials to the site. Monopoles would be delivered to the work site in sections by tractor-trailer or by specialized delivery equipment in areas of constrained access.

Monopole structures would be installed through a "two-pick" process also called "stick framing." Stick framing requires that each section be installed in place: the first section is lifted onto the foundation or directly embedded base section; then subsequent sections and arms are set in place, one at a time, requiring multiple crane picks.

The most efficient way to install a pole structure is to lay the top pole section on the ground; then the frame may be installed on the top section on the ground before lifting the pole top with frame structure in a single crane operation or pick. As an alternative, the contractor may choose to use existing disturbed areas, such as access roads, to frame structures on the ground. A longer work area could be used to accommodate framing the entire pole structure on the ground and setting with one crane pick.

Following successful completion of the excavation for direct-embedded foundations, crews would stage equipment for setting the pole base section. Approximately 1.5 feet of crushed-stone backfill would be placed at the bottom of the excavation. The pole base section would be lowered into the excavation, set on the crushed-stone backfill, and oriented such that the structure arms would be perpendicular to the ROW alignment. The pole base section would be secured after orientation, and either slurry backfill or aggregate (crushed-rock) backfill would be placed in the void between the pole base and the excavation walls. If aggregate backfill is used, the backfill would be compacted to achieve required lateral capacity as per design. Salvaged soil would be replaced around the base of the structure to create positive drainage away from the structure foundation. After the aggregate backfill is adequately compacted and placed, the base section supports would be removed, and the top section(s) of the structure would be installed.

Structure installation would be conducted with typical ground equipment, such as cranes, flatbed trucks, crawler tractors, and line trucks. Structure arm assembly would be conducted within the structure work sites. The sections typically would be framed at ground level, using the crane and cribbing to keep the assembly off the ground. These assemblies typically include the arms, insulators, and hardware necessary to support the conductors. The base section would be lifted using the crane and then attached to the foundation anchor bolts or the bottom section of direct-

embedded structures. Subsequently, framed sections would be lifted into place by the crane. Structure arms would be tied down or weighted to prevent damage from vibration caused by wind prior to the conductors being installed. Traveler pulleys would be hung in preparation for conductor installation. Optical ground wire (OPGW) and conductor installation would connect the poles to the system.

Removal of PG&E Transmission Tower

The existing terminal lattice steel tower (RO1) of PG&E Rio Oso–Lockeford and PG&E Lockeford-Bellota Transmission Lines at PG&E Lockeford Substation would be replaced with a new tubular steel pole (TSP) using the process and equipment described for the construction of the other new 230 kV TSPs.

When the existing conductors for both circuits are transferred to the new structure during associated line clearances, crews can begin disassembling and removing the existing lattice steel tower. Tower removal may occur in two phases: the top section would be removed by crane, and the lower section would be removed by a boom truck. To remove the top section, a crane would be rigged to the top of the tower, and sections would be unbolted, or cuts would be made at the desired removal point. The structure would be lifted and lowered to the ground, where it would be cut into smaller sections and either transported to a laydown area or directly to a recycling facility. To remove the lower section, the legs would be cut off just above the foundations, and a boom truck would remove the remaining sections. Existing foundations would be removed, including all concrete and steel, unless cutting them off below the ground surface would reduce environmental impacts. The excavation resulting from tower foundation removal would be filled in with soils excavated from the new TSP foundations.

Installation of PG&E Microwave Towers

A new microwave tower would be installed within PG&E Thurman Switching Station to establish a digital microwave path to PG&E Clayton Hill Repeater Station. The new microwave tower's slab foundation (approximately 25 feet by 25 feet by 5 feet) would be excavated with a front loader. The amount of excavated soil, approximately 116 yd^3, would be managed with the cut and fill on the PG&E Thurman Switching Station site. Approximately 160 yd^3 of concrete would be used for the tower foundation. The foundation details would be refined during design based on geotechnical soil conditions and other site structure layout. The steel for the tower would be transported on-site by flatbed trucks, and tower sections would be assembled on-site. The tower would be assembled with ground-based equipment, including aerial lifts and a crane to lift tower sections into place. The installation would include attaching approximately two new approximately 6-foot-diameter antennas and waveguide cable using aerial lifts or boom trucks as needed.

Approximately two new approximately 6-foot-diameter antennas and waveguide cable would be installed on the northeast leg of the existing south tower within PG&E Clayton Hill Repeater Station to complete the new redundant communication path with PG&E Thurman Switching Station. A flatbed truck would transport the antennas and cable to the station. A boom truck or aerial lift would be used to lift the new antennas into place. The new waveguide cable would be installed along the tower leg and along the aboveground cable path into the control enclosure. No ground disturbance is planned.

Relocation of Overhead LEU Feeder Lines

The existing conductors and crossarms would be removed using a boom on the line truck and a line truck with a worker lift. Removed conductor and crossarms would be loaded onto a truck for transport to an appropriate landfill facility. The underground portion of the LEU 12 kV feeder line between PG&E Lockeford-Industrial pole 2 and LEU Industrial Substation would be retired in place.

Installation and Removal of Aboveground LEU and PG&E Power Line Segments

During conductor installation or removal, the existing PG&E power line and any PG&E or LEU distribution or telecommunication lines that cross or are colocated on the line would be taken out of service as needed. For aboveground conductors that cross a UPRR track or are located within a railroad encroachment permit, construction activities would be coordinated with the railroad to avoid rail service interruption. Before conductor activities begin, in addition to any railroad coordination, any road crossings and other locations within the section of installation would be briefly closed or a rolling stop would be arranged. Any road closures that must occur on city and county roads are

not expected to exceed approximately 5 minutes in duration. Any necessary permits would be obtained from the affected agencies.

New conductor lengths would be brought to the pole work area (or substation terminal structure) by line truck. The new conductors would be lifted to the new poles (or terminal structure) during any required clearance using the boom on the line truck and a line truck with a worker lift. The new spans of LEU Guild-Industrial 60 kV Line would be connected into respective terminal equipment. A compression splice would be used to connect the new conductor to the adjacent spans. The workers and compression equipment would be lifted to the conductor level at each pole to perform the splice. After the new conductors are in place, wire or conductor sags would be adjusted to a precalculated level at each pole. The conductors then would be clamped to the end of each insulator. The final step of the conductor installation would be to install vibration dampers and other accessories. Any temporarily closed road or railroad would be reopened at this time.

Conductors and framing would be removed from the western end of PG&E Lockeford-Industrial Line and select poles on PG&E Lodi-Industrial Line and PG&E Industrial Tap Line when each is de-energized. The boom on the line truck and a line truck with a worker lift would lift workers at each pole to cut the conductor, remove the framing, and top the pole as needed. The conductor would be secured with a rope before being cut to allow the conductor to be lowered safely to the ground. The conductor lengths would be removed by truck and trailer depending on the amount and taken to an appropriate landfill.

Relocation and Installation of Aboveground PG&E Transmission Lines

The conductor between PG&E RO1 and PG&E Lockeford Substation would be replaced when the new structure is relocated and the back span would be re-tensioned. At the eastern end of the new 230 kV line, the PG&E Brighton-Bellota Line span would be cut and spliced with the new conductor. Conductor and OPGW stringing would occur at each new transmission line structure as the conductors and wires are installed between structures. Transmission line work areas and pull-and-tension sites along the length of line being strung would be the primary work areas in use during installation activities. To haul the conductor to the pull-and-tension sites, reel trailers with reel stands would be mounted on line trucks or semitruck trailers. When conductors are strung between structures, equipment at pull-and-tension sites is used to raise the conductors to the proper ground clearance height and to create proper line tension. The conductor stringing effort requires multiple reels of conductor to be installed from designated pull-and-tension sites.

Conductor stringing would proceed in discreet segments; the process would begin with pulling a sock line (lightweight rope) through the traveler pulleys installed during structure installation. A sock line typically is pulled by a light-duty helicopter (Hughes MD 500 or equivalent) and threaded through traveler pulleys affixed to structure arms while the helicopter hovers for approximately 10–15 minutes at the structure. One or more construction worker(s) may be lifted onto the structure or may work from the helicopter to facilitate conductor stringing.

Once the sock line is laced through the travelers for the length of the pull, the sock line would be connected to a hard line (steel cable). The hard line would be on a reel that would be on a puller. Typically, the reel(s) and puller would be located on a line truck or semitruck trailer. The sock line would be pulled back, with a helicopter pulling the hard line into place. The sock line would be removed from its connection to the hard line.

The conductor then is attached to the hard line and pulled through the travelers under its specified tension. A puller on a semitruck trailer or a trailer-mounted puller would then pull the hard line, pulling the conductor in the reverse direction. The hard line would be removed from its connection to the conductor. After the conductor is pulled into place, the sags between the structures are adjusted to the design-specified ground clearance; minimum ground clearance would meet GO 95 specifications. The existing conductor would be pulled into place by a person without using a sock line or hard line. The OPGW is strung in a similar manner as the conductor, with the helicopter stringing a sock line and a hard line that then pull the OPGW into position for tensioning. When sagged, the conductor or wire can be dead-ended and clipped to the insulators or the structure, during which time the travelers are removed. The travelers would be removed by using the line truck with a bucket, or a person may climb the structure.

When multiple reels of conductor are pulled for a line segment, conductor splices are required to join the two ends of conductor together. There are two types of conductor splicing methods proposed: (1) compression splicing and (2) implosive splicing. Compression splices would be performed at structure work areas. At these locations, crews and equipment would be lifted to the conductor level to perform the splice. Compression splices generally are not pulled through conductor stringing blocks. Where splicing can occur at existing work areas, roads, and other disturbed areas, compression splicing likely would be used. Compression splicing would also be used near sensitive receptors, such as residences.

When using the implosive splicing method, an aluminum sleeve with a layer of engineered explosive is placed over the conductor ends and designed to compress the sleeve on implosion. The implosive splices are usually completed at pulling sites and then pulled through the conductor stringing blocks. The number of reels that can be spliced and pulled in this manner is usually two or three because of limitations on the weight of and tension on the conductor during pulling. Implosive splicing would be completed by an individual who is licensed to perform those procedures according to all applicable laws and codes. Implosive splicing would be used to avoid mid-span splicing work areas, particularly within orchards and vineyards.

Telecommunications

The new fiber optic cable, or OPGW would be installed in the top conductor position of the new transmission line and would be routed into the substation and switching stations using a new underground conduit. On the last transmission line structure just outside the substation or switching station, the fiber optic cable would be installed down the structure connecting to the underground conduit and into the substation. Underground communication fiber cables are further described with the substation activities.

Secondary communication from PG&E Lockeford Substation to support PG&E's system protection scheme would occur using existing internal AT&T fiber lines connected with existing fiber lines adjacent to the substation.

Guard Structures

Temporary guard structures would be installed prior to conductor installation to protect vehicle and pedestrian crossings, railroads, waterways, irrigation ditches, and existing utilities should the conductor fall from the structures during construction. Where necessary, traffic control would be provided during installation and removal of these temporary guard structures, and as specified in City of Lodi, San Joaquin County, CVFPB, and California Department of Transportation (Caltrans) encroachment permits. In place of using guard structures over distribution lines, some existing distribution lines may be taken out of service when such outages are not in conflict with customer needs. If such outages are necessary, line outages would be coordinated in advance with affected each customer.

Guard structures would be positioned and configured to catch and support the weight of the conductor if it unexpectedly drops or sags excessively during the installation or tensioning process. Guard structures may be created with line trucks or with wood poles with crossbeams depending on the construction method chosen by the construction crew or required by a third-party facility (railroad, state route, or levee). Where wood poles are used, an auger would excavate holes where the wood poles would be embedded. A crane or line truck would place the wood pole in the hole. The excavated soil would be used to fill around and support the pole. Any excess excavated soil would be placed around the base of the structure to create positive drainage away from the pole. Two vertical poles would be connected by a horizontal pole used as a beam to provide the protection. During installation, equipment generally would be staged from existing roadways or disturbed areas. In instances where netting is required, crews would install temporary anchors and guy wires to support the H-frame structures. Guard structures may be in place for up to approximately 1 year to support the 230 kV overhead installation. When guard structures can be removed, either the line trucks would be removed from their guard position or the wood pole guard structure would be disassembled. Wood pole guard structures would be reused, and line trucks and wood poles may be taken to staging areas or moved to the next guard structure position.

Temporary guard structures would be installed where the new lines cross existing infrastructure, such as roads (approximately 35 structures) or other electrical lines (approximately 22 lines). They would require excavation of shafts from approximately 2 to 3 feet in diameter and up to approximately 7 feet in depth.

TRANSMISSION LINE CONSTRUCTION (UNDERGROUND)

The LEU 12 kV feeder line conversion would have a total run below grade of approximately 750 feet and would include two new pull boxes. The PG&E 12 kV line extension would have an underground length of approximately 550 feet, depending on the location in franchise within South Guild Avenue, and one pull box. Both underground lines are planned to be installed via HDD with a portion of PG&E's 12 kV extension installed using an open trench process where the line would cross South Guild Avenue. The open trench process and equipment are described in the following subsections, including the HDD and pull-box process and equipment.

PG&E's conduit would be installed at least 3 feet away from the outside surface of any "wet" utility pipe when parallel to the pipe and 6 inches from "wet" utilities when crossing over or under the pipe or if crossing a non-PG&E electric utility.

Trenching

After PG&E's 12 kV extension route is marked for construction, the pavement within the trench line would be removed by saw-cutting (where applicable), followed by excavating the trench using a backhoe. Depending on the location, the length would be between approximately 70 and 100 feet across South Guild Avenue. The open trench depth would be an approximate minimum 42 inches to obtain an approximate minimum of 36 inches of cover, with an approximately 12-inch excavation width. The estimated cut-and-fill trench volume is approximately 12.75 yd^3. The actual depth and width of the open trench would vary depending on field conditions and conflicts with existing utilities. Where the electrical duct bank crosses or runs parallel to other substructures that have operating temperatures at earth temperature, a minimum radial clearance of 12 inches is required depending on the existing utilities within the route.

Up to approximately 13 yd^3 of material may be excavated from an open trench. The soil, expected to be pre-characterized during preconstruction potholing, would be either reused or placed directly into a truck and disposed of off-site at an appropriate landfill. An approximate 4-inch cable conduit would be placed in the trench followed by backfill, which would be compacted. Restoration is based on matching the roadway's existing subbase and surface (asphalt, concrete, or a combination of both). A road base backfill or slurry concrete cap would be installed, and the road surface would be restored in compliance with the locally issued permits.

Trenchless Techniques (Horizontal Directional Drilling)

HDD is the expected trenchless technique to be used to install underground conduits for LEU's relocated 12 kV line and PG&E's extended 12 kV line. The HDD technology uses a hydraulically powered horizontal drilling rig supported by a drilling mud tank and a power unit for the hydraulic pumps and mud pumps. A variable-angle drilling unit would initially be adjusted to the proper design angle for the particular drill.

The first step would be to drill a fluid-filled pilot bore. The first and smallest of the cutting heads would begin the pilot hole at the surveyed entry point in the entry pit. An entry pit and an exit pit are required for each HDD to contain the drilling mud. In general, the work area required on both the entry and exit sites would be approximately 30 by 30 feet. The pavement for the pits and pull-box excavations would be removed by saw-cutting. The entry and exit pits would be located where the planned pull boxes would be used for each 12 kV line. The excavation for a typical pull box is approximately 5 feet by 7 feet and 5 feet deep. The pit excavations would be approximately 5 feet by 7 feet and 8 feet deep. Up to approximately 8 yd^3 would be removed per pit, with approximately 4 yd^3 expected to be reused for backfill. The pit walls would be shored with either a trencher's box or bracing.

The first section of the drill stem has an articulating joint near the drill-cutting head that the HDD operator can control. Successive drill stem sections would be added as the drill head bores along the specified route. The drill head then would be articulated slightly by the operator to follow a designed path under the crossing and climb upward toward the exit point. When the pilot hole is completed, a succession of larger cutting heads and reamers would be pushed and pulled through the borehole until it is the appropriate size for the approximate 4-inch or approximate 6-inch conduit for PG&E and LEU, respectively. Using this method, the relocated LEU 12 kV conduit would be installed between approximately 4 feet and 10 feet under the existing grade. The PG&E 12 kV extension would be installed at a minimum of approximately 3 feet below grade but would be up to at least 15 feet underground when crossing under and within 30 feet of the railroad tracks.

A nontoxic, water-based lubricant containing water and bentonite clay, referred to as drilling mud, would be used to aid the drilling, coat the walls of the borehole, and maintain the opening. During the bore, drilling mud would be pumped under high pressure through the drill stem to rotate the cutting head and return the soil cuttings to a pit at the surface entry point. No additives considered hazardous according to federal and state laws would be used during the HDD process.

The drilling mud would be received in an approximately 6-foot by 6-foot pit. The drilling mud returned through the bore-drilled hole would be pumped from the entry and exit pits to a processing/shaker unit where the soil cuttings are removed, allowing the drilling mud to be reused. Most of the drilling mud would be recycled by the drilling contractors and used on subsequent projects. Any excess clean drilling mud would be disposed of at an appropriate waste facility.

When the borehole reaches the correct diameter, the conduit would be pulled through the borehole until it surfaces on the other side. The installed conduit then would be connected to adjacent splice boxes or other sections of conduit, and the entry and exit pits would be backfilled. As part of the drilling design process, a geotechnical survey of subsurface conditions was conducted to determine the underlying geologic strata along the bore path. Infrequently, the geologic strata above the bore may be weaker than anticipated or unconsolidated. As the HDD passes under these locations, the high pressure of the drilling mud may result in a fracture of these strata, allowing drilling mud to rise to the surface. This situation is termed a "frac-out" and is usually resolved by reducing the mud system pressure or increasing the mud viscosity. If a frac-out occurs, the boring operation would be stopped immediately, and the following plan of action would be implemented:

- Isolate the area with straw bales, sandbags, or silt fencing to surround and contain the drilling mud.
- Remove the drilling mud using one of the two following methods based on the location and volume of mud leaching from the frac-out hole:
  - A mobile vacuum truck would be used to pump the drilling mud from the contained area. If the vacuum truck does not have a hose of the appropriate length, a series of one or more gasoline- or diesel-powered pumps may be connected to the vacuum truck to extend its reach. Each pump would be placed in a plastic tub or other form of containment.
  - The drilling mud would be removed with hand tools if the frac-out is small.

To facilitate the pulling and splicing of the cables for LEU's relocated 12 kV line, two underground pull/splice boxes (vaults) would be installed at the base of an existing LEU wood pole structure. One pull box would be installed at the southern end of the PG&E 12 kV extension. The pull boxes used for the project would be precast polymer concrete and traffic-rated boxes. The LEU pull boxes would be approximately 3 feet by 5 feet, and the PG&E pull box would be approximately 3 feet by 5 feet with an approximate 42-inch depth. These splice boxes would provide access during operations to the underground cables for maintenance, inspection, and repair by the respective utility. A trencher would be used to excavate an approximate 4-foot by 6-foot excavation to an approximate 5-foot depth for the two LEU 12 kV pull boxes. Approximately 8.8 yd^3 of material would be removed from the two LEU pull-box excavations. A backhoe is expected to create an excavation of approximately 5 feet by 7 feet to an approximate 5-foot depth for the PG&E pull box, removing approximately 6.5 yd^3. The pull boxes would then be connected to the underground conduits before being covered with at least approximately 2.5 feet of compacted fill. The area around each pull box would be backfilled with soil saved from the initial excavation. Restoration is based on matching the roadway's existing subbase and surface (asphalt, concrete, or a combination of both). A road base backfill or slurry concrete cap would be installed, and the road surface would be restored in compliance with the locally issued permits or agreement with the property owner.

After installation of the conduit, the cable would be pulled into the conduit, spliced at the pull boxes, and terminated at the transition where the lines convert to overhead. To pull the cable through the conduit, a cable reel would be placed at one end of the section, and a pulling rig would be placed at the other end. A large rope would then be pulled into the conduit using a fish line and attached to the cable-pulling eyes. The cable-pulling eyes would be attached to the cable, and the cable would be pulled through the conduit. A lubricant would be applied to the cable as it enters the conduit to decrease friction during pulling.

Pre-characterization of soil and any groundwater would occur during preconstruction potholing activities.

SUBSTATIONS AND SWITCHING STATION

PG&E Lockeford Substation

Prior to construction, select non-orchard tree removal and tree trimming, and grapevine encroachment removal would occur in the area on PG&E property where the substation fence and drainage ditch would be expanded. A PG&E arborist would review the fence staking and coordinate with crews conducting tree trimming and removal prior to minimize or avoid tree trimming and removal where possible.

Following the station, drainage ditch, and retention pond expansion, the existing substation fence line would be replaced in-kind and expanded on the northern and eastern sides of the property. Next, construction activities include excavation and installation of the subsurface ground grid and conduit chases, installation of the paved interior roads, and excavation and forming and pouring of concrete footings and foundations for all the aboveground structures. The additional excavated material of approximately 719 yd^3 for foundation installations would be hauled off-site.

After the concrete has cured, the aboveground steel structures, circuit breakers, buses, dead-ends, and other electrical equipment, including associated control system hardware, would be installed. Equipment to be placed on slabs or footings would either be bolted or welded securely to meet the appropriate seismic requirements. The general sequence would be as follows:

1. Expand and grade the substation to the north of existing 230 kV Bays 1 and 2; this would allow for construction of new Bays 3 and 4.
2. Install the new modular protection, automation, and control enclosure and full BAAH bays at Bays 3 and 4.
3. Clear PG&E Rio Oso–Lockeford 230 kV Line in Bay 2. Install new middle 230 kV circuit breaker in Bay 2 and install new double-bay dead-end on the east side of 230 kV Bus 2.
4. Clear 230/60 kV Transformer 2 and 230 kV Bus 1. Reconnect Transformer 2 to the position between the new middle and left circuit breakers, using the tall dead-end structure. Remove the Bay 2 portion of the low dead-end structure between the middle and left circuit breakers. Connect existing 230 kV Bus 1 to the expansion portion of Bus 1.
5. Connect the looped-in PG&E Brighton-Bellota Line into Bays 3 and 4, creating PG&E Lockeford-Bellota No. 2 and PG&E Brighton-Lockeford 230 kV lines.
6. Clear 230/60 kV Transformer 3 and PG&E Lockeford-Bellota No. 1 230 kV Line. Install new circuit breaker in the right position of the BAAH bay of Bay 1. Remove the Bay 1 portion of the low dead-end structure between the middle and left circuit breakers. Reconnect PG&E Lockeford-Bellota No. 1 230 kV Line between the middle and right circuit breakers, using the new structure constructed in Step 3. Reconnect Transformer 3 between the middle and left circuit breakers. Connect the existing 230 kV Bus 2 to the expanded portion of Bus 2.
7. Connect the new double-circuit PG&E Lockeford-Thurman 230 kV Lines No. 1 and No. 2 into the west positions of Bays 3 and 4.

After obstructions are removed from the area between Bays 1 and 2, a new bay would be installed. Concrete foundations would be installed to support the three new 230 kV circuit breakers, take-off structure, and air disconnect switches. Trenches would be dug between the new circuit breakers and the existing control enclosure. New conduits, and power and control wiring would be installed in the trenches, and the trenches would be backfilled. Three circuit breakers would be installed on the new foundations, and power and control wiring would be connected. New conductors would be installed from the take-off structures to the buses and to the circuit breakers, and air disconnect switches would be installed to provide electrical clearance points. Inside the control enclosure, protective relays, meters, and controls would be installed as required to protect the system.

All metallic structures within the substation would be connected to the station grounding grid. A final dressing of aggregate, totaling approximately 1280 yd^3, would be spread on all unpaved areas in the substation to provide an all-weather stable surface for operations and maintenance (O&M) activities while limiting the amount of impervious surface created to minimize site runoff.

To the greatest extent possible, all cut materials from the substations and switching station would be reused as fill following suitability testing. Representative samples of excess soil would be collected, analyzed, and profiled for disposal in accordance with all federal, state, and local regulations. Engineered fill material would be imported as needed to accomplish the necessary compaction and final grade.

PG&E Thurman Switching Station

Site-grading activities at PG&E Thurman Switching Station would total approximately 5.50 acres of disturbed area. The site generally is flat and would be graded with an approximate 1-percent slope for stormwater runoff to drain from the north to the south into the retention pond with riprap slope stabilization. The estimated cut and clean fill volumes for site grading are approximately 4,890 yd^3 and approximately 1,684 yd^3, respectively, resulting in the total net cut volume of approximately 3,206 yd^3 to be hauled off-site. The anticipated maximum cut and fill heights in the general grading area are approximately 1.1 feet and approximately 1 foot, respectively. The maximum cut height of the retention expansion is approximately 5.9 feet with the total cut volume of approximately 2,880 yd^3 (which is calculated in the total cut volume).

Grading would be followed by (1) installation of an approximately 10-foot-tall security fence with approximately 1 foot of V-shaped barbed wire at the top, (2) excavation and installation of the subsurface ground grid and conduit chases, (3) installation of the paved interior roads, and (4) excavation and forming and pouring of concrete footings and foundations for all the aboveground structures. The additional excavated material of approximately 736 yd^3 for foundation installations would be hauled off-site.

After the concrete has cured, the aboveground steel structures, circuit breakers, switchgear, buses, dead-ends, and other electrical equipment, including associated control system hardware, would be installed. Equipment to be placed on slabs or footings would either be bolted or welded securely to meet the appropriate seismic requirements. All metallic structures within the switching station would be connected to the station grounding grid. A final dressing of aggregate, totaling approximately 2,700 yd^3, would be spread on all unpaved areas in the switching station to provide an all-weather stable surface for O&M activities while limiting the amount of impervious surface created to minimize site runoff.

To the greatest extent possible, all cut materials from the switching station would be reused as fill following suitability testing. Representative samples of excess soil would be collected, analyzed, and profiled for disposal in accordance with all federal, state, and local regulations. Engineered fill material would be imported as needed to accomplish the necessary compaction and final grade. Refer to Figure 2-5.

LEU Industrial and LEU Guild Substations

The LEU 12 kV feeder work is expected to start with LEU survey activities prior to the start of construction for LEU Guild Substation or modification for LEU Industrial Substation. The LEU 12 kV pull boxes and underground cable would be installed before the existing overhead LEU 12 kV feeder line portion would be removed. When the LEU 12 kV feeder work is completed, site grubbing and grading would be completed for LEU Guild Substation, including removal of the existing wood poles on-site used for LEU utility worker training. Foundations, grounding, and conduits would be laid; then the monopole foundations at LEU Industrial Substation would be installed. Steel, bus, and enclosures would be placed at LEU Guild Substation, with the monopole steel pole being erected in parallel with LEU Industrial Substation. Installation of electrical equipment would follow, with wiring and testing done in parallel with the new PG&E Thurman Switching Station.

When PG&E Thurman Switching Station and LEU Guild Substation are complete, the overhead 230 kV lines connecting the substations would be installed. The LEU 60 kV overhead lines connecting LEU Guild Substation to LEU Industrial Substation would be installed on the new monopoles. The new LEU 60 kV overhead lines would be installed

to the existing steel monopoles at LEU Industrial Substation. And PG&E would remove the existing 60 kV taps at LEU Industrial Substation as part of construction.

LEU Guild Substation would be constructed in one phase and would only require a bus outage at LEU Industrial Substation when complete to cut over to the new 230 kV source.

Access to LEU Guild Substation for construction and operation would be on a permanent access road installed from South Guild Avenue to the substation's yard. Access road construction would begin by excavating at the intersection with South Guild Avenue to cut the curb. The road would be graded and compacted in accordance with engineering standards and geotechnical requirements. Following compaction, road base would be imported, distributed on-site, and compacted. Finally, conventional equipment would be used to distribute the crushed-rock road material along the main access route and driveway. It is assumed that final rocking of the access road would occur after major construction at LEU Guild Substation is completed.

The LEU access road would be crushed rock and measure approximately 800 feet long and approximately 60 feet wide. The facility access road would have a gate at South Guild Avenue, a gate into the LEU Guild Substation yard, and a gate into the LEU Industrial Substation yard. All gates would be permanent. Interior roads within LEU Guild Substation would be crushed rock and measure approximately 1,250 feet long in total and approximately 16 feet wide.

Site materials would be excavated using conventional earth-moving equipment. In the event there are areas where bulldozers and backhoes are not able to remove the material, scraping, ripping, drilling, hammering, and cutting may be used to break up the material into manageable pieces. Blasting is not anticipated. Small, temporary stockpiles of excavated dirt may be located near excavations. This excavated material would be used, as appropriate, for backfilling voids left by the removal of old power line training poles. Sediment control best practices, such as the use of fiber rolls around stockpiles and excavated areas, would be implemented to manage the temporary stockpiles. For LEU Guild Substation construction, LEU expects to mechanically process material on-site to achieve a maximum particle size and distribution suitable for conventional placement in engineered fills.

PG&E Remote-End Substations System Protection Modifications

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

The work would occur within the control rooms of the existing facilities. The replacement of protective relay devices is a typical operations and maintenance activity and would be performed prior to placing the new equipment into service. Depending on the scope, the duration could be approximately 1 day for setting adjustments to approximately 5 weeks for replacement of system protection devices.

At PG&E Rio Oso, PG&E Bellota, and PG&E Brighton Substations, existing line-tuner/wave trap equipment and associated structures would be removed or retired in place after new digital communication equipment for the 230 kV line protection relays are installed in the existing control facilities at the three substations.

Construction at the existing PG&E Bellota, PG&E Rio Oso, and PG&E Brighton Substations would include minor modification to disconnect the existing line tuner/wave trap equipment and associated structures and remove them from service. The existing line tuner/wave trap equipment and associated structures can be removed from service after construction of the proposed 230 kV system is complete and the protection relays are upgraded or replaced. The equipment and structures may be retired in place when disconnected or removed as discussed.

The equipment would be electrically isolated from the in-service equipment so it can be safely retired in place or disassembled and removed. If the out-of-service equipment is being removed, boom trucks and man lifts would be used during disassembly of the line tuner and wave trap equipment, cables, and supporting structures. The wiring to the equipment would be de-terminated and pulled back to a pull box or removed entirely. Control and protective devices would be removed or tagged as out of service.

A boom truck and crane would be used to load the equipment for transport to a material yard for reuse or to a salvage yard for disposal. The foundations would be removed to approximately 3 feet below grade using a backhoe, jackhammer, and hand tools. Approximately eight truck trips are expected to off-haul concrete foundation material to an appropriate recycling/disposal facility. The equipment and vehicles expected to be used for personnel and material transport are listed in Appendix C.

PG&E Clayton Hill Repeater Station—South Tower

Work to install two new antennas and run new cable on the existing structures and into the existing control room would occur over approximately 30 days. Light-duty trucks would be used to transport the new communication material to the station. No ground-disturbing work would occur within the station.

2.6.4 Public Safety and Traffic Control

PUBLIC SAFETY

Signage and temporary and permanent fencing would be used to inform and protect the public near the construction site. Flaggers would be used as standard safety practices for large equipment deliveries and offloads, including safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code. Prior to stringing conductors, temporary guard structures would be installed at irrigation canals, road crossings, and other locations where the new conductors may otherwise encounter electrical, communication, or rail facilities, waterways, or vehicular traffic during installation.

To minimize potential exposure of the public to electric shock hazards, a 9-foot-tall chain-link fence topped with 1 foot of barbed wire would extend around the perimeter of the proposed PG&E Thurman Switching Station, LEU Guild Substation, and the expanded PG&E Lockeford Substation, thereby restricting site access. The pedestrian and vehicle entrance into the stations would be gated and monitored remotely; thus, access would be restricted to only authorized personnel. Warning signs would be posted around the perimeter of the stations' fences and gates to alert PG&E of potential electrical hazards. No change to the existing perimeter fence type would occur at PG&E Bellota, PG&E Brighton, PG&E Lodi, PG&E Rio Oso, or LEU Industrial Substations, or PG&E Clayton Hill Repeater Station.

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

TRAFFIC CONTROL

PG&E and LEU would follow their respective standard safety practices, including installing appropriate barriers between work zones and transportation facilities, posting adequate signs, and using proper construction techniques. PG&E and LEU would coordinate construction traffic access at and around LEU Industrial and LEU Guild Substations, PG&E Thurman Switching Station, and the connecting 12 kV, 60 kV, and 230 kV lines. PG&E is a member of the California Joint Utility Traffic Control Committee, which published the *California Temporary Traffic Control Handbook* (2018). PG&E would follow the recommendations in this manual regarding basic standards for the safe movement of traffic on highways and streets in accordance with Section 21400 of the California Vehicle Code. PG&E would comply with all notification requirements as prescribed by the City of Lodi, San Joaquin County, and Caltrans encroachment permits. LEU would comply with all notification requirements as prescribed by the City of Lodi.

Specific project areas where public access may be restricted for safety purposes include some public roads and some sidewalks. Sidewalk access may be temporarily restricted for safety purposes for up to 5 days along the north side of East Lodi Avenue between South Cluff Avenue and Commerce Street during the reconfiguration of PG&E's 60 kV

lines north of LEU Industrial Substation, including the removal of two horizontal guy wires and the PG&E stub pole near 1303 East Lodi Avenue.

PG&E Thurman Switching Station and LEU Guild Substation would be constructed to the west of South Guild Avenue. Both stations would install vehicle access from South Guild Avenue west into the stations requiring cutting the curb and sidewalk to create driveways. This civil work for PG&E Thurman Switching Station is scheduled to be completed before any LEU Guild Substation work begins. Each station access construction work may require that the sidewalk be temporarily closed for less than 1 month. Pedestrian traffic would be routed to the existing sidewalk on the east side of South Guild Avenue. The following temporary access disruptions would be expected on South Guild Avenue:

- Sidewalks—temporary disruption of access during 12 kV underground activities, potentially lasting up to 2 months and addressed by traffic control flaggers and rerouting.
- Parking—temporary parking restrictions.
- Delta Packing Company—temporary disruption of access during wire-stringing operations lasting less than 5 business days and addressed by traffic control and rerouting.

About 2 months after PG&E completes Thurman Switching Station access from South Guild Avenue, LEU would relocate the 12 kV feeder lines as its first project activity. The eastern end of the LEU HDD activities would occur entirely on the LEU customer property, and LEU would coordinate the timing of that work with the customer. The western end of the LEU HDD work would occur at an existing LEU pole along the eastern sidewalk of South Guild Avenue. The sidewalk may be temporarily closed for less than 1 month. Pedestrian traffic would be routed to the existing sidewalk on the west side of South Guild Avenue. When the relocated LEU 12 kV feeder line is in service, the existing aboveground LEU 12 kV lines can be removed from the underbuild location on PG&E Lockeford-Industrial Line. There are approximately 7 months until the PG&E Lockeford-Industrial Line pole 1 through pole 9 are scheduled to be removed; therefore, the timing of the removal of the LEU 12 kV line segments and Comcast communication lines is flexible. This would allow schedule flexibility for LEU's construction of LEU Guild Substation access to start and complete as needed to avoid potential pedestrian, bicycle, or traffic constraints with both activities occurring in the same area. Similarly, the month after LEU Guild Substation access is completed, PG&E would begin the underground construction of its 12 kV line within South Guild Avenue. The flexibility of removing the aboveground lines would allow for the PG&E 12 kV line work to be complete as well.

Extension of the PG&E 12 kV line within South Guild Avenue would require lane closure for the two HDD work areas. Given the width of the road, PG&E anticipates that a temporary parking restriction in the vicinity of the work area would allow for one lane of traffic in each direction to be open at all times. When the 12 kV line route location is finalized, PG&E would apply for an encroachment permit from the City of Lodi and a Traffic Control Plan would provide detail on the temporary work locations and temporary road use restrictions. The work area for each HDD end would not extend curb to curb, and a lane of travel in each direction is expected to be open at all times. The work area for trenching across South Guild Avenue would move across the road incrementally with plates or backfill placed, allowing unrestricted travel in both directions as the trench progresses and line installation occurs.

Before PG&E 60 kV conductor, LEU 12 kV conductor, and Comcast communication line removal begins, the temporary parking restrictions and sidewalk rerouting within the section of line removal are expected, with appropriate approval from the City of Lodi. Work near and across railroads would be coordinated with UPRR and the Central California Traction (CCT) Company; rail use disruption is not anticipated. Span-by-span removal may be scheduled as needed. Installation of the western length of the new PG&E 230 kV line would be the final main activity near and across South Guild Avenue. With appropriate approval from the City of Lodi and UPRR, the conductor would be installed. No sidewalk, parking, or lane restrictions are anticipated beyond temporary public safety and traffic control associated with the 230 kV conductor stringing across South Guild Avenue. Project activities associated with PG&E 60 kV line reconfiguration across East Lodi Avenue and across East Pine Street would use traffic control to briefly stop traffic for less than approximately 5 minutes when existing overhead wire spanning the road is being removed. Pedestrian use would be rerouted temporarily to Beckman Avenue when the steel guy pole adjacent to the sidewalk near 1303 East Lodi Avenue is being removed.

Prior to construction, all traffic control and encroachment permits would be obtained, and traffic control would be implemented. For highway or high-traffic county roadway crossings, it may be necessary to control traffic during critical conductor stringing activities. Any road closures that must occur on private, city, or county roads are not expected to exceed approximately 5 minutes in duration. For the SR 12 and SR 88 crossings, California Highway Patrol (CHP) and Caltrans would be contacted to organize 5-minute rolling stops. Any necessary permits would be obtained from the affected agencies.

The appropriate traffic control configuration would be set up and in place ahead of construction activities and may include traffic control cones, candles, electronic signage boards, and temporary fixed roadway warning signs for construction personnel prior to reaching the work area in both directions and at egress and ingress to work areas, as well as appropriate barricades if a total road closure should be required. No complete long-term road closures are expected, although one-way traffic controls and short-term road closures would be implemented to allow for certain construction activities and to maintain public safety. PG&E would apply for a Special Traffic Permit from the City of Lodi. PG&E and LEU also would coordinate provisions for emergency vehicle and local access with the City, County, or other responsible entity.

SECURITY

During the construction process, temporary and permanent fencing would be used to outline the station construction areas and staging areas. An approximately 6- to 8-foot-tall chain-link fence with up to an additional approximately 2 feet of barbed wire would be installed. Temporary lighting would be used throughout the construction area. All materials would be locked at night or when construction crews are not on the property. The project would use 24-hour surveillance by either security personnel or remote security during construction.

2.6.5 Dust, Erosion, and Runoff Controls

Construction ground-disturbing activities, including grading and vegetation clearing, have the potential to contribute to construction-related dust, erosion, and runoff. The project would obtain coverage under the State Water Resources Control Board (SWRCB) General Permit for Storm Water Discharges Associated with Construction Activity, Order No. 2009-0009-DWQ. Permit coverage would include developing and complying with a project SWPPP, prepared by each utility for its portion of the project. In conjunction with the SWPPPs, appropriate best practices would be developed for each activity that has the potential to degrade surrounding water quality through erosion, sediment runoff, and other pollutants. These best practices would be implemented and monitored throughout construction of the project by a qualified SWPPP practitioner, likely for each utility.

DUST

During all phases of construction, appropriate measures would be taken to minimize the generation of fugitive dust. Water or other suitable dust suppressants would be applied to project access roads and work areas; stockpiled materials would be covered or otherwise stabilized as needed to control fugitive dust. Stockpiled soils would be compacted and sprayed daily with water to prevent dust. Water would be sprayed on an as-needed basis when noticeable dust particles are on unpaved roadways or substations yards. Use of an agriculturally compatible chemical dust suppressant would be encouraged to decrease the quantity of potable water needed for dust control.

EROSION AND RUNOFF

A small, temporary stockpile of excavated soil may be located near a pole excavation to be used for backfill. Stockpiles would be located away or downgradient from waterways. Sediment and erosion control measures would be implemented to control erosion and minimize off-site sediment discharge.

Best practices would be used to control dust and minimize erosion potential. These include sediment controls, such as gravel bags, silt fences, or straw wattles. Stabilized construction access entrances would be established where necessary to minimize trackout of sediment onto paved roads in compliance with the project SWPPPs.

The expanded PG&E Lockeford Substation, new PG&E Thurman Switching Station, modified LEU Industrial Substation, and new LEU Guild Substation have been designed by PG&E and LEU to maintain the existing drainage patterns and include erosion control design measures for site stabilization. Drainage and erosion control design measures include erosion control blankets and riprap. Both the PG&E SWPPP and the LEU SWPPP would include additional measures to limit erosion and off-site transport of pollutants from construction activities, stabilize disturbed areas and reduce erosion, sedimentation, and pollutant transport.

2.6.6 Water Use and Dewatering

WATER USE

Water trucks, typically with a capacity of up to approximately 3,000 gallons, would support project construction activities and dust suppression. As many as approximately three or four water trucks with an approximate 3,000-gallon capacity may be used daily for dust suppression during the peak periods of construction when ground disturbance may be occurring at 230 kV structure locations and PG&E and LEU stations. However, the total volume available within the trucks on-site is not expected to be used daily.

Water use would vary with type of activities (increased use when activity is ground disturbing) and other daily site conditions, such as wind speed. Up to approximately 8,000–12,000 gallons of water may be needed daily for dust suppression during peak periods of construction. For example, LEU estimates that its LEU Guild Substation would require approximately 40,000 gallons of water (approximately 3 acre-feet). Daily water use during the LEU construction period would vary based on the construction phase, but it is estimated that the average water use per day would be approximately 200 gallons over the course of the estimated total of approximately 7 months of construction with ground-disturbing activities.

Water required for construction may come from several sources, including a municipal water source, delivery by water supply vendor trucks, or Lodi Lake located on the north side of Lodi. Depending on availability and distance to active construction, supplemental project water needs may be met by using recycled water available through the City's newly upgraded wastewater treatment plant, as described in Section 3.17, "Utilities and Service Systems." All the water sources described have adequate capacity to serve the project either independently or in combination.

DEWATERING

Dewatering is not anticipated. However, if encountered during construction, groundwater would be sampled and characterized prior to removal and discharge; as appropriate, the water may be pumped into a containment vessel (for example, a Baker tank) and tested for parameters such as turbidity and pH or as otherwise required. As permitted, groundwater may be discharged to an upland location or used for dust control. Otherwise, groundwater would be discharged to the appropriate City of Lodi or San Joaquin County stormwater or combined stormwater/sewer system, if approved, or trucked to an appropriate treatment or disposal facility.

2.6.7 Hazardous Materials and Hazardous Waste Management

HAZARDOUS MATERIALS

The proposed project would not require use or storage of large quantities of hazardous materials. During construction, petroleum-based products, such as gasoline, diesel fuel, crankcase oil, lubricants, and cleaning solvents, would be used to fuel, lubricate, and clean vehicles and equipment, and would be transported in specialty trucks or in

other approved containers. Refer to Table 2-9 for estimated types, uses, and volumes of hazardous materials that would be used by equipment and vehicles during proposed construction activities. When not in use, hazardous materials would be properly stored to prevent drainage or accidents. All hazardous materials would be used and stored as instructed by Safety Data Sheets (SDSs) that would be provided to on-site personnel in case of emergency. Hazardous waste would be transported per applicable regulations to an appropriate facility for disposal.

Additionally, appropriate best practices would be implemented to minimize the effects of an accidental spill, such as the presence of spill kits in active work areas to prevent materials from draining onto the ground or into drainage areas. Proper procedures describing hazardous material use, transport, storage, management, and disposal protocols would be identified and implemented in a Hazardous Materials and Waste Management Plan prior to beginning construction activities.

Table 2-9 Types, Uses, and Approximate Volumes of Hazardous Materials

Utility	Hazardous Material	Use	Approximate Volume (gallons)
PG&E	Diesel	Engine fuel	280,915
LEU	Diesel	Engine fuel	98,640
PG&E	Gasoline	Engine fuel	22,051
LEU	Gasoline	Engine fuel	3,164
PG&E	Jet fuel	Helicopter Fuel	11,101
PG&E	Hydraulic fluids/lubricants	Engine and equipment lubrication and powering of hydraulic equipment	15,703
LEU	Hydraulic Fluids/lubricants	Engine and equipment lubrication and powering of hydraulic equipment	5,090
PG&E	Other construction fluids (solvents)	Cleaning, lubricating hardware, etc.	785
LEU	Other construction fluids (solvents)	Cleaning, lubricating hardware, etc.	255

Notes: Hydraulic fluids and lubricants volumes are anticipated to be 5 percent of total fuel volumes.
Other construction fluids volumes are anticipated to be 5 percent of hydraulic fluids and lubricants volumes.

Source: PG&E 2023.

Additionally, up to approximately 17,000 gallons of utility-grade, low-volatility mineral oil would be required for each of the two proposed LEU Guild Substation transformers to operate. Based on the anticipated volume of dielectric/mineral oil to be used at the proposed LEU Guild Substation, a Spill Prevention, Control, and Countermeasure (SPCC) Plan would be required in accordance with Code of Federal Regulations (CFR) Title 40, Parts 112.1 to 112.7. The SPCC would identify the project spill prevention and containment design measures and practices. LEU Guild Substation would be constructed with secondary containment design in accordance with SPCC requirements for oil containment in the event of a spill. A concrete secondary containment basin would provide mineral oil containment for the transformer and would be designed to allow sufficient freeboard to include the oil volume of the transformer plus the precipitation from a 25-year, 24-hour storm event. The secondary oil containment would be integrated in the proposed percolation-type retention basin. An oil/water separator structure would be used to separate spilled oil from the stormwater before the stormwater drains into the retention basin. The oil/water separator would be visually inspected periodically for any contamination. The oil would form a separate layer that then can be removed by skimmers, pumps, or another similar method. The effluent oil from the oil/water separator would be discharged to the sanitary sewer system.

HAZARDOUS WASTE

Treated wood waste has the potential to be classified as hazardous waste if it contains elevated levels of arsenic, chromium, copper, pentachlorophenol, or creosote. Treated wood waste often can be identified visually by tags or markings on the wood, when cut staining is visible around the perimeter only, or by discoloration or odor. If

encountered, such as with the removed or topped PG&E 60 kV poles, the treated wood waste would be managed in accordance with applicable California and federal regulations. PG&E would dispose of utility generated waste, including treated wood waste, under the Hazardous Waste Fee Health and Safety Code (CA HSC Chapter 6.5, Section 25143 et seq.). Under this exemption, the wood waste would be disposed of in a composite-lined portion of a municipal solid waste landfill that meets requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code. Furthermore, the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code. PG&E expects treated wood waste would be taken to Forward Landfill (9999 South Austin Road, Manteca, CA 95336), Chemical Waste Management—Kettleman Hills (35251 Old Skyline Road, Kettleman City, CA 93239), or Buttonwillow Landfill (2500 West Lokern Road, Buttonwillow, CA 93206). Approximately 10 yd^3 of PG&E wood poles or pole tops are estimated to be removed and managed as treated wood waste.

An asbestos survey would occur before the removal of the existing PG&E RO1 tower as part of the San Joaquin Valley Air Pollution Control District demolition notification. Known or assumed asbestos material would be tested and disposed of as required by local regulations. Material from the tower (approximately 13 yd^3) is expected to be disposed of as hazardous waste at Kettleman Hills Landfill or Buttonwillow Landfill.

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

2.6.8 Solid Waste Generation and Management

Construction debris, including recyclables (metal poles, pole framing, fencing, and pavement), untreated wood, and clean soil would be taken to a licensed recycling facility such as North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station. Construction debris would be picked up regularly from construction areas and stored in approved on-site containers; the debris would be hauled away for recycling or disposal periodically during construction. At construction staging areas, crews would gather and sort recyclable and salvageable materials into bins. When possible, various waste materials generated during construction would be recycled and salvaged. Salvageable items (such as useable conductor, steel, and hardware) would be taken to recycling facilities or sold through available markets. Some examples of items that may be recycled include damaged steel from pole assemblies, conductor segments, conductor reels, pallets, and broken hardware.

The project also would generate minimal solid waste from the food, glass, paper, plastic, and packing materials consumed by the up to approximately 40 construction workers who would be on-site at peak construction periods. This general solid waste is estimated to be approximately 38 tons for PG&E's portion of the project and approximately 11 tons for LEU's portion of the project. Construction-generated waste materials that cannot be reused or recycled (materials such as wood, soil, vegetation, and sanitation waste) would be taken to waste management facilities for disposal or potential composting of green waste.

PG&E estimates that vegetation including trees removed for site preparation would generate approximately 3,550 yd^3 of agricultural and green waste. Vegetation is expected to be taken to a suitable facility, such as North County Recycling Center and Sanitary Landfill (17720 East Harney Lane, Lodi, CA 95240), Foothill Sanitary Landfill (6484 North Waverly Road, Linden, CA 95236), or Lovelace Materials Recovery Facility and Transfer Station (2323 East Lovelace Road, Manteca, CA 95336).

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

Substation site are not treated wood and would not be managed as hazardous waste. Approximately 8 yd^3 of LEU wood training poles are estimated to be removed, and all are expected to be reused or recycled.

LEU estimates that approximately 1,000 feet of 12 kV electrical conductor and four sets of metal framing would be removed from the underbuild position on PG&E Lockeford-Industrial 60 kV Line. Approximately 1 yd^3 of pavement would be cut and removed by LEU for the HDD excavations for its feeder line relocation. LEU's relocation of its existing 12 kV feeder line would generate approximately 1.5 yd^3 of solid waste generated for disposal or recycling. Approximately 8 yd^3 of pavement would be cut and removed by PG&E for the HDD excavations for its secondary service line extension. PG&E estimates that approximately 1 yd^3 of 60 kV conductor and guy wire would be recycled or reused by PG&E after being removed as part of the PG&E 60 kV reconfiguration. Ten percent (approximately 0.05 yd^3) of the metal framing removed from PG&E's 60 kV poles is expected to be recycled ,and 90 percent (approximately 0.50 yd^3) is expected to be disposed of as construction waste. If PG&E removes the line tuners and wave trap equipment from PG&E Bellota, PG&E Brighton, and PG&E Rio Oso Substations, approximately 34 percent (approximately 1.1 yd^3) is expected to be recycled or reused by PG&E and 66 percent (approximately 2.2 yd^3) disposed as construction waste.

Clean fill would be required for PG&E Thurman Switching Station, and the cut volume of approximately 3,206 yd^3 would be hauled for disposal. LEU estimates that 2,550 yd^3 of excess cut material would be hauled for disposal due to construction of LEU structures. The approximately 400 feet of fence material removed from LEU Industrial Substation eastern perimeter fence and approximately 3,150 feet of fence material removed from PG&E Lockeford Substation perimeter fence would be recycled.

2.6.9 Fire Prevention and Response

The PG&E and LEU project components within the main portion of the project and at the four PG&E remote-end substations (Brighton, Bellota, Lodi, and Rio Oso) are not located in or near state responsibility areas (SRAs) and therefore not located on land classified by fire hazard severity zone. PG&E Clayton Hill Repeater Station is located within an SRA that is classified as a high-fire hazard severity zone. CPUC has adopted fire hazard mapping most recently with its High Fire-Threat Map in 2021, which designates fire-threat areas that require enhanced fire safety. Other than PG&E Clayton Hill Repeater Station within the Tier 2 Elevated fire zone, the project components are located outside of any mapped fire hazard zones (on CPUC's High Fire-Threat Map). For the main project components within northern San Joaquin County, the nearest CPUC-designated Tier 3 Extreme fire zone is located approximately 42.5 miles northeast of PG&E Structure E1 (CPUC 2021).

PG&E and LEU would follow their respective construction fire prevention and response procedures during construction. Procedures are updated per regulation and best practice innovations. The procedures include fire prevention and suppression methods training and briefing for construction workers. A daily tailgate topic on fire prevention and response specific to the work area also would be presented. Procedures for minimizing potential ignition, including vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions are included in worker training. Each utility has work restrictions during Red Flag Warnings and High to Extreme Fire Danger days as detailed in their respective wildfire mitigation plans. During days with increased wildfire risk potential, procedures may include storage of fire suppression tools and backpack pumps with water within approximately 30 feet of work activities or larger water sources, including water storage tanks or water trucks that would be used in case of a fire. Additional procedures may include assigning personnel to conduct a "fire watch" or "fire patrol" to ensure that risk mitigation and fire preparedness measures are implemented, to report a fire immediately, and to coordinate with emergency response personnel in the event of a fire.

2.6.10 Construction Workforce, Equipment, Traffic, and Schedule

CONSTRUCTION WORKFORCE

The estimated equipment, duration of work, and personnel requirements by construction activity are presented in Appendix C. During structure installation, several crews may be working on various segments of line, and at the switching station and substations. Crews would be dispatched to PG&E 230 kV structure locations as ROWs are obtained. In keeping with landowner agreements, construction scheduling would be developed to minimize conflicts with planting, fertilizing, irrigating, and harvesting activities. Scheduling also may be affected by constraints related to bird nesting, agricultural operations, line clearances, weather, and other factors.

Overall, peak workforce is estimated to be up to approximately 66 workers per day during the peak months of construction (2027 Quarter 2), with work activities potentially occurring at PG&E Lockeford Substation, PG&E new 230 kV line structure locations, PG&E Thurman Switching Station, PG&E 12 kV service line extension, PG&E Clayton Hill Repeater Station, LEU Industrial Substation, and LEU Guild Substation. On a typical workday during 2027, approximately six to eight crews would be performing project activities. A typical daily workforce during the peak period of construction would consist of approximately three to 18 workers per project activity. Approximately 22 percent of the workforce during the peak period is expected to be supporting LEU's portion of the project, and approximately 78 percent is expected to be supporting PG&E's portion of the project. During PG&E transmission line work, crews typically would be working at adjacent or nearby poles. During PG&E transmission conductor stringing activities, approximately 18 construction crew members may be in the field, working at approximately two pull-and-tension sites, usually approximately 3.5 miles apart. On a typical peak workday with civil work complete, four to 10 construction crew members would be working at a station. Work at PG&E remote-end stations would have approximately two workers, and conservatively, the workers are included in the peak months total. Typically, approximately one or two truck drivers and approximately three to four inspectors and monitors are estimated as a daily average across all project components. Different phases of the construction process would require varying numbers of construction personnel.

In general, surveying (construction staking) is conducted typically by a crew of approximately three to four who use light trucks and survey equipment to locate and mark utilities and work area limits. Clearing, grading, access, and site preparation can be a crew of approximately six to 20 depending on the area and associated activities required (from potentially minimal blading and vegetation trimming to level a work area and avoid damaging landscaping trees along access roads to station grading followed by permanent paving and fence installation). With work areas and access established, crews of approximately 10–14 workers would typically use excavators and drill rigs to create a space to construct forms to pour concrete for foundations. After foundations are set, equipment installation usually involves a crew of approximately six to 10 per structure using cranes and forklifts. With equipment installed, crews then begin to install wires, which can require crews of approximately four to 10 on average per location. A helicopter would be used to pull a sock line at the start of conductor-stringing activity; otherwise, all work is ground based and typically involves cranes and forklifts. Work at PG&E's Clayton Hill Repeater Station would have two workers and would use a truck with a boom. When the PG&E 60 kV lines are reconfigured, a crew of approximately nine would remove, replace, or top the poles and lines mainly using line trucks with booms and drill rigs for new pole holes. Restoration and cleaning are conducted typically by a smaller crew of approximately three to four who uses trucks and potentially a blade to level or recontour surfaces. If the communication equipment is removed from PG&E remote-end substations instead of retired in place, a crew of approximately six workers would use cranes or manlifts and potentially a jack hammer or backhoe to remove the equipment and the top part of foundations. Otherwise, system protection work at remote-end substations typically occurs in the control room and the two workers do not need construction equipment.

CONSTRUCTION EQUIPMENT

Appendix C provides a list of the anticipated equipment for each construction activity. Typical equipment includes pickup trucks, water trucks, backhoes or front loaders, bulldozers, dump trucks, road graders, compactors and rollers,

auger trucks, truck cranes, trucks with trailers and flatbeds, various pullers, forklifts, manlifts, boom trucks, and helicopters. This is a preliminary equipment list, and other equipment may be identified when project design is finalized, or during construction if unexpected conditions require additional equipment.

CONSTRUCTION TRAFFIC

Construction crews (worker commutes) would be traveling to and from the proposed sites via a light-duty auto/truck. Worker daily commute trips are estimated at approximately 10.8 miles roundtrip for LEU and estimated at approximately 25 miles roundtrip for PG&E. Equipment would be staged on-site in a work area or brought to the work area daily on work trucks or trucks with trailers.

Using these assumptions, Table 2-10 provides a summary of estimated vehicle trips and vehicle miles traveled (VMT) by trip type and project construction activity. Estimated vehicle trips are calculated with the daily trip count multiplied by days of use. Total VMT is estimated vehicle trips multiplied by miles/day/vehicle type. Approximately 95 percent of total VMT is associated with PG&E construction activities.

Table 2-10 Estimated Construction Vehicle Trips and Vehicle Miles Traveled

Project Construction Activity	Trip Type	Estimated Vehicle Trips	Total VMT by Activity Type
PG&E 230 kV Lines	Worker	6,131	153,275
PG&E 230 kV Lines	Construction	4,952	204,970
PG&E Lockeford Substation	Worker	5,750	143,750
PG&E Lockeford Substation	Construction	10,621	668,295
PG&E 12 kV Service Line Extension	Worker	200	5,000
PG&E 12 kV Service Line Extension	Construction	182	5,840
PG&E Remote -End Stations	Worker	420	10,500
PG&E Remote -End Stations	Construction	340	7,650
PG&E Thurman Switching Station	Worker	1,820	45,500
PG&E Thurman Switching Station	Construction	6,086	476,550
PG&E Thurman Microwave Tower	Worker	805	20,125
PG&E Thurman Microwave Tower	Construction	787	47,400
PG&E 60 kV Lines Reconfiguration	Worker	845	21,125
PG&E 60 kV Lines Reconfiguration	Construction	975	32,055
LEU 12 kV Underground (Feeder) Lines	Worker	100	1,080
LEU Substation Construction	Worker	5,560	60,048
LEU Substation Construction	Construction	4,400	32,120

Source: PG&E 2023.

CONSTRUCTION SCHEDULE

The project would include two main construction efforts: (1) construction of the proposed 230 kV facilities, and (2) final reconfiguration of the existing 60 kV and existing 230 kV ring bus. The existing PG&E 60 kV lines cannot be removed entirely from service to LEU Industrial Substation until the PG&E 230 kV transmission feed is established to LEU. The initial effort would focus on relocating existing lines and constructing the new station facilities in Lodi and the PG&E 230 kV feed into LEU Industrial Substation. The later construction effort would complete the reconfiguration of the existing PG&E 60 kV lines when they are disconnected from LEU Industrial Substation and complete the reconfiguration of PG&E Lockeford Substation's 230 kV bus.

Construction is targeted to start in approximately July 2026 with the new PG&E 230 kV line, and all project-related construction is estimated to be complete in approximately April 2029. This schedule considers expected weather for a typical fall and winter, including rain and fog. Constructing the new 230 kV facilities is anticipated to occur between

the third quarter of 2026 and the first quarter of 2028. Reconfiguring the existing 60 kV facilities (when the new 230 kV source is in service) and continuing the 230 kV updates would occur between the fourth quarter of 2027 and the second quarter of 2029. LEU construction is expected to begin in approximately March 2027 and complete in approximately February 2028 or earlier depending on when the new 230 kV source is energized and the remaining two PG&E 60 kV lines are removed from LEU Industrial Substation. The final approximately 0.4 miles of the new PG&E 230 kV line (W44 to W48, see Appendix B) would be constructed after PG&E Lockeford-Industrial 60 kV Line is partially removed (pole 1 through pole 9) to allow the transmission line to reuse the power line alignment. If the western end of PG&E Lockeford-Industrial Line is not removed as scheduled, the project would wait until the next outage window, likely the following November to March. Portions of existing 230 kV reconfiguration at PG&E Lockeford Substation and some site restoration at components may be able to occur while the new 230 kV work waits for the next single PG&E 60 kV line outage window. The preliminary schedule is presented in Table 2-11.

Table 2-11 Preliminary Construction Schedule

Project Construction Activity	Proposed Schedule Approximate Date Ranges
PG&E 230 kV Transmission Line West end construction would complete November–March during outage window.	July 2026–December 2027
PG&E Lockeford Substation: new 230 kV 230 kV in-service would occur November–March	August 2026–January 2028
PG&E Thurman Switching Station	November 2026–September 2027
LEU 12 kV feeder line relocation	March 2027
PG&E Thurman Switching Station: microwave tower	April 2027–July 2027
LEU Guild and Industrial Substations: prepare for 230 kV	February 2027–February 2028
PG&E 12 kV service line extension to PG&E Thurman Switching Station Duration reflects expected sequencing of in-road activities to avoid concurrent in-road activities (HDD, trenching, and road restoration).	June 2027–July 2027
PG&E Clayton Hill Repeater Station	June 2027–August 2027
PG&E remote-end substations: new 230 kV system	October 2027–December 2028
PG&E Lockeford-Industrial 60 kV: west end removal West end of line and disconnection from LEU Industrial Substation would only occur during November–March annually and would not occur if 230 kV cannot be placed into service by March to accommodate typical LEU load increase.	November 2027
New PG&E 230 kV source is in service to LEU	December 2027–March 2028
PG&E Lockeford Substation: complete existing 230 kV reconfiguration	February 2028–April 2029
LEU Industrial Substation: remove PG&E Lodi-Industrial and Industrial Tap 60 kV Lines	February 2028
PG&E existing 60 kV lines: complete reconfiguration of PG&E Lockeford-Lodi No. 1 (preliminary name)	February 2028
PG&E remote-end substations: existing 230 kV and reconfigured 60 kV system and communication	August 2028–February 2029

Source: PG&E 2023.

PG&E construction activities are anticipated to occur six days per week (Monday through Saturday) during daylight hours. LEU construction activities are anticipated to occur five days per week (Monday through Friday) during daylight hours. Work hours generally would be 10 hours per day with construction typically occurring between 7:00 a.m. and 5:30 p.m. Occasionally, work may occur during the evening hours (i.e., after 9:00 p.m.) for activities such as installation of guard structure netting over SR 88 (and possibly over other local roads), PG&E's HDD activities in South Guild Avenue, and testing and commissioning activities to place the new 230 kV source into service.

The potential for night work would depend on several factors, including permit conditions. For example, the Caltrans encroachment permit may require that the netting between guard structures to protect SR 88 is installed at night. If that is required, the guard structures would be installed during daytime work hours in preparation to attach netting. The netting installation would take approximately 3-4 hours. Equipment is expected to be one heavy-duty diesel bucket truck and one light-duty truck. A rolling stop is expected to be used unless Caltrans requires a temporary road closure in its encroachment permit. Removal of the netting is expected to be allowed during daytime construction hours.

Similarly, PG&E anticipates that its proposed trenching and HDD work in South Guild Avenue within the City of Lodi would occur during daytime hours. However, it is possible that local encroachment permits could require PG&E's trenching and HDD work to occur at night to minimize potential traffic impacts.

Finally, the western extent of PG&E's Lockeford-Lodi 60 kV line, installation of the western extent of PG&E's Lockeford-Thurman 230 kV line, and testing and commissioning to place the new 230 kV source into service can only occur during an annual outage window of approximately November to March. While this construction work would only begin if sufficient time is available to place the new 230 kV source into service in an annual outage window, once this activity begins, unforeseen circumstances could require construction after 9:00 p.m. to place the new source into service before demand increases going into summer. Should work be required after 9:00 p.m., the construction activity would most likely be testing and commissioning of the new 230 kV source which would occur within the project's substations or switching station.

Night work for foundation curing would be unnecessary because PG&E would install temporary fencing around foundations as needed during the curing process. Conductor stringing would use rolling stops when crossing roads or use other means in road or railroad encroachment permits to allow for this construction activity to occur during daytime hours.

Refer to Table 2-12 for an estimated approximate duration for construction activities at each type of work area. Activities at staging areas and stations, other than remote-end stations, are expected to occur over a period of months to several years. Construction activities at individual structure work areas along the power or transmission lines would be limited to a few days separated by weeks or months typically.

Table 2-12 Estimated Approximate Construction Duration at Work Area Types

Project Construction Activity	Estimated Duration
Staging areas outside of stations (approximately 3 areas or 10–15 acres)—to support new transmission line and station construction	21 months
Staging areas in existing or proposed PG&E and LEU facilities	34 months
PG&E 230 kV Transmission Line: individual work areas and access preparation including guard structures	< 1 day/structure on average
PG&E 230 kV Transmission Line: structure foundation, generally installed east to west or as land rights are secured	1–2 days/structure
PG&E 230 kV Transmission Line: structure assembly and erection	1–2 days/structure
PG&E 230 kV Transmission Line: helicopter use, sock line stringing	< 0.25 day/structure
PG&E 230 kV Transmission Line: conductor installation	1–2 days/structure
PG&E 230 kV Transmission Line: pull and tension sites	Approximately 2 weeks/site
PG&E 230 kV Transmission Line: restoration	<1 day/structure on average
PG&E Lockeford Substation: new 230 kV, peak activity period	8 months
PG&E Lockeford Substation: existing 230 kV reconfiguration	25 months
PG&E Thurman Switching Station	11 months
LEU 12 kV feeder line relocation	10 days
PG&E Thurman Switching Station: microwave tower	4 months

Project Construction Activity	Estimated Duration
LEU Guild and Industrial Substations Final month would occur when 230 kV is placed into service and remaining 2 PG&E 60 kV lines are removed from LEU Substation	6 months + 1 month
PG&E 12 kV service line extension to Thurman: HDD, trenching. Potential parking restrictions or single lane closure, road remains open	20 days
PG&E Clayton Hill Repeater Station	30 days
PG&E remote-end substations: new 230 kV	10 days/PG&E substation
PG&E Lockeford-Industrial: remove west end	1-2 days/structure
PG&E Existing 60 kV lines: complete reconfiguration	1–2 days/structure
PG&E remote-end substations: existing 230 kV and 60 kV	20 days/substation

Source: PG&E 2023.

2.6.11 Demobilization and Site Restoration

All areas temporarily disturbed by the project would be restored to the greatest extent practicable following construction. These disturbed areas include staging areas and access roads, areas around each tower/pole, and areas used for conductor stringing and staging. Post-construction restoration activities would include returning areas to their original contours and drainage patterns in accordance with SWPPP best practices and following prearranged landowner agreements, where applicable.

All temporarily disturbed areas within and around any work area and unpaved access would be restored to the greatest extent practicable following construction. All construction waste would be disposed of in accordance with all applicable federal, state, and local laws regarding solid and hazardous waste disposal through transport to an authorized landfill.

2.6.12 Operation and Maintenance

Following construction of the project, operation and maintenance activities would consist of routine inspection, repair, and maintenance activities, which would be conducted as they are under existing conditions for existing facilities modified or expanded as part of this project. New facilities would be incorporated into O&M procedures of either PG&E or LEU depending on facility ownership. O&M of new facilities would be implemented by existing utility workers or suppliers and contractors of PG&E and LEU, respectively.

REGULATIONS AND STANDARDS

PG&E is a public utility, and the operation of its project portion would be regulated by CPUC. LEU is a municipal utility of the City of Lodi, and its portion of the project would be regulated by the City of Lodi, not CPUC.

PG&E Regulations and Standards

The following regulations and standards guide PG&E's O&M activities for electric lines, switching stations, substations, and communication systems:

- CPUC GO 95 regulates all aspects of design, construction, operation, and maintenance of electrical power lines and fire safety hazards for utilities subject to CPUC jurisdiction.
- CPUC GO 165 applies to all electric distribution and transmission facilities (excluding those facilities contained in a substation) subject to CPUC jurisdiction and orders additional inspection requirements beyond GO 95 to maintain a safe and reliable electric system.

- Detailed transmission line inspections and routine patrols would be performed in accordance with PG&E's Transmission Owner Maintenance Practices for Electrical Overhead Transmission Lines, in the latest revision, as filed with CAISO. CPUC GO 174 also regulates substation inspection programs for utilities subject to CPUC jurisdiction to promote the safety of workers and the public and enable adequacy of service.
- CAISO Transmission Owner Maintenance Practices for Electrical Substations and NERC Protection and Control Standard Public Resources Code (PRC) -005-2, "Protection System Maintenance" supply applicable guidance for maintenance procedures. Refer to Section 3.5.13 for fire prevention and response procedures.

The following regulations and standards also apply to maintenance:

- NERC Standard FAC-003-4, which establishes vegetation management standards for electric transmission lines;
- California PRC Sections 4292 to 4293 and 4295.5, which address fire hazard reduction for electric lines and establish minimum clearances; and
- PG&E's 2022 Wildfire Mitigation Plan (submitted to CPUC on February 7, 2022), which presents PG&E's plan to mitigate wildfires.

LEU Regulations and Standards

LEU is a municipal utility of the City of Lodi and is not regulated by CPUC; LEU is regulated by the City of Lodi. LEU's substation inspection procedure was developed to be consistent with CPUC GO 174. LEU meets or exceeds the minimum inspection cycles provided in CPUC GO 165 and CPUC GO 95, Rule 18 for its electrical lines.

SYSTEM CONTROLS AND OPERATION STAFF

PG&E Bellota, PG&E Brighton, PG&E Lockeford, PG&E Lodi, and PG&E Rio Oso substations, PG&E Clayton Hill Repeater Station, and 60 kV and 12 kV lines associated with the project are existing facilities, with operations controlled remotely from PG&E's Vacaville Control Center, near Vacaville, California. Monitoring and control functions for the new PG&E Thurman Switching Station facility would be connected to the existing PG&E transmission energy management system by telecommunication circuits. The new PG&E transmission lines, modified PG&E 60 kV lines, and extended PG&E 12 kV secondary station service line would be monitored and protected by sets of relays located at each end of the line. The required constant communication between protective relays at each end would be over redundant communication paths. The relays would also be connected into PG&E's SCADA system. Data collection devices for the SCADA system typically include remote terminal units, microprocessor relays, data concentrators, and fault recorders. The devices would be capable of storing data for download via local or remote access. Any alarms resulting from relay actions would be promptly announced at PG&E's grid control center (GCC) located in Vacaville, California. In the event of an alarm, required corrective actions can be initiated quickly by operators on round-the-clock duty at the GCC. No new full-time staff would be required for the O&M of the PG&E portion of the project.

Monitoring via SCADA of the LEU facilities would be performed from the remote-control room at the City of Lodi's main office, located at 1331 South Ham Lane for LEU Industrial and LEU Guild Substations and the relocated LEU 12 kV feeder line. The new breakers and transformers at LEU Guild Substation would be monitored and controlled through SCADA as well. Breakers would have breaker status, low gas alarm, and open/close control. The transformers would have top oil temperature, load tap changer (LTC) position, alarms, and raise or lower LTC control. The City is properly staffed for the operation and maintenance of this additional substation; no new full-time staff would be required.

INSPECTION PROGRAMS

Regular inspection of electrical lines, stations, instrumentation and controls, and support systems is critical for safe, efficient, and economical operation. Early identification of equipment needing maintenance, repair, or replacement would ensure continued safe operation of the project.

PG&E Transmission, Power, and Service Lines

Aboveground components would be inspected at least annually for corrosion, equipment misalignment, loose fittings, and other common mechanical problems. PG&E routinely inspects electrical line structures and stations to verify stability, structural integrity, and the condition of equipment (for example, fuses, breakers, relays, cutouts, switches, transformers, paint). The current PG&E electrical line inspection process involves three types of inspections: (1) ground inspections, (2) aerial inspections, and (3) climbing inspections if ground inspections indicate a need. The transmission lines would be inspected annually for Western Electricity Coordinating Council (WECC) compliance, with detailed ground and aerial inspections, or as needed when driven by an event, such as an emergency. A helicopter would be used for annual aerial inspections of the new 230 kV lines and would be completed within one workday. For ground and climbing inspections, TSPs are accessed from existing roads or may require off-road travel, either in vehicles or on foot depending on weather and soil conditions, and these inspections are assumed to occur over approximately 15 days with approximately five structures inspected per day. PG&E's 60 kV lines are inspected every 5 years (outside of WECC), and the review of the replaced structures and new spans of PG&E Lockeford-Lodi No. 1 Line (preliminary name) would be conducted within approximately 1 day, as part of an inspection of the full line. Inspections would not require construction of new access roads.

Detailed transmission line inspections and routine patrols would be performed in accordance with PG&E's Transmission Owner Maintenance Practices for Electrical Overhead Transmission Lines, in the latest revision, as filed with CAISO. Typically, there are no O&M inspections conducted on a new transmission line for the first 5 years following the in-service date. After 5 years, inspections typically are performed annually by either vehicle or helicopter. Inspection crews would examine the lines to assess the condition of components, including hardware, insulators, and conductors. Insulators are not washed as part of regular maintenance unless inspections determine this is necessary.

The inspections of reconfigured existing PG&E 60 kV lines would continue per existing procedures with the existing PG&E operation and maintenance staff workforce.

The underground portion of the extended 12 kV secondary service line into PG&E Thurman Switching Station would be inspected every 3 years. The inspection includes a visual evaluation followed by an infrared inspection. The visual inspection looks at the condition of the exterior and interior of the underground equipment, cable, and any splices and elbows within the primary enclosure. The infrared assessment uses an infrared camera to gather temperature values of the cable and connections and analyze any temperature differential to inform about operation and potential maintenance of defective or damaged line components.

PG&E Substations, Switching Station, and Repeater Station

Routine inspections and preventive maintenance by substation personnel occur regularly, in accordance with PG&E's CAISO Transmission Owner Maintenance Practices for Electrical Substations and NERC PRC-005-2, "Protection System Maintenance," latest revision, or as needed under emergency conditions or for corrective maintenance. In addition, PG&E manages an ongoing inventory of critical spare parts for transmission substation equipment, in case of emergencies.

PG&E substation and switching station systems have single-day monthly visual inspections and detailed annual and 5-year inspections. Station component or system inspections may be scheduled every 2–8 years for a given station component or system. Conservatively, yearly inspections are estimated to occur for approximately 24 workdays to accommodate potential inspections and maintenance that may occur in a given year. Typical minor maintenance tasks at stations include repair and replacement of transformers, switches, fuses, cutouts, meters, and insulators. Work typically is confined to the substation property and uses existing access, with the worker arriving in a light-duty truck. If insulator washing is required, a pumper tanker with pressure washing equipment would be used. Current ongoing routine O&M activities are sufficient for the existing PG&E substation facilities modified or expanded by the project and the new PG&E Thurman Switching Station.

LEU Facilities

The City of Lodi's substation inspection procedure is to visually inspect each substation at least once per calendar month. The activity includes inspecting all major equipment and structures, as well as the overall condition of the yard, including perimeter fences and gates. Equipment inspections include substation batteries, fire detection and suppressions systems, structures, buses, breakers, grounding systems, voltage regulators, and transformers. Approximately 4 hours of additional truck use per month is estimated for inspection and maintenance of the LEU portion of the project. LEU Guild Substation's maintenance trip is expected to be planned in conjunction with LEU Industrial Substation's existing maintenance trip schedule. LEU meets or exceeds the minimum inspection cycles provided in CPUC GO 165 and CPUC GO 95, Rule 18. A detailed inspection would occur at least every 5 years on the underground portion of the relocated 12 kV feeder line, and existing LEU utility staff would conduct the inspection as part of the review of the other portions of the feeder line.

MAINTENANCE PROGRAMS

Maintenance programs would continue for existing facilities and be implemented for new facilities by PG&E and LEU using existing maintenance programs to avoid service interruptions and outages. In addition to regular maintenance, facilities are sometimes damaged by storms, floods, vandalism, or accidents; these situations require immediate repair. Emergency repair operations would involve the prompt deployment of PG&E or LEU crews and necessary equipment to repair and replace damaged facilities.

No permanent access roads (other than interior station access) would be installed as part of the project. In coordination with landowners where PG&E has permanent access rights, PG&E may perform maintenance on existing access roads to allow safe access to its facilities. Depending on the type of road maintenance required, equipment could include a front loader, pickup trucks with trailers, a dump truck, or other similar equipment or vehicles. PG&E or LEU facilities would not be color treated, and no landscaping is planned; no color maintenance or landscaping maintenance would be required.

PG&E FACILITIES

Routine maintenance would be performed by PG&E to correct conditions identified during inspections of new and modified transmission, power, and service lines; substations; switching station and repeater station; or other situations requiring immediate repair. If the facilities are in operation beyond the estimated 75-year life span, PG&E would comply with applicable utility procedures, standards, and regulatory requirements at that time.

Typical maintenance procedures include insulator washing and replacement, repair and replacement of substation components, outage repairs, electrical line repair, replacement and reconductoring.

Insulator Washing and Replacement

Conductive airborne particles and bird droppings that settle on ceramic insulators can provide a path across the insulators, causing contamination-induced electric faults. Insulators are washed periodically to prevent faults using a truck- or trailer-mounted spray system or a helicopter. A pumper truck (3,000-gallon volume) or a helicopter (1,500-2,000-gallon volume) would be used to clean insulators that required washing. Approximately 45,000 gallons of water would be required for the washing. Washing typically is done during energized conditions (that is, while the power lines are operating). Distilled water is used to wash the insulators; dry washing with ground corn hulls is also used.

PG&E replaces insulators when they have been damaged by gunshot, lightning, or heavy corrosion or when they no longer can be washed. Insulators can be replaced while energized or de-energized, depending on access, loading, and safety. Replacement typically takes a four- to six-person crew with a small truck for hauling crew members, tools, and materials. If access is limited, a helicopter may be used to land crew members and tools. Insulators are washed or replaced approximately every 5 years unless inspections identify washing is needed prior to that period.

Substation Maintenance

Typical minor maintenance tasks at substations include repair and replacement of transformers, switches, fuses, cutouts, meters, and insulators. Maintenance of substation systems requires this type of work approximately once per year. Monthly maintenance may occur based on monthly inspection observations. Work typically is confined to the substation property.

Outage Repairs

Activities involving outage repair are necessary to maintain reliable service and ensure public safety. Weather, equipment failure, accidents, fire, or bird electrocution are typical causes of outages. When an outage is reported, PG&E patrols the line until personnel determine the cause of the outage. Access is primarily on existing roads, although some overland access with small trucks or SUVs may be needed. Depending on the cause of the outage, repair may entail anything from reclosing a switch to replacing a transformer or pole. Crews repair and restore circuits as quickly as possible.

Line Repair, Replacement, and Reconductoring

PG&E repairs or replaces pole (for example, crossarms, insulators, pins, transformers, wires, cables, guys, anchors, switches, fuses, and paint) and underground line equipment (for example, elbows, terminations, joints, and splices) when it fails, becomes unsafe, outlasts its usefulness, or is identified for replacement. Repair and replacement of line equipment typically are performed with the pole and line in place, using a line truck for access to line components.

Microwave Tower, Repeater Station/Antenna Maintenance

PG&E repairs or replaces communication structures and attachments when they fail, become unsafe, outlast their usefulness, or are identified for replacement. The drum-type antennas expected to be installed on the microwave towers for this project have a dehydrator component, which has a filter that is replaced annually. Annual filter replacement would use a line truck to access the facility.

Vegetation Management

Electrical Lines

PG&E performs routine vegetation management on all of its overhead electric distribution, power, and transmission facilities to maintain compliance with PRC Section 4293, CPUC GO 95, Rule 35, and NERC FAC-003-4. The clearance regulations identify, by voltage, minimum clearance distances that PG&E must maintain between vegetation and energized conductors. Routine vegetation management includes an annual patrol of vegetation growing near overhead distribution, power, and transmission facilities. It also includes pruning or removal of trees that would not remain outside of required clearance distances or that may pose a hazard to electric facilities before the next year's patrol. When appropriate and considering tree species, growth rates, site conditions, landowner notification, and appropriate permits, PG&E removes trees growing below overhead electrical line facilities while conducting routine maintenance activities. Trees are cut off at ground level, with the roots and stumps left in place. Vegetation management involves cutting vegetation with string trimmers or chainsaws. The work is scheduled throughout the year, and the work type depends on the plant material to be removed.

Station Facilities

PG&E conducts vegetation management inside and outside of station facilities as required to meet CPUC regulations, reduce and eliminate fire hazards, enhance security for fenced facilities, enhance aesthetics, and reduce potential for illegal dumping and homeless encampments. Activities on PG&E lands to control vegetation external to stations may include mowing grass and weeds. Treatments include pruning or removing vegetation on the immediate perimeter of a fenced facility (usually within approximately 3–5 feet of the fence, or farther in the case of hazard trees or other fire hazards). Workers may use tractors, flail mowers, or string trimmers for mowing and discing operations. Tree service crews use chainsaws to manually prune or remove hazard trees and to cut brush. Herbicides may be applied, when appropriate, by use of vehicle-mounted spray equipment on tractors, all-terrain vehicles, and pickups, or manually applied by backpack sprayer. Herbicide applications on special projects are prescribed by a California Licensed Pest Control Adviser and may include pre-emergent, directed post-emergent, and cut-stump treatments.

LEU FACILITIES

Typical LEU substation maintenance includes bushing cleaning and replacement and transformer oil testing. The substation yards and LEU Guild Substation access road would be rerocked as necessary. The City of Lodi's maintenance procedure is to replace equipment in kind at the end of equipment life spans. All equipment would be scraped and removed at approved vendor locations. LEU maintenance of its electrical lines is consistent with CPUC GO 165.

Vegetation Management

Electrical Lines

This project does not include new LEU electrical line facilities that are aboveground or outside of substations; therefore, no line vegetation management is required by LEU.

Station Facilities

Existing vegetation management within LEU Industrial Substation includes weeding as necessary, and rerocking areas with compacted gravel base to suppress vegetation growth within the station fence lines. Weeding and rerocking areas as needed would continue within the modified LEU Industrial Substation and would occur within the new LEU Guild Substation. Existing vegetation management surrounding LEU Industrial Substation, typically mowing, would continue on the remaining portions of City of Lodi land outside LEU Industrial and LEU Guild substations along East Thurman Road.

2.6.13 Land Ownership, Rights-of-Way, and Easements

LAND OWNERSHIP

Project work at PG&E Lockeford, Rio Oso, Bellota, Brighton, and Lodi Substations; PG&E Clayton Hill Repeater Station; and the terminal structure of PG&E Rio Oso–Lockeford/Lockeford-Bellota 230 kV Transmission Lines would occur within the existing station properties, which are owned in fee by PG&E. Work at LEU Industrial and Guild Substations would occur on City of Lodi properties (APNs 04931008 and 04931009). The new LEU Guild Substation would be located immediately adjacent to and east of the existing LEU Industrial Substation. The new LEU Guild Substation would occupy approximately 3.25 acres on portions of APNs 04931008 and 04931009. The LEU Guild-Industrial 60 kV Line would be on APN 04931008. The new PG&E and LEU Thurman-Guild 230 kV Transmission Lines would be on APN 04931009 with either end within property owned in fee by PG&E or the City of Lodi, respectively. The construction of the new PG&E Thurman Switching Station would require fee acquisition by PG&E of approximately 6.00 acres (APN 04931009) from the City of Lodi.

EXISTING ROWS OR EASEMENTS

PG&E's and LEU's existing electric lines have existing utility easements or are in franchise when not connecting to stations on property owned in fee. PG&E's three 60 kV lines currently connecting into LEU Industrial Substation are located within franchise or existing utility easements. LEU Industrial Substation's existing 12 kV feeder line would use an existing land rights agreement between LEU and its customer when the line is relocated to an underground configuration on its customer's property. Table 2-13 shows existing ROWs and easements for the project.

Table 2-13 Existing ROWs and Easements for Project Components

Location | Project Component	APN	Approximate Easement Dimensions	Project Action
PG&E facility in County franchise PG&E Lockeford-Industrial pole 10	franchise	25-foot width	Replace in franchise
PG&E railroad encroachment permit PG&E Lockeford-Industrial pole 9 and spans between pole 10, pole 9, and pole 8	04931043	40-foot width	Remove PG&E 60 kV pole and spans; obtain new/modified permit for PG&E 230 kV line in 60 kV ROW
PG&E easements and railroad encroachment permit PG&E Lockeford-Industrial 60 kV Line pole 8, pole 7, pole 6, pole 5, pole 4 and adjacent spans	04931003 04931004 04931011	40-foot width	Remove PG&E 60 kV poles and spans; modify as needed for new PG&E 230 kV line in 60 kV ROW
PG&E railroad encroachment permit PG&E Lodi-Industrial (pole 1 to pole 2) and PG&E Industrial Tap (pole1 to pole 2)	04931003	40-foot width	Remove PG&E poles and spans into LEU Industrial Substation. Railroad crossing permit no longer needed.
PG&E facilities in City franchise PG&E Lodi-Industrial (pole 2 to stub pole), PG&E Industrial Tap (pole 2 to stub pole) and stub pole on East Lodi Avenue	franchise	25-foot width	Remove PG&E spans and guy stub on north side of East Lodi Avenue
PG&E facilities in City franchise PG&E Lockeford-Lodi No. 1 60 kV Line: new span, west	franchise	25-foot width	Install new span between PG&E Lodi-Industrial pole 2 and PG&E Industrial Tap pole 2
PG&E railroad encroachment permit PG&E Industrial Tap 60 kV Line: north-south alignment	04912309 04909021	35-foot	New railroad encroachment permit to allow upgrades and work on railroad property.
PG&E Caltrans encroachment permit PG&E Industrial Tap 60 kV Line crossing of SR 12 / East Victor Road between pole 22 and pole 21	Caltrans	25-foot width	Existing Caltrans permit for SR Hwy 12 crossing – new Caltrans permit expected for new horizontal guy and down guys on existing poles.
PG&E railroad encroachment permit PG&E distribution pole immediately south of SR 12 / East Victor Road	04932016	35-foot	New railroad encroachment permit to allow upgrades to distribution pole and new down guy and work on railroad property.
Joint pole agreement use on PG&E poles LEU 12 kV feeder line	04931003 04931004 04931011	NA	Existing LEU line underbuild would be removed from PG&E Lockeford-Industrial poles.

Notes: NA = not applicable.

Source: PG&E 2023.

NEW OR MODIFIED RIGHTS OF WAY OR EASEMENTS

The project requires an estimated approximately 10.6 miles of new ROW for construction, maintenance, and operation of the new PG&E transmission line segments outside of stations or existing ROW. The 230 kV ROW for the new PG&E Brighton-Lockeford and Lockeford-Bellota No. 2 Lines would be approximately 110 feet wide. The 230 kV ROW for the new PG&E Lockeford-Thurman No. 1 and No. 2 Lines would be approximately 115 feet wide. An approximately 110-foot-wide ROW would be required by PG&E where the new transmission line segments cross over 115 kV lines or where the new transmission line requires longer-than-normal span lengths. A wider width is not needed where the line crosses 60 kV or distribution lines. At public roadway crossings, the new transmission line would use PG&E franchise agreements with the appropriate local jurisdiction. PG&E would obtain a Caltrans encroachment permit for the transmission line where it crosses SR 88. PG&E's existing Caltrans encroachment permit for PG&E Industrial Tap Line across SR 12/East Victor Road would be modified with the power line span removal and the installation of an aboveground guy wire span. PG&E would obtain encroachment permits for the transmission line where it crosses CVFPB regulated streams and federal levees.

PG&E would modify or obtain new CCT Company/UPRR encroachment permits associated with APN 04931043 and APN 04931004 for the new PG&E Lockeford-Thurman Line. A railroad encroachment permit would be obtained at the western end of East Sargent Road where the new PG&E 60 kV span between PG&E Lockeford-Industrial Line and PG&E Industrial Tap Line (part of the PG&E Lockeford-Lodi No. 1 Line) would cross the railroad tracks aboveground. PG&E would extend an existing 12 kV line underground to the new PG&E Thurman Switching Station to provide secondary permanent service. The line is in franchise now along South Guild Avenue, and the extension would occur within franchise to PG&E Thurman Switching Station. A new or modified City encroachment permit would be obtained by PG&E. A railroad encroachment permit would be obtained from CCT Company/UPRR where the PG&E service line would be extended (using a trenchless method) within South Guild Avenue where it bisects APN 04931004 (railroad parcel).

The City of Lodi would grant an easement to PG&E for access to LEU Guild Substation's metering enclosure inside the LEU Guild Substation yard via the substation's main access road off South Guild Avenue. This LEU access road is approximately 60 feet wide by approximately 800 feet long.

PG&E's existing utility easements for the PG&E Rio Oso–Lockeford/Lockeford-Bellota Transmission Line may be modified to accommodate the new PG&E Brighton-Bellota Loop where feasible. If existing easements cannot be modified to include the new line, new utility easements would be obtained. Table 2-14 shows the new or modified ROWs and easements for the project.

Table 2-14 New or Modified ROWs and Easements for Project Components

Project Component	APN	Approximate Easement Dimensions	Project Action
New PG&E railroad encroachment permit PG&E Lockeford-Lodi No. 1 60 kV Line: new span, east	04909021	40 feet potentially	Connect PG&E Lockeford-Industrial pole 10 and PG&E Industrial Tap pole 13 at the west end of East Sargent Road
New PG&E railroad encroachment permit PG&E Thurman Switching Station 12 kV secondary service: South Guild Avenue	04931004	25 feet potentially	Extend PG&E 12 kV existing line within South Guild Avenue franchise and cross under railroad tracks to PG&E Thurman Switching Station
PG&E Rio Oso–Lockeford/Lockeford-Bellota (No. 1) Transmission Line	TBD and 05126011 05126013 05126032	Potentially up to 110 feet by 3.8 miles	Modify existing easement for westernmost structure relocation and also where new and existing transmission lines are located on common parcel
PG&E Brighton-Bellota Loop (Brighton-Lockeford and Lockeford-Bellota No. 2 Lines)	TBD	110 feet by parcel length	New easement for new 230 kV transmission line
PG&E Thurman-Lockeford Line	TBD	115 feet by parcel length	New easement for new 230 kV transmission line
PG&E 12 kV service line extension to PG&E Thurman Switching Station	NA	25 feet	Use franchise rights in South Guild Avenue (City encroachment) to extend line

Notes: TBD = to be determined; NA = not applicable. No relocation or demolition of commercial or residential property/structures is anticipated.

Source: PG&E 2023.

2.6.14 Electric and Magnetic Fields

Section X(A) of CPUC's General Order (GO) 131-D, CPUC Decision No. D.06-01-042 (EMF Decision) and PG&E's EMF Design Guidelines prepared in accordance with the EMF Decision require PG&E to prepare a Field Management Plan that indicates the no-cost and low-cost electromagnetic field (EMF) measures that would be installed as part of the final engineering design for the project. PG&E prepared a Preliminary Transmission EMF Management Plan and Substation Checklist (Preliminary Field Management Plan), which it submitted to CPUC as Appendix G to its application. The Preliminary Field Management Plan evaluates the no-cost and low-cost measures considered for the

project, the measures proposed for adoption, and reasons that certain measures were not proposed for adoption. The Preliminary Field Management Plan identifies the following design measures to reduce public exposure to EMFs.

- **Optimal Conductor Phasing.** The new 230 kV loop and new 230 kV line are configured with optimal phasing to minimize EMF at the ROW boundary.
- **Raising Tower Height.** PG&E will raise the height of 15 towers for the new 230 kV lines by 10 feet to reduce EMF near residences along the proposed route.
- **Substation Design Considerations.** PG&E will keep high current devices, transformers, capacitors, and reactors away from the substation and switching station property lines.

If the project is approved, PG&E will revise and finalize the Preliminary Field Management Plan as needed to incorporate design or routing changes that are incorporated into the final approved project, if any.

2.7 INTENDED USES OF THIS EIR

As required by CEQA Guidelines Section 15124(d), this section describes the intended uses of the EIR. CPUC is the lead agency under CEQA with primary authority for whether to approve the proposed project and issue a Certificate of Public Convenience and Necessity (CPCN) to PG&E in accordance with CPUC's GO 131-D, Section III.A, which contains CPUC's permitting requirements for the construction of transmission and power line facilities. Before deciding whether to issue a CPCN for the proposed project, CPUC (as lead agency) is required to certify that the EIR has been completed in compliance with CEQA, that the decision maker has reviewed and considered the information in the EIR, and that the EIR reflects the independent judgment of the lead agency.

LEU is a publicly owned municipal utility operated by the City of Lodi and is not regulated by CPUC; LEU does not need authorization from CPUC to construct and operate its components of the project. However, because the PG&E components and the LEU components are intended to be constructed together and are interconnected, the actions by both constitute the "whole of the action" for purposes of CEQA review. As a public agency, the City of Lodi must comply with CEQA, and is considered a responsible agency under CEQA. In this role, the City of Lodi intends to rely on this EIR prepared by CPUC to comply with CEQA before making any discretionary approvals related to its construction of LEU's new proposed 230/60 kV substation and related proposed work on LEU's 60 kV system.

2.7.1 Anticipated Permits and Approvals

Federal, state, regional, and local permits that may be required for construction, operation, and maintenance of the proposed project are identified in this section. Those that are applicable to the PG&E portion of the project are included in Table 2-15. Those applicable to the LEU portion of the project are discussed in the sections following the table.

Table 2-15 Permits and Approvals That May Be Required for PG&E's Portion of the Project

Permit/Authorization | Status	Agency | Contact	Purpose
Federal		
FAA 14 CFR Part 77 Notifications Issued: 04/26/2022	Federal Aviation Administration Daniel Shoemaker Mail Processing Center Federal Aviation Administration Southwest Regional Office Obstruction Evaluation Group 10101 Hillwood Parkway Fort Worth, TX 76177	Notification for objects affecting navigable airspace

Permit/Authorization | Status	Agency | Contact	Purpose
State		
Certificate of Public Convenience and Necessity Application Submitted: August 2023	CPUC Boris Sanchez California Public Utilities Commission CEQA and Energy Permitting Unit, CEQA and FERC Branch, Energy Division 505 Van Ness Avenue San Francisco, CA 94102	Overall project approval, CEQA review, and issuance of a CPCN
National Pollutant Discharge Elimination System—General Construction Stormwater Permit (ministerial) PG&E would apply after CPCN issued	Regional Water Quality Control Board Regional Board: 5S / Central Valley 11020 Sun Center Drive, #200 Rancho Cordova, CA 95670-6114	Stormwater discharges associated with construction activities disturbing more than 1 acre of land
Encroachment Permit PG&E would apply after CPCN issued	Caltrans Francisco J. Rodriguez, P.E. District Permit Engineer District 10 Encroachment Permits	Electrical line installation over SR 88 and over SR 12
Encroachment Permit Section 408 Review PG&E would apply after CPCN issued	Central Valley Flood Protection Board Steve Lamb, PE Permitting Section Chief Central Valley Flood Protection Board	Electrical line installation over federal levee (Bear Creek), 2 crossings
Regional		
Dust Control Plan (Rule 3135) PG&E would apply after CPCN issued	San Joaquin Valley Air Pollution Control District Central Region Office 1990 E. Gettysburg Avenue Fresno, CA 93726-0244	Projects in which construction-related activities would disturb 5 or more acres of surface area
Demolition Permit Release Form PG&E would apply after CPCN issued	San Joaquin Valley Air Pollution Control District Central Region Office 1990 E. Gettysburg Avenue Fresno, CA 93726-0244	Review of asbestos survey for demolition of PG&E Rio Oso-Lockeford lattice steel tower.
Indirect Source Review (ISR) (Rule 9510) Air Impact Assessment PG&E would apply after CPCN issued	San Joaquin Valley Air Pollution Control District Central Region Office 1990 E. Gettysburg Avenue Fresno, CA 93726-0244	Reduce construction emissions of nitrogen oxides (NOx) and particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10})
Local		
Encroachment Permit (ministerial) with Traffic Control Plan as indicated; PG&E would apply after CPCN issued	San Joaquin County/City of Lodi San Joaquin County Public Works Department 1810 East Hazelton Avenue Stockton, CA 95205 City of Lodi Public Works Department 221 W Pine Street Lodi, CA 95240	Electrical line installation over/along/within county or city roads
Grading Permit (ministerial) PG&E would apply after CPCN issued	San Joaquin County Community Development Department 1810 East Hazelton Avenue Stockton, CA 95205	Grading for expansion of Lockeford Substation

Permit/Authorization | Status	Agency | Contact	Purpose
Building Permit (ministerial) PG&E would apply after CPCN issued	San Joaquin County/City of Lodi | San Joaquin County Community Development Department 1810 East Hazelton Avenue Stockton, CA 95205 City of Lodi Community Development Department 221 W Pine Street Lodi, CA 95240	Construction of substations
Railroad Permit PG&E would apply after CPCN issued	Union Pacific Railroad Thomas Leddy Utilities/Drainage/Right of Entry San Joaquin County (402) 544-8571	Conductor crossing of railroad (three crossings)
Flagging Agreement PG&E would seek agreement after CPCN issued	Central California Traction Company 2201 W. Washington Road Suite #12 Stockton, CA. 95203 (209) 466-6927	Conductor crossing of railroad (three crossings)

Source: PG&E 2023.

After the CPCN is issued, LEU would seek permit approval from City of Lodi's Public Works Department and Community Development Department located at 221 W Pine Street. The following permits are expected to be issued by the City of Lodi for LEU's portion of the project, which includes construction at LEU Industrial and LEU Guild Substations and the 12 kV feeder line modifications:

- National Pollutant Discharge Elimination System Stormwater Construction Permit
- Traffic Control Permit
- Grading Permit
- Building Permit (for control, battery and metering enclosures, and station fence)

2.8 APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant-proposed measures (APMs) that are incorporated into PG&E's components of the proposed project. These measures are considered binding descriptions of project design and implementation that are integral to the project. Similarly, LEU, and recognizing that LEU is not an "applicant" in this proceeding before CPUC, has developed best management practices (BMPs) that would apply to the LEU components of the proposed project. Table 2-16 lists all APMs and BMPs that are incorporated into the project description. Only those APMs and BMPs that address physical adverse effects on the environment are considered in the resource evaluations throughout Chapter 3 of this EIR.

Table 2-16 Summary Table for Applicant-Proposed Measures and Best Management Practices

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
Aesthetics (AES)
APM AES-1: Aesthetics Impact Reduction During PG&E Construction. All PG&E project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from the public view where possible. Where this is unavoidable, construction sites, staging areas, and fly yards will be visually screened using temporary screening fencing. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas will be returned to pre-project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.
BMP AES-1: Aesthetics Impact Reduction During LEU Construction. All LEU project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from the public view where possible. Where this is unavoidable, construction sites, staging areas, and fly yards will be visually screened using temporary screening fencing. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas will be returned to pre-project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.
APM AES-2: Use of Dulled Galvanized Finish on PG&E Tubular Steel Poles and PG&E Non-Specular Conductors. Use of a factory-dulled galvanized finish on new PG&E TSPs and PG&E non-specular (nonreflective) conductors would reduce the potential for a new source of glare and visual contrast resulting from the PG&E TSPs and conductors.
APM AES-3: PG&E Poles near residences. To reduce potential visibility of PG&E Structure W13 as seen from the residence located within approximately 250 feet, where relatively unobstructed views of the project are seen and the new PG&E structure appears prominent, APM AES-3a and/or 3b will be implemented.
APM AES-3a: PG&E will consult with residential property owner regarding placement of PG&E Structure W13 to reduce its visibility with respect to the residential view.
APM AES-3b: PG&E will consult with residential property owner regarding PG&E's potential purchase of several trees and large shrubs for installation at key locations on residential property to provide visual screening. The selected plant material will be ecologically appropriate to the local landscape setting (in terms of water usage, horticultural and soil requirements, and so on) and will be compatible with PG&E and CPUC requirements for landscaping in proximity to power facilities. After planting, the maintenance of the plants will be the responsibility of the property owner.
Agriculture and Forestry Resources (AGR)
APM AGR-1: Minimize Impacts on Active Agricultural Areas. ▶ Prior to construction, PG&E will provide written notice to landowners outlining construction activities, preliminary schedule, and timing of restoration efforts. ▶ PG&E will coordinate with landowners to minimize construction-related disruptions to seasonal farming operations. To the extent reasonably feasible, PG&E will schedule construction activities to minimize disruptions to harvesting, planting, and crop maintenance activities, such as fertilizer application and crop dusting. ▶ PG&E will establish temporary overland access routes and work areas to minimize disruptions to agricultural infrastructure (including irrigation lines, wells, pumps, ditches, and drains) to the greatest extent reasonably feasible. If necessary, and upon agreement between PG&E and the landowners, agricultural infrastructure will be protected with temporary materials (for example, steel plates, blankets) to prevent inadvertent damage during construction. Where feasible, overland routes within orchards and vineyards will be aligned with the planting layout or otherwise to minimize tree and vine removal. ▶ If trees or other crops cannot be avoided by PG&E as specified previously, impacts will be limited to the minimum necessary to construct the project, and PG&E will provide the agricultural owner with fair market compensation for crops removed, crops unable to be harvested, lost planting cycles, and any damaged infrastructure. ▶ PG&E will restore agricultural land temporarily impacted by construction to pre-project conditions following completion of construction, including areas impacted by establishment of temporary staging, laydown and storage areas, overland access, guard structures, and pull sites. If grading occurs in actively planted agricultural areas, topsoil will be stockpiled and used to backfill excavations to pre-existing grade when construction is complete. Restoration of sites will involve removing any rock or material imported to stabilize the site, replacing topsoil, decompacting any soil that has been compacted by heavy equipment, and replanting agricultural crops. The responsibility of performing these various tasks may be stipulated in an agreement between PG&E and the landowner. If a landowner is better equipped or prefers to replant crops or perform other tasks themselves, then PG&E will provide just compensation for this work.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices

Air Quality (AIR)

APM AIR-1: PG&E Dust Control During Construction.

- PG&E will implement measures to control fugitive dust in compliance with the San Joaquin Valley Air Pollution Control District (SJVAPCD) standards. Dust control measures will include the following at a minimum:
- All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
- The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.
- Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- All vehicle speeds will be limited to 15 miles per hour or less on unpaved areas.
- Implement dust monitoring in compliance with the standards of the local air district.
- Halt construction during any periods when wind speeds are in excess of 50 mph.

BMP AIR-1: LEU Dust Control During Construction

- LEU will implement measures to control fugitive dust in compliance with SJVAPCD standards. Dust control measures will include the following at a minimum:
- All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
- The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.
- Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- All vehicle speeds will be limited to 15 miles per hour or less on unpaved areas.
- Implement dust monitoring in compliance with the standards of the local air district.
- Halt construction during any periods when wind speeds are in excess of 50 mph.

Biological Resources (BIO or PG&E SJVHCP AMM)

APM BIO-1: Develop and implement a PG&E Worker Environmental Awareness Program. A PG&E biologist familiar with resources in the area and with delivering Worker Environmental Awareness Programs will conduct an environmental awareness program for all onsite construction personnel before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers will be informed of the presence, life history, and habitat requirements of all special-status species that may be affected by the PG&E portion of the project, and about state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. Color photos of special-status species will be included, as well as a discussion of relevant APMs and specific avoidance or minimization measures for special-status species and habitats. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
BMP BIO-1: Develop and implement an LEU Worker Environmental Awareness Program. A biologist for the LEU portion of the project who is familiar with resources in the area and with delivering Worker Environmental Awareness Programs will conduct an environmental awareness program for all onsite construction personnel before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers will be informed of the presence, life history, and habitat requirements of all special-status species that may be affected by the LEU portion of the project, and about state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. Color photos of special-status species will be included, as well as a discussion of relevant best practices and specific avoidance or minimization measures for special-status species and habitats. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to the City of Lodi.
APM BIO-2: Avoid and protect nesting birds from PG&E impact. If construction is to occur during the avian nesting season (March 1 through August 15), a preconstruction migratory bird and raptor nesting survey will be performed by a PG&E biologist who is familiar with local avian species and nesting birds. Surveys will occur only in publicly accessible areas and areas where PG&E has existing access; private property will not be accessed and will instead be observed from adjacent accessible areas. Preconstruction nesting bird surveys will be performed in accordance with PG&E's Nesting Bird Management Plan. The preconstruction survey will cover a radius of 200 feet for nonlisted raptors and 100 feet for nonlisted passerines from project locations that will be actively worked at in the near term. Surveys for Swainson's hawk will cover a 0.25-mile radius from the project footprint. The survey will cover all affected areas where ground disturbance or vegetation clearing is required in the near term. Subsequent surveys will be conducted in advance of other project locations becoming active. If any active nests containing eggs or young are found, an appropriate nest exclusion zone will be established by the PG&E biologist in accordance with PG&E's Nesting Bird Management Plan. No heavy equipment will be operated in this exclusion zone until the biologist has determined that the nest is no longer active and the young have fledged. If it is not practicable to avoid work in an exclusion zone around an active nest, work activities will be modified to minimize disturbance of nesting birds but may proceed in these zones at the discretion of the biologist. As appropriate, the biologist will monitor work activities in these zones daily or periodically when construction is occurring and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance. If work cannot proceed without disturbing the nesting birds, or signs of disturbance are observed by the monitor, work may need to be halted or redirected to other areas until the nesting and fledging is completed or the nest has otherwise failed for reasons not related to construction.
BMP BIO-2: Avoid and protect nesting birds from LEU impact. If construction is to occur during the avian nesting season (March 1 through August 15), a preconstruction migratory bird and raptor nesting survey will be performed by a biologist for the LEU portion of the project who is familiar with local avian species and nesting birds. Surveys will occur only in publicly accessible areas and areas where LEU has existing access; private property will not be accessed and will instead be observed from adjacent accessible areas. The preconstruction survey will cover a radius of 200 feet for nonlisted raptors and 100 feet for nonlisted passerines from project locations that will be actively worked at in the near term. Surveys for Swainson's hawk will cover a 0.25-mile radius from the LEU project footprint. The survey will cover all affected areas where ground disturbance or vegetation clearing is required in the near term. Subsequent surveys will be conducted in advance of other project locations becoming active. If any active nests containing eggs or young are found, an appropriate nest exclusion zone will be established by the biologist. No heavy equipment will be operated in this exclusion zone until the biologist has determined that the nest is no longer active and the young have fledged. If it is not practicable to avoid work in an exclusion zone around an active nest, work activities will be modified to minimize disturbance of nesting birds but may proceed in these zones at the discretion of the biologist. As appropriate, the biologist will monitor work activities in these zones daily or periodically when construction is occurring and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance. If work cannot proceed without disturbing the nesting birds, or signs of disturbance are observed by the monitor, work may need to be halted or redirected to other areas until the nesting and fledging is completed or the nest has otherwise failed for reasons not related to construction.
APM BIO-3: Identify and mark sensitive biological resource areas near PG&E portion of the project. Sensitive biological resources (for example, aquatic resources and nesting birds) in or adjacent to PG&E construction work areas identified during the preconstruction surveys will be clearly marked in the field and on project maps as appropriate. Such areas will be avoided during construction to the greatest extent feasible.
BMP BIO-3: Identify and mark sensitive biological resource areas near LEU portion of the project. Sensitive biological resources (for example, nesting birds) in or adjacent to LEU construction work areas identified during the preconstruction surveys will be clearly marked in the field and on project maps as appropriate. Such areas will be avoided during construction to the greatest extent feasible.
APM BIO-4: Install exclusion fencing near PG&E portion of the project. At the discretion of the PG&E biologist, prior to any ground-disturbing work in proximity to suitable habitat for special-status species or adjacent to wetlands or waters, exclusion fence will be installed around PG&E workspaces as appropriate. Exclusion fencing will be routinely inspected during project activities and any damage, such as holes or gaps, will be promptly repaired.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
BMP BIO-4: Install exclusion fencing near LEU portion of the project. At the discretion of the LEU biologist, prior to any ground-disturbing work in proximity to suitable habitat for special-status species, exclusion fence will be installed around LEU workspaces as appropriate. Exclusion fencing will be routinely inspected during project activities and any damage, such as holes or gaps, will be promptly repaired.
APM BIO-5: Allow biological monitor onsite during PG&E construction activities in sensitive biological resource areas. At the discretion of the PG&E biologist, a qualified biologist will be onsite during construction activities in sensitive biological resource areas identified in APM BIO-4 unless the area has been protected by barrier fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the PG&E biologist. The qualified biologist will ensure implementation and compliance with all avoidance and mitigation measures and have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.
BMP BIO-5: Allow biological monitor onsite during LEU construction activities in sensitive biological resource areas. At the discretion of the biologist for the LEU portion of project, a qualified biologist will be onsite during construction activities in sensitive biological resource areas identified in BMP BIO-4 unless the area has been protected by barrier fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the biologist for the LEU portion of project. The qualified biologist will ensure implementation and compliance with all avoidance and mitigation measures and have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.
APM BIO-6: Avoid and protect special-status amphibians from PG&E impact. During wet weather or the rainy season, all open holes, pits, and trenches at PG&E work areas will be protected to ensure that wildlife does not become entrapped. Protective fencing, coverings, or ramps will be installed to either prevent wildlife from falling into excavations or to allow for escape if they do. At the end of each workday, steep-walled holes or trenches more than approximately 6 inches deep will be covered or provided with one or more escape ramps and/or fenced. Open excavations will be inspected, prior to the start of construction activities, to ensure that no wildlife is trapped. Construction personnel also will check underneath vehicles and within materials to be moved (that is, tires, tracks, pipes) for the presence of frogs when parked or placed near suitable aquatic or upland dispersal habitat.
APM BIO-7: Implement general protection measures for wetlands and other waters near PG&E portion of the project. PG&E will implement the following general measures to minimize or avoid impacts on wetlands and other waters: ▶ Avoid wetlands and other waters during construction activities. ▶ Do not refuel vehicles within approximately 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed. ▶ Implement an SWPPP to minimize construction-related erosion and sediments from entering nearby waterways (refer to APM HYD-1).
APM BIO-8: Implement general resource protection measures for PG&E portion of the project. This APM consists of the following components: ▶ Hazardous materials spills. Emergency spill response and cleanup kits will be readily available for immediate containment and cleanup of an accidental spill. Construction crews will be trained in safe handling of hazardous materials and cleanup responsibilities. Any inadvertent spills into aquatic habitat will be reported to the applicable resource agencies within 24 hours. ▶ Reporting and communication. The PG&E biologist will be responsible for immediately reporting any capture and relocation, or inadvertent harm, entrapment, or death, of a federally or state-listed species under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA) to the applicable resource agencies. ▶ Restoring temporarily disturbed habitats. All habitat areas for special-status species that are temporarily disturbed as a result of project activities will be restored upon completion of construction. Disturbed areas will be restored and revegetated in coordination with landowners. Many areas are actively cultivated or grazed and landowners may request replanting of similar crops or plant species as existed previously. These may not necessarily be native plant species. For PG&E-owned parcels, revegetation would be accomplished through application of a habitat-appropriate native seed mix. Restoration is anticipated to be completed within approximately 6 to 9 months after the project, depending on landowner requests and the season in which disturbance activities and subsequent restoration activities will take place. ▶ Erosion control materials. Only tightly woven netting or similar material will be used for all geosynthetic erosion control materials such as coir rolls and geotextiles. No plastic monofilament matting will be used. Sod may be used when restoring landscaped areas. ▶ Minimizing grading and vegetation removal along access roads and construction work areas. PG&E will only trim, clear, or remove vegetation as necessary to establish the access routes and allow equipment use. Trees will be directionally felled away from sensitive biological resource areas and, if that is not possible, they will be removed in sections. Damage to adjacent trees will be avoided to the greatest extent possible. ▶ Weed management. Vehicles and construction equipment will be cleaned of mud and dirt as needed to minimize transport of weed plant parts or seed. Vehicles also will be cleaned at the completion of the project or when off-road use for that vehicle has been completed.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
BMP BIO-8: Implement general resource protection measures for LEU portion of the project. This BMP consists of the following components: Hazardous materials spills. Emergency spill response and cleanup kits will be readily available for immediate containment and cleanup of an accidental spill. Construction crews will be trained in safe handling of hazardous materials and cleanup responsibilities. Any inadvertent spills into aquatic habitat will be reported to the applicable resource agencies within 24 hours. ▶ Reporting and communication. The LEU biologist will be responsible for immediately reporting any capture and relocation, or inadvertent harm, entrapment, or death, of a federally or state-listed species under ESA or CESA to the applicable resource agencies. ▶ Erosion control materials. Only tightly woven netting or similar material will be used for all geosynthetic erosion control materials such as coir rolls and geotextiles. No plastic monofilament matting will be used. ▶ Minimizing grading and vegetation removal along access roads and construction work areas. LEU will only trim, clear, or remove vegetation as necessary to establish the access routes and allow equipment use. Trees will be directionally felled away from sensitive biological resource areas and, if that is not possible, they will be removed in sections. Damage to adjacent trees will be avoided to the greatest extent possible. ▶ Weed management. Vehicles and construction equipment will be cleaned of mud and dirt as needed to minimize transport of weed plant parts or seed. Vehicles also will be cleaned at the completion of the project or when off-road use for that vehicle has been completed.
APM BIO-9: Prevent Avian Electrocution from PG&E Project Facilities. PG&E conductors and ground wires would be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire, causing electrocution (APLIC 2006).
BMP BIO-9: Prevent Avian Electrocution from LEU Project Facilities. LEU conductors and ground wires would be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire, causing electrocution (APLIC 2006).
APM BIO-10: Protect birds on PG&E power lines. All PG&E transmission and power lines and PG&E switching station and substation facilities for the project will be designed to be avian-safe as appropriate and feasible, following the intent of Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006, 2012).
BMP BIO-10: Protect birds on LEU power lines. All LEU transmission and power lines and LEU substation facilities for the project will be designed to be avian-safe as appropriate and feasible, following the intent of Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006, 2012).
PG&E SJVHCP AMM-1: Employees and contractors performing O&M activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.
PG&E SJVHCP AMM-2: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
PG&E SJVHCP AMM-3: The development of new access and ROW roads by PG&E will be minimized and clearing vegetation and blading for temporary vehicle access will be avoided to the extent practicable.
PG&E SJVHCP AMM-4: Vehicles will not exceed a speed limit of 15 mph in the ROWs or on unpaved roads within sensitive land-cover types.
PG&E SJVHCP AMM-5: Trash dumping, firearms, open fires (such as barbecues) not required by the O&M activity, hunting, and pets (except for safety in remote locations) will be prohibited in O&M work activity sites.
PG&E SJVHCP AMM-6: No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.
PG&E SJVHCP AMM-7: During any reconstruction of existing overhead electric facilities in areas with a high risk of wildlife electrocution (e.g., nut/fruit orchards, riparian corridors, areas along canal or creek banks, PG&E's raptor concentration zone), PG&E will use insulated jumper wires and bird/animal guards for equipment insulator bushings or will construct lines to conform to the latest revision of PG&E's Bird and Wildlife Protection Standards.
PG&E SJVHCP AMM-8: During fire season in designated State Responsibility Areas, all motorized equipment will have federal or state approved spark arrestors; a backpack pump filled with water and a shovel will be carried on all vehicles; and fire-resistant mats and/or windscreens will be used when welding. In addition, during fire "red flag" conditions as determined by California Department of Forestry (CDF), welding will be curtailed, each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C, and all equipment parking and storage areas will be cleared of all flammable materials.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
PG&E SJVHCP AMM-9: Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when O&M activities are the source of potential erosion problems.
PG&E SJVHCP AMM-10: If an activity disturbs more than 0.25 acre in a grassland, and the landowner approves or it is within PG&E rights and standard practices, the area should be returned to pre-existing conditions and broadcast-seeded using a commercial seed mix. Seed mixtures/straw used for erosion control on projects of all sizes within grasslands will be certified weed-free. PG&E shall not broadcast-seed (or apply in other manner) any commercial seed or seed-mix to disturbance sites within other natural land-cover types, within any vernal pool community, or within occupied habitat for any plant covered species.
PG&E SJVHCP AMM-11: When routine O&M activities are conducted in an area of potential VELB habitat, a qualified individual will survey for the presence of elderberry plants within a minimum of 20 feet from the work site. If elderberry plants have one or more stems measuring 1 inch or more in diameter at ground level, the qualified individual will flag those areas to avoid or minimize potential impacts on elderberry plants. If impacts (pruning/trimming, removal, ground disturbance, or damage) are unavoidable or occur, then additional measures identified in the VELB conservation plan and compliance brochure will be implemented. The VELB compliance brochure must be carried in all vehicles performing O&M activities within the potential range of VELB.
Cultural Resources (CUL)
APM CUL-1: Develop and Implement Worker Environmental Awareness Program Prior to Construction. PG&E will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource professional either as a stand-alone training or as part of the overall environmental awareness training required by the project, and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum: ▶ A review of archaeology, history, precontact, and Native American cultures associated with historical resources in the project vicinity ▶ A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation ▶ A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the project ▶ A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and PG&E policies ▶ A statement by the construction company or applicable employer agreeing to abide by the Worker Education Program, PG&E policies, and other applicable laws and regulations A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.
BMP CUL-1: Develop and Implement Worker Environmental Awareness Program Prior to Construction. LEU will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource professional either as a stand-alone training or as part of the overall environmental awareness training required by the project, and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum: ▶ A review of archaeology, history, precontact, and Native American cultures associated with historical resources in the project vicinity ▶ A review of applicable local, state, and federal ordinances, laws, and regulations pertaining to historic preservation ▶ A discussion of procedures to be followed in the event that unanticipated cultural resources are discovered during implementation of the project ▶ A discussion of disciplinary and other actions that could be taken against persons violating historic preservation laws and LEU policies ▶ A statement by the construction company or applicable employer agreeing to abide by the Worker Education Program, LEU policies, and other applicable laws and regulations A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to the City of Lodi.
APM CUL-2: Archaeological Construction Monitoring in High-Sensitivity Areas. In high-sensitivity areas where survey did not identify archaeological resources (PG&E structures W12, W13 and W14), once per day during ground-disturbing activities a qualified archaeological monitor will observe the ground-disturbing activities and have the authority to halt ground-disturbing work temporarily within 100 feet of a find when safe to do so to assess the find. The assessment, and any subsequent evaluation, will follow the processes described in APM CUL-3. Monitoring at these locations can be reduced if, after initial monitoring, the qualified archaeological monitor has determined there is a low likelihood of identifying cultural resources.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
APM CUL-3: Inadvertent Cultural Resource Discoveries. While the pedestrian survey had good ground visibility and did not identify any new cultural resources, it is not uncommon to have unanticipated cultural discoveries during construction. The precontact buried site sensitivity analysis identified a high potential for buried resources near SR 88 and Bear Creek. Additionally, the area has historically been occupied and used for agricultural purposes since the late 1900s. For these reasons, precontact and historic-era inadvertent discoveries are possible during construction. If such discoveries take place, the following procedures will be initiated: ▶ All ground-disturbing construction activities within 100 feet of the discovery will halt immediately. ▶ The construction crew will protect the discovery from further disturbance until it has been assessed by a qualified archaeologist. ▶ The construction supervisor will immediately contact the project construction inspector and the PG&E cultural resource specialist. ▶ The PG&E cultural resources specialist will coordinate with the state lead officials, as appropriate. If the discovery can be avoided or protected and no further impacts will occur, then the resource will be documented on DPR 523 forms, and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, qualified personnel will evaluate the significance of the discovery in accordance with the state laws outlined previously; personnel will implement data recovery or other appropriate treatment measures, if warranted. A qualified historical archaeologist will complete an evaluation of historic-period resources, while evaluation of precontact resources will be completed by a qualified archaeologist specializing in California prehistoric archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.
BMP CUL-3: Inadvertent Cultural Resource Discoveries. While the pedestrian survey had good ground visibility and did not identify any new cultural resources, it is not uncommon to have unanticipated cultural discoveries during construction. The precontact buried site sensitivity analysis identified a low potential for buried resources in the LEU portion of the project. Additionally, the area has historically been occupied and used for agricultural purposes since the late 1900s. For these reasons, precontact and historic-era inadvertent discoveries are possible during construction. If such discoveries take place, the following procedures will be initiated: ▶ All ground-disturbing construction activities within 100 feet of the discovery will halt immediately. ▶ The construction crew will protect the discovery from further disturbance until it has been assessed by a qualified archaeologist. ▶ The construction supervisor will immediately contact the project construction inspector and the LEU cultural resource specialist. ▶ The LEU cultural resource lead will coordinate with the state lead officials, as appropriate. If the discovery can be avoided or protected and no further impacts will occur, then the resource will be documented on DPR 523 forms, and no further effort will be required. If the resource cannot be avoided and may be subjected to further impacts, qualified personnel will evaluate the significance of the discovery in accordance with the state laws outlined previously; personnel will implement data recovery or other appropriate treatment measures, if warranted. A qualified historical archaeologist will complete an evaluation of historic-period resources, while evaluation of precontact resources will be completed by a qualified archaeologist specializing in California prehistoric archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.
APM CUL-4: Unanticipated Discovery of Human Remains. If human remains or suspected human remains are discovered during PG&E construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the PG&E cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon discovery, the Coroner Division of the San Joaquin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified. If the remains are Native American, the Coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC then will identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented. If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
BMP CUL-4: Unanticipated Discovery of Human Remains. If human remains or suspected human remains are discovered during LEU construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the LEU cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon discovery, the Coroner Division of the San Joaquin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified. If the remains are Native American, the Coroner must notify the NAHC of the discovery within 24 hours. The NAHC then will identify and contact an MLD. The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented. If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.
Geology, Soils, and Paleontological Resources (GEO, PAL)
APM GEO-1: Appropriate PG&E Design Measures Implementation. Based in the graded and excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft or loose soils are encountered during design studies or construction on PG&E facilities, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered during construction. Such measures may include the following: ▶ Locating construction facilities and operation away from areas of soft and loose soil. ▶ Overexcavating soft or loose soils and replacing them with nonexpansive engineered fill. ▶ Increasing the density and strength of soft or loose soils through mechanical vibration and compaction. ▶ Treating soft or loose soils in place with binding or cementing agents. ▶ Construction activities in areas where soft or loose soils are encountered may be scheduled for the dry season, as necessary, to allow safe and reliable equipment access.
BMP GEO-1: Appropriate LEU Design Measures Implementation. Based on available references, sands and loamy sands are the primary soil types expected to be encountered in the graded and excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft or loose soils are encountered during design studies or construction on LEU facilities, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered during construction. Such measures may include the following: ▶ Locating construction facilities and operation away from areas of soft and loose soil. ▶ Overexcavating soft or loose soils and replacing them with nonexpansive engineered fill. ▶ Increasing the density and strength of soft or loose soils through mechanical vibration and compaction. ▶ Treating soft or loose soils in place with binding or cementing agents. ▶ Construction activities in areas where soft or loose soils are encountered may be scheduled for the dry season, as necessary, to allow safe and reliable equipment access.
APM PAL–1: Retain a PG&E Qualified Paleontological Principal Investigator. A PG&E Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all APMs related to paleontological resources are properly implemented. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.
BMP PAL–1: Retain an LEU Qualified Paleontological Principal Investigator. An LEU Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all BMPs related to paleontological resources are properly implemented. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.
APM PAL–2: PG&E Workers Environmental Awareness Training. Training on paleontological resources protection will be administered for excavation deeper than 3 feet below ground surface (bgs) at all PG&E work locations. It may be provided by the PG&E project Paleontologist or Archaeologist as a stand-alone training or it may be included as part of the overall environmental awareness training as required by the project.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
The training will include the following: ▶ The types of fossils that could occur at the project site ▶ The types of lithologies in which the fossils could be preserved ▶ The procedures that should be taken in the event of a fossil discovery ▶ Penalties for disturbing paleontological resources A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.
BMP PAL–2: LEU Workers Environmental Awareness Training. Training on paleontological resources protection will be administered for excavation deeper than 3 feet bgs at all LEU work locations. It may be provided by the LEU project Paleontologist or Archaeologist as a stand-alone training or it may be included as part of the overall environmental awareness training as required by the project. The training will include the following: ▶ The types of fossils that could occur at the project site ▶ The types of lithologies in which the fossils could be preserved ▶ The procedures that should be taken in the event of a fossil discovery ▶ Penalties for disturbing paleontological resources
APM PAL-3: Paleontological Resource Monitoring for Select PG&E Construction Activities. A paleontological monitor will be present to monitor for paleontological resources in areas where Riverbank formation or Turlock Lake formation occurs at the surface and excavation is greater than 3 feet deep and, for excavations involving drilling or augering, uses a drill diameter that is larger than 3 feet. The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits, and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record.
BMP PAL-3: Paleontological Resource Monitoring for Select LEU Construction Activities. A paleontological monitor will be present to monitor for paleontological resources in areas where Riverbank formation occurs at the surface and excavation is greater than 3 feet deep and, for excavations involving drilling or augering, uses a drill diameter that is larger than 3 feet. The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits, and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record.
APM PAL–4: PG&E Unanticipated Paleontological Discovery. If significant paleontological resources are discovered during PG&E's construction activities, the following procedures will be followed: ▶ Stop work immediately within 100 feet of the fossil find. ▶ Contact the designated project inspector and PG&E Cultural Resources Specialist (CRS) immediately. ▶ Protect the site from further impacts, including looting, erosion, or other human or natural damage. ▶ Arrange for a PG&E Paleontological Principal Investigator to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and PG&E CRS. ▶ Curate all fossils discovered in an appropriate repository. ▶ A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing, or increasing, the amount of monitoring required.
BMP PAL–4: LEU Unanticipated Paleontological Discovery. If significant paleontological resources are discovered during LEU's construction activities, the following procedures will be followed: ▶ Stop work immediately within 100 feet of the fossil find. ▶ Contact the designated project inspector and LEU Cultural Resource Lead immediately. ▶ Protect the site from further impacts, including looting, erosion, or other human or natural damage. ▶ Arrange for an LEU Paleontological Principal Investigator to evaluate the discovery. If the discovery is determined to be significant, LEU will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and LEU Cultural Resource Lead.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
▶ Curate all fossils discovered in an appropriate repository. ▶ A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing, or increasing, the amount of monitoring required.
Greenhouse Gas Emissions (GHG)
APM GHG-1: PG&E Minimize GHG Emissions. PG&E will implement the following to minimize GHG emissions: ▶ Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use. ▶ Maintain construction equipment in proper working conditions in accordance with manufacture specifications. ▶ Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the California Air Resources Board (CARB) Statewide Portable Equipment Registration Program. ▶ Minimize welding and cutting by using compression or mechanical applications where practical and within standards. ▶ Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available. ▶ On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals. ▶ Use line power instead of diesel generators at construction sites where line power is available. ▶ If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site. ▶ Encourage the recycling of construction waste where feasible.
BMP GHG-1: LEU Minimize GHG Emissions. LEU will implement the following to minimize GHG emissions: ▶ Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use. ▶ Maintain construction equipment in proper working conditions in accordance with manufacture specifications. ▶ Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program. ▶ Minimize welding and cutting by using compression or mechanical applications where practical and within standards. ▶ Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available. ▶ On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals. ▶ Use line power instead of diesel generators at construction sites where line power is available. ▶ If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site. Encourage the recycling of construction waste where feasible.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
APM GHG-2: PG&E Minimize SF6 Emissions. PG&E will implement the following to minimize SF6 emissions: ▶ PG&E will employ standard best practices during PG&E operations. ▶ Comply with the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear, sections 95350 to 95359, title 17, CCR. ▶ Maintain substation breakers in accordance with PG&E's maintenance standards.
BMP GHG-2: LEU Minimize SF6 Emissions. LEU will implement the following to minimize SF6 emissions: ▶ LEU will employ standard best practices during LEU operations. ▶ Comply with the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear, sections 95350 to 95359, title 17, CCR ▶ Maintain substation breakers in accordance with LEU's maintenance standards.
Hazards, Hazardous Materials, and Public Safety (HAZ)
APM HAZ-1: PG&E Development and Implementation of Hazardous Material and Emergency Response Procedures. PG&E will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction and, as appropriate, during the O&M phase. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the SWPPP (APM HYD-1). If required, a site-specific SPCC Plan and a Hazardous Materials Business Plan (HMBP) will be developed before the operation of the expanded PG&E Lockeford Substation and new PG&E Thurman Switching Station (APM HYD-4).
BMP HAZ-1: LEU Development and Implementation of Hazardous Material and Emergency Response Procedures. LEU will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction and, as appropriate, during the O&M phase. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the SWPPP (BMP HYD-1). A site-specific SPCC Plan and an HMBP will be developed before the operation of the new LEU Guild Substation (BMP HYD-4).
APM HAZ-2: PG&E Emergency Spill Supplies and Equipment. Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill at PG&E's project components. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.
BMP HAZ-2: LEU Emergency Spill Supplies and Equipment. Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill at LEU's project components. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.
APM HAZ-3: PG&E Shock Hazard Safety Measures. All authorized personnel working on site, during either construction or O&M, will be trained according to PG&E standards. To minimize potential exposure of the public to electric shock hazards, a 9-foot-tall chain-link fence topped with 1 foot of barbed wire (total height of approximately 10 feet) will be installed around the perimeter of the expanded PG&E Lockeford Substation and the new PG&E Thurman Switching Station before the new electric equipment is energized.
BMP HAZ-3: LEU Shock Hazard Safety Measures. All authorized personnel working on site, during either construction or O&M, will be trained according to LEU standards. To minimize potential exposure of the public to electric shock hazards, an 8-foot-tall chain-link fence topped with 1 to 2 feet of barbed wire (up to approximately 10 feet in height) will be installed around the perimeter of the new LEU Guild Substation before the new electric equipment is energized.
APM HAZ-4: PG&E Worker Environmental Awareness Training Program. A PG&E worker environmental awareness training program (WEAP) will be developed and implemented prior to construction. The WEAP training will be administered to communicate environmental concerns and appropriate work practices to all construction field personnel before they being work on the project. The training program will emphasize site-specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper best practices implementation. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
BMP HAZ-4: LEU Worker Environmental Awareness Training Program. An LEU WEAP will be developed and implemented prior to construction. The WEAP training will be administered to communicate environmental concerns and appropriate work practices to all construction field personnel before they being work on the project. The training program will emphasize site-specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper best practices implementation. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to the City of Lodi.
APM HAZ-5: PG&E Potentially Contaminated Soil or Groundwater. Soil or groundwater occurring at PG&E project components that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during excavation activities will be segregated and tested if pre-characterization has not occurred. If the soil or groundwater is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. The presence of known or suspected contaminated soil or groundwater will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.
BMP HAZ-5: LEU Potentially Contaminated Soil or Groundwater. Soil occurring or groundwater at LEU project components that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during excavation activities will be segregated and tested if pre-characterization has not occurred. If the soil or groundwater is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. The presence of known or suspected contaminated soil or groundwater will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.
Hydrology and Water Quality (HYD)
APM HYD-1: Prepare and Implement an SWPPP for PG&E Project Components. Stormwater discharges associated with project construction activities are regulated under the Construction General Permit (CGP). Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. PG&E will comply with all CGP requirements for construction of PG&E project components. Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater runoff to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at PG&E project components. Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the SWPPP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and wastes to stormwater. Measures will be installed following manufacturer's specifications and according to standard industry practice. Erosion and sediment control measures may include the following: ▶ Straw wattle, silt fence, or gravel bag berms ▶ Trackout control at all entrances and exits ▶ Stockpile management ▶ Effective dust control measures ▶ Good housekeeping measures ▶ Stabilization measures, which may include wood mulch, gravel, and/or seeding. Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations. The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. A copy of the SWPPP will be provided to CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the CGP.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
BMP HYD-1: Prepare and Implement an SWPPP for LEU Project Components. Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb 1 acre or greater of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. LEU will comply with all CGP requirements for construction of LEU project components. Following project approval, LEU will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at LEU project components. Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the CGP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and wastes to stormwater. Measures will be installed following manufacturer's specifications and according to standard industry practice. Erosion and sediment control measures may include the following: ▶ Straw wattle, silt fence, or gravel bag berms ▶ Trackout control at all entrances and exits ▶ Stockpile management ▶ Effective dust control measures ▶ Good housekeeping measures ▶ Stabilization measures, which may include wood mulch, gravel, and/or seeding. Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations. The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. The plan will be maintained and updated during construction as required by the CGP.
APM HYD-2: PG&E Worker Environmental Awareness Program. The PG&E worker environmental awareness program will communicate environmental issues and appropriate work practices specific to PG&E project components to all field personnel before they being work on the project. These will include spill prevention and response measures from the PG&E SWPPP and proper implementation of best practices. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.
BMP HYD-2: LEU Worker Environmental Awareness Program. LEU's worker environmental awareness program will communicate environmental issues and appropriate work practices specific to LEU project components to all field personnel before they begin work on the project. These will include spill prevention and response measures from the LEU SWPPP and proper implementation of best practices. An LEU environmental monitoring program also will be implemented to ensure that the plans are followed throughout the construction period for LEU project components. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to the City of Lodi.
APM HYD-3: Project Site Restoration. As part of the final construction activities, PG&E will restore all removed curbs and gutters, repave, and restore landscaping or vegetation as necessary for its portion of the project. Within the City of Lodi, PG&E will repair or replace damaged or removed stormwater infrastructure in kind in or in conformance with current City design standards, whichever is deemed most appropriate by City staff through the encroachment permit process. Completion of the required restoration of the stormwater infrastructure will be verified by the City of Lodi.
BMP HYD-3: Project Site Restoration. As part of the final construction activities, LEU will restore all removed curbs and gutters, repave, and restore landscaping or vegetation as necessary for its portion of the project. Within the City of Lodi, LEU will repair or replace damaged or removed stormwater infrastructure in kind in or in conformance with current City design standards, whichever is deemed most appropriate by City staff through the building permit process. Completion of the required restoration of the stormwater infrastructure will be verified by the City of Lodi.

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
APM HYD-4: SPCC Plan for PG&E Thurman Switching Station and SPCC Plan Modification for PG&E Lockeford Substation. PG&E will prepare an SPCC plan for PG&E Thurman Switching Station for implementation during operation, and the existing PG&E Lockeford Substation SPCC Plan will be modified prior to operation of the expanded facility, as required by applicable regulations (40 CFR 112). An SPCC plan includes engineered and operational methods for preventing, containing, and controlling potential releases (for example, construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.
BMP HYD-4: SPCC Plan for LEU Guild Substation and SPCC Plan Modification for LEU Industrial Substation. LEU will prepare an SPCC plan for LEU Guild Substation for implementation during operation, and the existing LEU Industrial Substation SPCC Plan will be modified prior to operation of the expanded facility, as required by applicable regulations (40 CFR 112). An SPCC plan includes engineered and operational methods for preventing, containing, and controlling potential releases (for example, construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.
APM HYD-5: Project Stormwater Plan for PG&E Thurman Switching Station. PG&E will prepare a Project Stormwater Plan for PG&E's Thurman Switching Station to submit to the City of Lodi as part of it building permit and to align with the City of Lodi's Stormwater Management and Discharge Control Code, Lodi Municipal Code Chapter 13.14. The plan will include proposed site design and control measures and postconstruction stormwater runoff calculations showing pre-project and post-project volumes.
BMP HYD-5: Project Stormwater Plan for LEU Guild Substation. LEU will prepare a Project Stormwater Plan for LEU Guild Substation to align with the City of Lodi's Stormwater Management and Discharge Control Code, Lodi Municipal Code Chapter 13.14. The plan will include proposed site design and control measures and postconstruction stormwater runoff calculations showing pre-project and post-project volumes.
Land Use and Planning (LAN)
APM LAN-1: Provide Construction Notification and Minimize Construction Disturbance. A PG&E public liaison representative will provide the public with advance notification of PG&E construction activities, between approximately two and four weeks prior to construction. The announcement will state specifically where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion (for example, closing windows facing the planned construction).
BMP LAN-1: Provide Construction Notification and Minimize Construction Disturbance. A LEU public liaison representative will provide the public with advance notification of LEU construction activities, between approximately two and four weeks prior to construction. The announcement will state specifically where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion (for example, closing windows facing the planned construction).
APM LAN-2: Provide Public Liaison Person and Toll-Free Information Hotline. PG&E will identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone, email, or in person will be included in notices distributed to the public as described previously. PG&E will also establish a toll-free telephone number for receiving questions or complaints during construction.
BMP LAN-2: Provide Public Liaison Person and Toll-Free Information Hotline. LEU will identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise, dust, and other construction disturbance. Procedures for reaching the public liaison officer via telephone, email, or in person will be included in notices distributed to the public as described previously. LEU will also establish a toll-free telephone number for receiving questions or complaints during construction.
Noise (NOI)
APM NOI-1: PG&E General Construction Noise Management. PG&E will employ standard noise-reducing construction practices such as the following: ▶ Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition. ▶ Turn off construction equipment when not in use, where applicable. ▶ Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors. ▶ Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise. ▶ PG&E will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, and access roads, and within approximately 1,000 feet of helicopter landing zones. PG&E also will post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas. The announcement will state approximately where and when construction will occur in the area,

PG&E's Applicant-Proposed Measures and LEU's Best Management Practices
including areas of helicopter construction. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. PG&E will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. PG&E also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the PG&E public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. PG&E will respond to questions or concerns received.
BMP NOI-1: LEU General Construction Noise Management. LEU will employ standard noise-reducing construction practices such as the following: ▶ Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition. ▶ Turn off construction equipment when not in use, where applicable. ▶ Locate stationary equipment, construction staging areas, and construction material areas as far as practical from sensitive receptors. ▶ Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise. ▶ LEU will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, and access roads. LEU will post notices in public areas, including recreational use areas, within approximately 500 feet of the construction work areas. The announcement will state approximately where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. LEU will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. LEU also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the LEU public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. LEU will respond to questions or concerned received.
APM NOI-2: PG&E Noise Minimization with Portable Barriers. Compressors and other small stationary equipment used during construction of PG&E project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.
BMP NOI-2: LEU Noise Minimization with Portable Barriers. Compressors and other small stationary equipment used during construction of LEU project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.
APM NOI-3: PG&E Noise Minimization with Quiet Equipment. Quiet equipment will be used during construction of PG&E project components whenever possible (for example, equipment that incorporates noise-control elements into the design, such as quiet model compressors or generators, can be specified).
BMP NOI-3: LEU Noise Minimization with Quiet Equipment. Quiet equipment will be used during construction of LEU project components whenever possible (for example, equipment that incorporates noise-control elements into the design, such as quiet model compressors or generators, can be specified).
APM NOI-4: PG&E Noise Minimization through Direction of Exhaust. When in proximity to noise-sensitive uses, PG&E equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.
BMP NOI-4: LEU Noise Minimization through Direction of Exhaust. When in proximity to noise-sensitive uses, LEU equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.
APM NOI-5: PG&E Noise Disruption Minimization through Residential Notification. In the event that nighttime construction is necessary for PG&E project components– for instance, if certain activities such as line splicing or horizontal directional drilling in certain soil conditions need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.
BMP NOI-5: LEU Noise Disruption Minimization through Residential Notification. In the event that nighttime construction is necessary for LEU project components – for instance, if certain activities such as horizontal directional drilling in certain soil conditions need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.

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APM NOI-6: PG&E Horizontal Directional Drilling Noise Minimization Measures. Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. HDD activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and the integrity of the project. If nighttime HDD activities are required, the project will monitor actual noise levels from the HDD activities between 10:00 p.m. and 7:00 a.m. If the nighttime noise levels created by the HDD operation result in outreach to PG&E public liaison officer and are in excess of the ambient noise level by approximately 5 dBA at the nearest residential property plane, PG&E will, within 24 hours of the excess measurement, employ additional minimization measures to the greatest extent practicable. Such measures may include ensuring that semipermanent stationary equipment (for example, generators) is stationed as far from sensitive areas as practicable, using sound-attenuated "quiet" or "Hollywood/Movie Studio" silencing packages, or modifying barriers to further reduce noise levels.
BMP NOI-6: LEU Horizontal Directional Drilling Noise Minimization Measures. Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. HDD activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and the integrity of the project. If nighttime HDD activities are required, the project will monitor actual noise levels from HDD activities between 10:00 p.m. and 7:00 a.m. If the nighttime noise levels created by HDD operation result in outreach to LEU public liaison officer and are in excess of the ambient noise level by approximately 5 dBA at the nearest residential property plane, LEU will, within 24 hours of the excess measurement, employ additional minimization measures to the extent practicable. Such measures may include ensuring that semi-permanent stationary equipment (for example, generators) is stationed as far from sensitive areas as practicable, using sound-attenuated "quiet" or "Hollywood/Movie Studio" silencing packages, or modifying barriers to further reduce noise levels.
APM NOI-7: PG&E Noise Minimization Equipment Specification. PG&E will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.
BMP NOI-7: LEU Noise Minimization Equipment Specification. LEU will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.
Transportation (TRA)
APM TRA-1: PG&E Temporary Traffic Controls. PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those permits related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop traffic control plans to detail road and lane closure or width reduction or traffic diversions as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area. PG&E will provide the CPUC with copies of permits obtained prior to construction activity in a given jurisdiction or location. If required for obtaining a local encroachment permit, PG&E will establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, potential street or lane closures, signing, lighting, and traffic control device placement. When working on state highways, PG&E will ensure traffic control operations are compliant with both the California Temporary Traffic Control Handbook, 2018 edition, and the California Manual on Uniform Traffic Control Devices, 2014 edition.
BMP TRA-1: LEU Temporary Traffic Controls. LEU will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those permits related to the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. LEU will develop traffic control plans to detail road and lane closure or width reduction or traffic diversions as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area. If required for obtaining a local encroachment permit, LEU will establish a TMP to address haul routes, timing of heavy equipment and building material deliveries, potential street or lane closures, signing, lighting, and traffic control device placement.
APM TRA-2: PG&E Repair of Damaged Transportation Infrastructure. As part of the final construction activities of the project, PG&E will restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with PG&E construction activities.
BMP TRA-2: LEU Repair of Damaged Transportation Infrastructure. As part of the final construction activities of the project, LEU will restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with LEU construction activities.

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Tribal Cultural Resources (TCR)
APM TCR-1: Undiscovered Potential Tribal Cultural Resources. The following procedure will be employed (after stopping work and following the procedure for determining eligibility in APM CUL-4) if a resource is encountered and determined by the geographically affiliated tribe in collaboration with the project's qualified archaeologist (if applicable) to be potentially eligible for the California Register of Historical Resources (CRHR) or a local register of historic resources and is associated with a California Native American Tribe with a traditional and cultural affiliation with the geographic area of the proposed project: ▶ The PG&E cultural resources specialist will notify the CPUC for appropriate action. PG&E will assist the CPUC if needed to identify the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC will communicate with the lead contact person to set up a meeting with PG&E and the CPUC. ▶ The PG&E cultural resources specialist will participate with the CPUC in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC Section 21074 and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR. ▶ If no agreement can be reached for mitigation after discussions with the California Native American Tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, PG&E will implement one of the example mitigation measures listed in PRC Section 21084.3(b), or other feasible mitigation.
BMP TCR-1: Undiscovered Potential Tribal Cultural Resources. The following procedure will be employed (after stopping work and following the procedure for determining eligibility in BMP CUL-4) if a resource is encountered and determined by the geographically affiliated tribe in collaboration with the project's qualified archaeologist (if applicable) to be potentially eligible for the CRHR or a local register of historic resources and is associated with a California Native American Tribe with a traditional and cultural affiliation with the geographic area of the proposed project: ▶ The LEU cultural resource lead will notify the CPUC for appropriate action. LEU will assist the CPUC if needed to identify the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC will communicate with the lead contact person to set up a meeting with LEU and the CPUC. ▶ The LEU cultural resource lead will participate with the CPUC in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC Section 21074 and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR. ▶ If no agreement can be reached for mitigation after discussions with the California Native American Tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, LEU will implement one of the example mitigation measures listed in PRC Section 21084.3(b), or other feasible mitigation.
Wildfire (WFR)
APM WFR-1: PG&E Construction Fire Prevention Plan. A project-specific Construction Fire Prevention Plan for construction of the project will be prepared prior to initiation of construction by PG&E. The PG&E plan will be provided to the CPUC and the local fire agencies with jurisdiction over the areas where the project is located at least 90 days prior to the initiation of construction activities in areas designated as very high or high FHSZs. Plan reviewers also will include federal, state, or local agencies with jurisdiction over areas where the project is located. The final plan will be approved by the CPUC at least 30 days prior to the initiation of construction activities. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum: ▶ The purpose and applicability of the plan; ▪ Incorporation of the requirements in PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work; ▪ Responsibilities and duties for compliance; ▪ Preparedness training and drills; ▶ Procedures for fire reporting, response, and prevention that include: ▪ Identification of daily site-specific risk conditions ▪ The tools and equipment needed on vehicles and on hand at sites ▪ Reiteration of fire prevention and safety considerations during tailboard meetings ▪ Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity ▪ Coordination procedures with federal, state, and local fire officials

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- Crew training, including the construction fire prevention practices described in APM WFR-2
- Method(s) for verifying that all plan protocols and requirements are being followed
- A project Fire Marshal or similar qualified person will be responsible for training project personnel and enforcing all provisions of the PG&E Construction Fire Prevention Plan, as well as performing other duties related to fire detection, prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.

BMP WFR-1: LEU Construction Fire Prevention Plan. A project-specific Construction Fire Prevention Plan for construction of the project will be prepared prior to initiation of construction by LEU. The plan will be provided to the City of Lodi Fire Department, which has jurisdiction over the area where LEU's project activities are located, none of which are within very high or high FHSZs. The plans will be provided to the department at least 90 days prior to the initiation of construction activities for review and approval. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:

- The purpose and applicability of the plan
  - Incorporation of the requirements in LEU's current Wildfire Mitigation Plan (WMP)
  - Responsibilities and duties for compliance
  - Preparedness training and drills
- Procedures for fire reporting, response, and prevention that include:
  - Identification of daily site-specific risk conditions
  - The tools and equipment needed on vehicles and on hand at sites
  - Reiteration of fire prevention and safety considerations during tailboard meetings
  - Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity
  - Coordination procedures with federal, state, and local fire officials
  - Crew training, including the construction fire prevention practices described in BMP WFR-2
  - Method(s) for verifying that all plan protocols and requirements are being followed
  - A project Fire Marshal or similar qualified person will be responsible for training project personnel and enforcing all provisions of the LEU Construction Fire Prevention Plan, as well as performing other duties related to fire detection, prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.

APM WFR-2: PG&E Fire Prevention Practices. PG&E will implement the following fire prevention practices at active construction sites and during maintenance activities:

- Existing PG&E personnel conducting maintenance on the project are trained on the PG&E Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work and will follow the standard in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including National Weather Service (NWS) events, and PG&E's work restrictions and fire mitigation required for elevated PG&E Utility fire potential index (FPI) ratings (R4, R5, or R5-Plus).
- Construction personnel will be trained in fire-safe actions, including PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work, Wildfire Prevention Contract Requirements, and the project's PG&E Construction Fire Prevention Plan concerning initial attack, firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- All construction personnel will carry a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and define immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers will be updated as needed and redistributed to all construction personnel prior to the day the information change goes into effect.
- PG&E will coordinate with the applicable local fire departments prior to construction activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities as part of the PG&E Construction Fire Prevention Plan review.
- Construction personnel will have fire suppression equipment on all construction vehicles and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
- All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each work site. All fires will be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.

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- While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
- PG&E General Requirements for wildfire mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from a fire index area (FIA) when the nearest FIA has an elevated FPI rating (R4, R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations will apply.
- At PG&E's Clayton Hill Repeater Station, which is within an FIA, during Red-Flag Warning and Fire Weather Watch events, as issued by the NWS, and elevated PG&E Utility FPI rating (R4, R5, or R5-Plus), all construction activities will refer to the current PG&E Standard TD-1464S and related requirements such as PG&E Wildfire Prevention Contract Requirements, Attachment 1 – Wildfire Mitigation Matrix, and Attachment 2 – Wildfire Risk Checklist Fire Mitigations. With increased potential fire risk of R4, additional water resources are required and a working fire watch is assigned to be able to continue work as long as the weather conditions are evaluated to ensure it remains safe to continue work.
- For R5 and R5-Plus ratings, mitigation beyond R1 to R4 levels includes a dedicated fire watch at the jobsite, a trailer-mounted water tank or alternative water delivery method at the jobsite, and modifying the fuel sources surrounding the jobsite. All planned work is suspended during an R5-Plus fire rating. During all emergency work being performed for an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, pole, and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions.

BMP WFR-2: LEU Construction Fire Prevention Practices. LEU will implement the following fire prevention practices at active construction sites and during maintenance activities:

- Existing LEU personnel conducting maintenance on the project are trained on the LEU WMP and will follow the plan in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and LEU's work restrictions and fire mitigation required for elevated fire potential.
- Construction personnel will be trained in fire-safe actions, including the LEU project Construction Fire Prevention Plan, initial attack firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- All construction personnel will carry a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers will be updated as needed and redistributed to all construction personnel prior to the day the information change goes into effect.
- LEU will coordinate with the City of Lodi Fire Department prior to construction activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities as part of the LEU Construction Fire Prevention Plan review.
- Construction personnel will have fire suppression equipment on all construction vehicles and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
- All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each work site. All fires will be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.
- While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
- The risk for potential fire hazards associated with the construction of the new substation is low because the setting has no known potential wildfire risk. Given the surrounding settings of urban development, LEU does not expect any restrictions to be used for "high-risk days." LEU will continue to comply with its 2021 WMP, as updated yearly.

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3 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3.1 APPROACH TO THE ENVIRONMENTAL ANALYSIS

This draft environmental impact report (Draft EIR) evaluates and discloses the environmental impacts associated with the Northern San Joaquin 230 kV Transmission Project, in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Section 21000, et seq.) and the CEQA Guidelines (California Code of Regulation, Title 14, Chapter 3, Section 1500, et seq.). Sections 3.2 through 3.18 of this Draft EIR present a discussion of regulatory background, existing conditions, environmental impacts associated with construction and operation of the project, mitigation measures to reduce the level of impact, and residual level of significance (i.e., after application of mitigation).

3.1.1 Proponent's Environmental Assessment

In accordance with CPUC's GO 131-D, a Proponent's Environmental Assessment (PEA) was prepared by PG&E in coordination with LEU to support PG&E's application for a Certificate of Public Convenience and Necessity (CPCN) for the Northern San Joaquin 230 kV Transmission Project and informs the analysis in the EIR. As relevant and after objective review and confirmation of accuracy by the EIR preparation team, project-specific information and technical report data from the PEA have been incorporated into the analysis in this EIR, and cited accordingly in this EIR. Key technical reports from the PEA that are relied on in this EIR include the Architectural Identification and Evaluation Report (Appendix E), Paleontological Resources Impact Evaluation (Appendix G), and PG&E Lockeford Substation Geotechnical Investigation Report (Appendix H1). Applicant-proposed measures (APMs) proposed by PG&E and best management practices (BMPs) proposed by LEU are considered part of the proposed project and include project design features, standard practices, and regulatory requirements. The entirety of the PEA is available on the CPUC's website for this project: https://ia.cpuc.ca.gov/environment/info/ascent/NSJTP/index.html.

3.1.2 Economic Effects

Under CEQA, the analysis of potential impacts "shall be limited to substantial, or potentially substantial, adverse changes in physical conditions" in the environment (Pub. Res. Code Section 21151(b); CEQA Guidelines Section 15358(b)). CEQA's definition of the environment includes "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, objects of historic or aesthetic significance" (Pub. Res. Code Section 21060.5). CEQA's definition of the environment does not include economic or social conditions unless effects to these conditions result in a change in the physical environment. CEQA Guidelines Section 15064(e) states, "Economic and social changes resulting from a project shall not be treated as significant effects on the environment. Economic or social changes may be used, however, to determine that a physical change shall be regarded as a significant effect on the environment." An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis should be on the physical changes.

A potential change in property value is considered an economic change. There is no evidence that potential changes in property values would result in physical environmental impacts. Therefore, CEQA does not require analysis of this issue. Additionally, projecting the magnitude of any decrease in property values, which would be affected by multiple factors, would require real estate market analysis and is beyond the scope of environmental review under CEQA.

3.1.3 Content of This Chapter

Sections 3.2 through 3.18 of this Draft EIR present a discussion of the regulatory background, existing conditions, environmental impacts associated with construction and operation of the project, mitigation measures to reduce the level of impact, and any residual level of significance (i.e., after application of mitigation). Chapter 4 of this Draft EIR, "Cumulative Impacts," presents an analysis of the project's impacts considered together with the related impacts of other past, present, and probable future projects, as required by Section 15130 of the CEQA Guidelines. Chapter 5, "Other CEQA Considerations," includes an analysis of the project's growth-inducing impacts and significant irreversible environmental effects. Chapter 6, "Alternatives," presents a reasonable range of alternatives and evaluates the environmental effects of those alternatives relative to those of the project, as required by Section 15126.6 of the CEQA Guidelines.

The remainder of this chapter addresses the following resource topics:

- Section 3.2, "Aesthetics";
- Section 3.3, "Agriculture";
- Section 3.4, "Air Quality";
- Section 3.5, "Archaeological, Historical, and Tribal Cultural Resources";
- Section 3.6, "Biological Resources";
- Section 3.7, "Energy";
- Section 3.8, "Geology, Soils, and Mineral Resources";
- Section 3.9, "Greenhouse Gas Emissions";
- Section 3.10, "Hazards and Hazardous Materials";
- Section 3.11, "Hydrology and Water Quality";
- Section 3.12, "Land Use and Planning";
- Section 3.13, "Noise";
- Section 3.14, "Population, Employment, and Housing";
- Section 3.15, "Public Services and Recreation";
- Section 3.16, "Transportation";
- Section 3.17, "Utilities and Service Systems"; and
- Section 3.18, "Wildfire."

Sections 3.2 through 3.18 of this Draft EIR each include the following components.

- **Environmental Setting:** This subsection describes existing environmental conditions in the project area, in accordance with the CEQA Guidelines Section 15125. This setting generally serves as the baseline against which environmental impacts are evaluated.
- **Regulatory Setting:** This subsection presents information on the laws, regulations, plans, and policies relevant to each resource topic, including federal, state, regional, and City regulations that address potentially adverse environmental impacts.
- **Impacts and Mitigation Measures:** In accordance with the CEQA Guidelines (Sections 15126, 15126.2, and 15143), this subsection identifies the method of analysis to determine whether an impact may occur and the thresholds of significance used to determine the level of significance of the environmental impacts. The thresholds of significance are based on the checklist presented in Appendix G of the CEQA Guidelines, best available data, applicable regulatory standards, and local practice and standards. The level of each impact is determined by analyzing the effect of implementation of the project on the defined baseline conditions and comparing it to the

applicable significance threshold. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local ordinances and regulations.

Project impacts and mitigation measures are numbered sequentially for each resource topic (e.g., Impact AES-1, Impact AES-2, Impact AES-3, etc.). Where there is differentiation in the potential for environmental effects relative to a threshold of significance, PG&E and LEU project components are discussed separately, followed by a significance before mitigation determination that considers and reflects the combined effects of the PG&E and LEU components (i.e., the whole of the project). The discussion presents the analysis, rationale, and substantial evidence upon which conclusions are drawn regarding the level of significance of the impact.

An impact would be considered "less than significant" if it would not involve a substantial adverse change in the physical environment. An impact would be "significant" if it would result in a substantial adverse change in the physical environment; both are treated the same under CEQA in terms of procedural requirements and the need to identify feasible mitigation.

This EIR identifies feasible mitigation measures that could avoid, minimize, rectify, reduce, or compensate for significant adverse impacts. Mitigation measures are not required for effects found to be less than significant. Where feasible mitigation for a significant or potentially significant impact is available, it is described in this EIR following the impact, along with its effectiveness at addressing the impact. Each identified mitigation measure is labeled numerically to correspond with the impact it addresses. The final determination of the level of significance of each impact is presented in bold text in the impact summary and at the end of each impact discussion.

The references associated with the sources cited in Sections 3.2 through 3.18 are presented in Chapter 8, "References," organized by section number.

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3.2 AESTHETICS

This section provides a description of existing visual conditions, meaning the physical features that make up the visible landscape, near the project area and describes the applicable state and local regulations that address the visual environment. It also analyzes the potential environmental impacts associated with implementation of the project. The effects of the project on the visual environment are generally defined in terms of the project's physical characteristics and potential visibility, the extent to which the project's presence would change the perceived visual character and quality of the environment, and the expected level of sensitivity that the viewing public may have where the project would alter existing views.

Several comments on the notice of preparation (NOP) were received regarding aesthetics. Commenters expressed concern regarding visual impacts resulting from the project on sensitive areas, such as nearby residences, businesses, and state scenic highways, as well as reduction to the visual aesthetic and character surrounding the project area. These issues are addressed in the impact analysis below. See Appendix A for all NOP comments received during the public scoping period.

3.2.1 Environmental Setting

REGIONAL SETTING

Visual quality is defined as the overall visual impression or attractiveness of an area as determined by the landscape characteristics, including landforms, rock forms, water features, vegetation patterns, and built features. The attributes of line, form, and color combine in various ways to create landscape characteristics whose variety, vividness, coherence, uniqueness, harmony, and pattern contribute to the overall visual quality of an area.

San Joaquin County is set within the greater San Joaquin Valley, with the Sacramento–San Joaquin River Delta and large expanses of flat, agricultural lands and urban development framed by the foothills of the Diablo Range to the west and the foothills of the Sierra Nevada to the east. The foothills of the Diablo Range separate San Joaquin County from Alameda County and Contra Costa County to the west, with the main access between these counties being Interstate 205 (I-205), which cuts through the Altamont Pass. The eastern portion of San Joaquin County, and adjoining Amador County and Calaveras County to the east, share the rolling terrain of the Sierra Nevada foothills. To the south, the Stanislaus River separates San Joaquin County from Stanislaus County. Other major rivers passing through San Joaquin County include the San Joaquin River, the Calaveras River, the Mokelumne River, and Dry Creek. Agricultural uses make up about 83 percent of the unincorporated lands within the county, with urban development concentrated in the seven incorporated cities of the county (San Joaquin County 2014a).

Lodi is a suburban city set in the Central Valley containing mostly flat land with no significant landforms, offering a wide view of the surrounding region. Lodi is located along the Mokelumne River, adjacent to the Sacramento Delta. Lodi has a compact form, including neighborhoods that are largely consistent in their architecture and site design. The surrounding agricultural land, which complements the urban form of the city and provides a special identity as well as a visual and functional definition to the city's outer edge. The relatively flat topography of Lodi means that, in general, views consist mainly of adjacent development or adjacent farmland, orchards, vineyards, or fields, depending on where the viewer is located. At the city edges, some distant views are available, though they are limited. To the southwest, Mount Diablo and surrounding hills are visible in the distance. To the east the Sierra Nevada foothills are visible, though indistinct. Other views to the north and south are generally of flat agricultural lands (City of Lodi 2009).

VISUAL CHARACTER OF THE PROJECT AREA

Figure 2-1 in Chapter 2, "Project Description," shows the project location within San Joaquin County. The project area is bordered by the Mokelumne River to the north, and Bear Creek and the Calaveras River to the south. Gently undulating grassland near the project's eastern margin gives way to the low-lying, largely flat former floodplain of the

Mokelumne River to the west. Elevations range from approximately 135 feet above sea level where the project intersects the PG&E Brighton-Bellota 230 kV Transmission Line to approximately 60 feet above sea level at LEU's Industrial Substation within the City of Lodi.

In contrast, heavy industrial uses dominate the LEU portion of the project area in the northeastern part of the City of Lodi. The surrounding buildings are primarily low-rise warehouses used for commercial activities. Major north-south transportation corridors provide links between cities and smaller communities within the region, including Interstate 5 (I-5), which is located approximately 8 miles to the west of the project's terminus in Lodi, and SR 99, which skirts the eastern edge of Lodi approximately 0.3 miles from the proposed PG&E Thurman Switching Station.

VISUAL CHARACTER SURROUNDING THE PROJECT AREA

The northern San Joaquin Valley landscape generally reflects a high level of human modification that includes vast areas of agricultural land and important population centers, such as Stockton, located approximately 12 miles to the south of the project area. Smaller semirural and suburban communities located closer to the project area include the community of Lockeford, with a population of approximately 3,400, located approximately 3 miles northeast of the project area, while approximately 4 miles to the south is the Town of Morada, with a population of approximately 3,800. With a population of approximately 62,000, the City of Lodi is the largest urban center in the immediate project area. Regional highways passing through or near the project area connecting local communities with coastal population centers to the west, as well as with recreation destinations in the Sierra Nevada mountains to the east, include SR 12 to the north and SR 88, which is crossed by the new PG&E 230 kV transmission line approximately 3.8 miles east of Lodi. Additionally, a grid of local paved and unpaved rural roadways traverses the area, several of which cross or closely parallel the proposed alignment of the 230 kV double-circuit line; local roads include East Kettleman Lane, East Harney Lane, Clements Road, and North Jack Tone Road, the latter two being County-designated scenic routes. Within the project area, other established built landscape features include irrigation canals, railroad corridors, and agricultural processing facilities. Throughout the project area, electric utility structures, including substations and overhead power lines, are established landscape features. Figure 2-1 shows locations of existing power and transmission lines in the immediate vicinity.

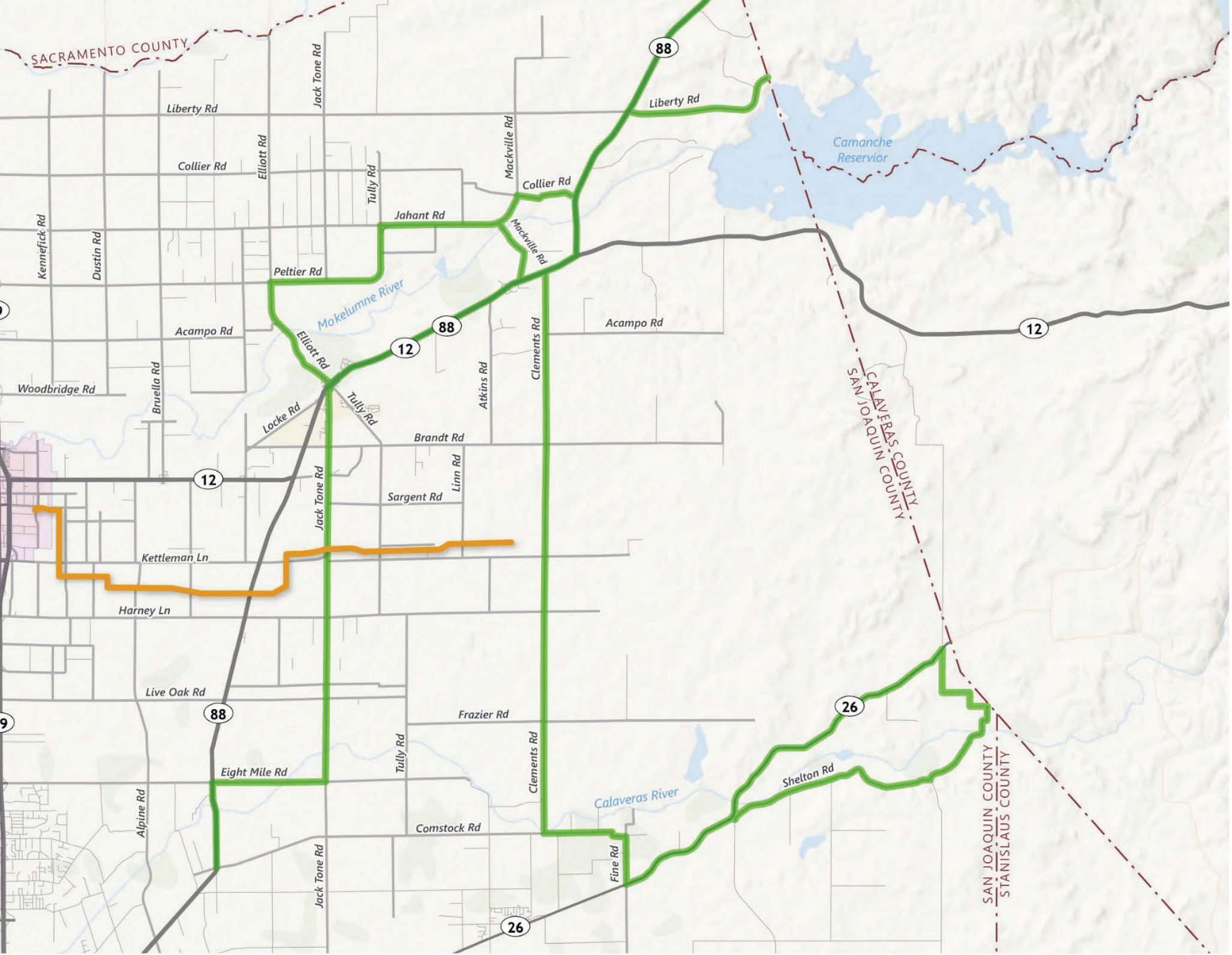
Vegetation in the project vicinity includes agricultural crops—primarily vineyards, orchards, and forage cropland—as well as grassland and riparian corridors. Scattered stands of mature trees are also characteristic visual features seen throughout the project area, lining many of the area roadways and surrounding most residences. Although predominantly agricultural, land use immediately north and south of the project corridor includes residential parcels. Within the eastern part of the project area, residences generally consist of isolated rural houses with associated farm structures surrounded by fields. Just west of Lodi, houses are more numerous and are largely located along well-traveled public roadways. At the western edge of the project alignment at the proposed PG&E Thurman Switching Station, the existing LEU Industrial Substation, and proposed LEU Guild Substation, vegetation is limited, consisting primarily of isolated tree stands and ornamental landscaping near industrial uses.

SCENIC HIGHWAYS AND CORRIDORS

There are no state-designated scenic highways in the vicinity of the project area (Caltrans 2023). Interstate 580, which is the only state-designated scenic highway within San Joaquin County, is not visible from the project area.

San Joaquin County's General Plan has designated 26 local roadways within the county as local scenic routes. I-5 and State Routes (SR) 4 and 99 are all County-designated scenic roadways (San Joaquin County 2016). Lodi's key corridors, which establish connections within the city and defines its neighborhoods, include Kettleman Lane, Cherokee Lane, Lodi Avenue, Century Boulevard, Lower Sacramento Road, Harney Lane, and Central Avenue.

Several San Joaquin County designated scenic routes are found at varying distances from the project area; these include portions of SR 12 and SR 88, as well as North Jack Tone Road and Liberty Road (Clements Road). North Jack Tone Road is the only designated scenic roadway in the project area. SR 12 and SR 88 are located approximately 3 miles north of the project area. Clements Road is east of the project area. Figure 3.2-1 shows the location of County-designated scenic routes in the immediate vicinity of the project area.


SACRAMENTO COUNTY
Liberty Rd
Jack Tone Rd
Elliott Rd
Tully Rd
Mackville Rd
Collier Rd
Kennefick Rd
Dustin Rd
Jahant Rd
Peltier Rd
Mokelumne River
Acampo Rd
Woodbridge Rd
Bruella Rd
Locke Rd
Brandt Rd
Atkins Rd
Clements Rd
Linn Rd
Sargent Rd
Kettleman Ln
Harney Ln
Live Oak Rd
Frazier Rd
Eight Mile Rd
Alpine Rd
Comstock Rd
Fine Rd
Calaveras River
Shelton Rd
Camanche Reservior
CALAVERAS COUNTY
SAN JOAQUIN COUNTY
SAN JOAQUIN COUNTY
STANISLAUS COUNTY
88
12
26
9
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1 in =
Esri C
19010

024.

SCENIC RESOURCES

Scenic resources are those natural and built landscape patterns and features that are considered visually or aesthetically pleasing and, therefore, contribute positively to the definition of a distinct community or region. As a result of the predominantly flat terrain and generally poor visibility, scenic resources in the project area are often limited to near- and medium-range viewpoints available within public recreation areas within the City of Lodi and from several public roadways. The foothills of the Sierra Nevada mountains begin to rise approximately 6 to 8 miles east of the project connection with the PG&E Brighton-Bellota 230 kV transmission corridor, and occasionally they can be seen from some locations within the project vicinity during winter months; however, views of the mountains are largely obscured by atmospheric haze that persists in the area throughout much of the year. The Mokelumne River defines the northern perimeter of the City of Lodi, extending east between approximately 1 and 2.5 miles north of the PG&E 230 kV corridor, as shown in Figure 2-1. Public recreation areas in the project vicinity are concentrated along the river; however, because of a combination of distance and intervening vegetation and structures, the project would not be visible from locations along the Mokelumne River.

SCENIC VISTAS

The major scenic vistas in San Joaquin County are located along the east-west travel corridors that provide views of the Sierra Nevada foothills to the east and views of the Diablo Range to the west. These visual resources within the county are also visible from I-5 and I-580, two major highways within the county. "Close-in" scenic vistas are also available on two-lane roads through rural portions of the county, with views of lands under agricultural production, such as vineyards and orchards. Views of major river corridors are most clearly visible from parklands that adjoin the rivers because often from within a vehicle, only a quick glimpse of the river corridors is possible only while crossing bridges (San Joaquin County 2014a).

LIGHT AND GLARE CONDITIONS

Existing sources of light and glare are primarily present within the city portion of the project area. Existing sources of light include streetlights along project roadways; lights in parking lots, along walkways, and on the exteriors of buildings; lights associated with the industrial railroad system; and interior lights in buildings. Glare is a visual sensation caused by excessive and uncontrolled brightness, which can be disabling or uncomfortable. Natural and artificial light reflects off various surfaces (e.g., building surfaces, windows of buildings, and automobiles) and can create localized occurrences of daytime and nighttime glare.

The 230 kV transmission line and PG&E Lockeford Substation are predominantly situated in a rural setting where lighting sources tend to be localized and associated with agricultural processing facilities, residences, and some roadway intersections. Street lighting and outdoor industrial facility lighting are widespread in the area around the PG&E Thurman Switching Station and service line, 60 kV line, and proposed 230 kV line within the City of Lodi.

VIEWERS AND VISUAL SENSITIVITY

Viewer groups consist predominantly of motorists traveling along local public roadways relatively close to or crossing the project alignment. However, along many of these roadways, motorists' views are screened by roadside vegetation, such as orchards, vineyards, and stands of mature trees. Another potentially important viewer group includes recreational visitors to the local commercial wineries. However, tourism related to wine tasting is highly seasonal, with peak visitation in the fall and spring. Views tend to be brief or moderate in duration, although some tasting rooms include outdoor terraces where comparatively open landscape views are available. Additional viewer groups consist of residents situated near the project area, including inhabitants of suburban and semirural properties located along North Curry Avenue, Alpine Road, East Kettleman Lane, and East Harney Lane in the area between Lodi and SR 88, as well as limited number of residents living in rural areas of agricultural land crossed by the project east of Lockeford Substation. However, mature trees and other vegetation on residential properties provide a measure of screening at these locations.

Visual sensitivity associated with views in a particular area is the combination of viewer sensitivity and viewer exposure. Viewer sensitivity is based on identification of general viewer groups in the project area and their anticipated awareness and concerns for aesthetics. Viewer sensitivity varies for individuals and groups depending on the activities viewers are engaged in, their values and expectations related to the appearance and character of the landscape, and their potential level of concern for changes to the landscape. Viewer exposure involves the visibility of resources in the landscape, proximity of viewers to visual resources, elevational position of viewers relative to visual resources, frequency and duration of views, and number of viewers.

PUBLIC VIEWS: REPRESENTATIVE VIEWPOINTS

Selected viewpoints were chosen to represent publicly accessible views of the project area and to characterize the visual environment. These viewpoints also serve as a basis for describing the kinds of aesthetic changes that would occur with implementation of the proposed project. Four key observation points (KOPs) were selected to represent viewing locations where the project could be most visible to the public, including a County-designated scenic route, a winery tasting room accessible to the public, a well-traveled public roadway near residences, and a close-range viewpoint within the City of Lodi. Descriptions of views from these KOPs, as well as an assessment of visual quality and character of the views, are provided below. KOP locations and photographs from each viewpoint are depicted in Figure 3.2-2 and Figures 3.2-3a and 3.2-3b, respectively.

KOP 1: North Jack Tone Road (Looking South)

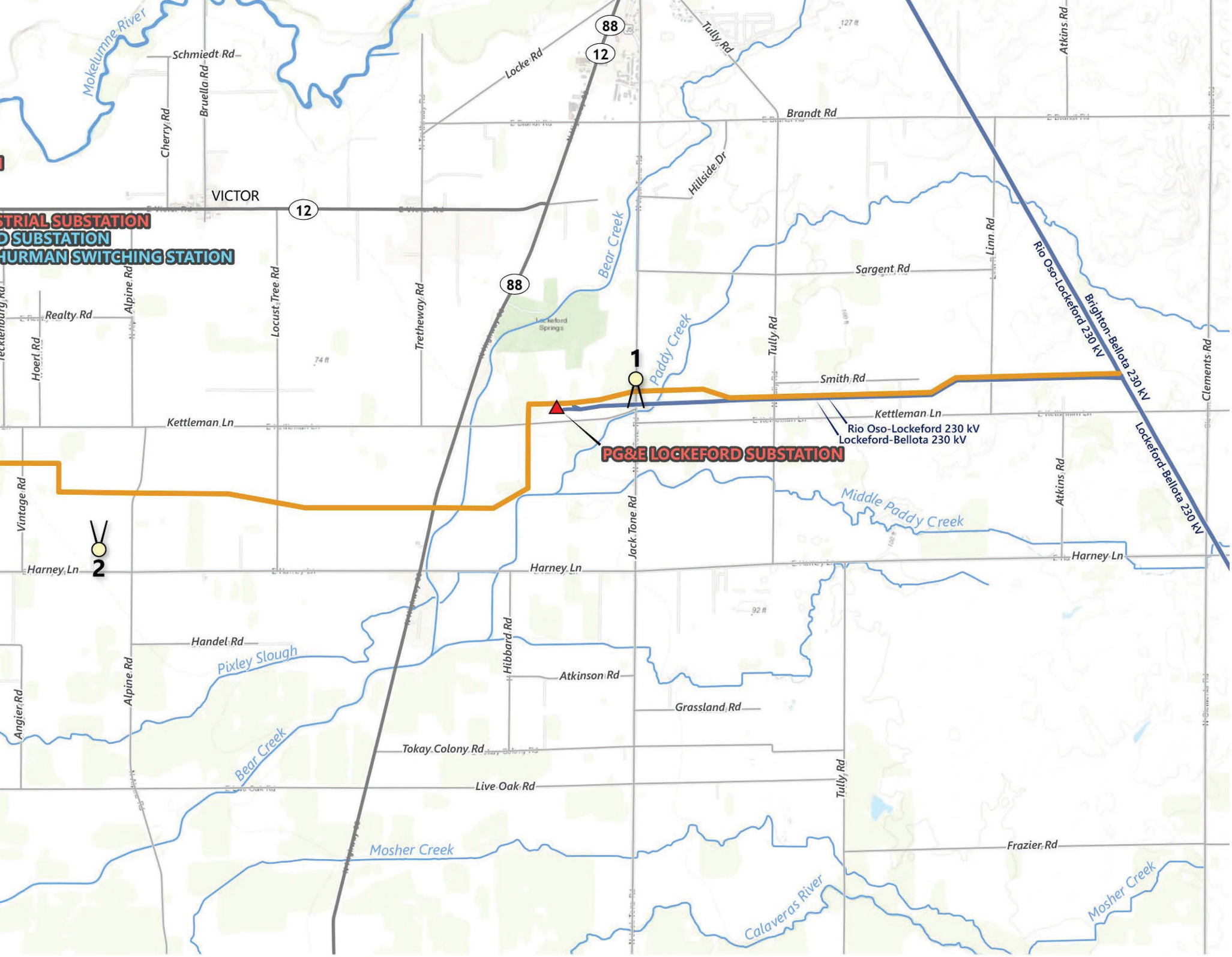
KOP 1 is a perspective from southbound North Jack Tone Road, a County-designated scenic roadway with low to moderate traffic volumes. This unobstructed motorist view shows the characteristically developed agricultural landscape in the vicinity of where the new 230kV transmission line crosses North Jack Tone Road, and where irrigated covered row crops and adjacent open pasture, roadside drainage canals, and numerous farm utility buildings and accessory structures are partially screened by roadside vegetation. Prominently silhouetted against the sky are wood utility poles, multiple lattice steel towers, and sets of intersecting overhead conductors that both cross and parallel the roadway. Visual sensitivity at this location is considered low to moderate because of the brief duration of motorists' views and relatively low traffic volumes, as well as the presence of multiple existing transmission lines and a limited number of nearby residences.

KOP 2: Mettler Vineyards (Looking North)

KOP 2 is a view taken at standing eye-level from an outdoor terrace at the commercial winery located along East Harney Lane. Visitors at the outdoor seating terrace experience views across a flat landscape of mature vineyards framed in the foreground by the winery's building, which incorporates a decorative masonry wall. Although stands of mature trees lining East Kettleman Lane are slightly visible on the horizon, distant views are largely screened by rows of grapevines. Because winery visitors are likely to be exposed to this view for a longer period of time as they enjoy the outdoor terrace, the visual sensitivity at this location is considered moderate to high.

KOP 3: Kettleman Lane (Looking Northwest)

KOP 3 is a motorist's view toward the project area from a well-traveled public roadway approaching the eastern perimeter of Lodi's industrial zone. Observed in the foreground silhouetted against the sky are wood utility poles that support numerous overhead power and telecommunication lines along North Curry Avenue, and several low-rise industrial warehouse structures also are partially visible in the background beyond an expanse of vineyard in the foreground. However, given the brief duration of motorists' views and the small number of nearby residences, the visual sensitivity at this location is considered moderate.


PG&E LOCKEFORD SUBSTATION
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
Brighton-Bellota 230 kV
Lockeford-Bellota 230 kV
1
2
VICTOR
Mokelumne River
Schmiedt Rd
Cherry Rd
Bruella Rd
Locke Rd
Tully Rd
Brandt Rd
Hillside Dr
Bear Creek
Sargent Rd
Linn Rd
Atkins Rd
Clements Rd
Realty Rd
Hoerl Rd
Alpine Rd
Locust Tree Rd
Tretheway Rd
Lockeford Springs
Paddy Creek
Smith Rd
Kettleman Ln
Vintage Rd
Jack Tone Rd
Middle Paddy Creek
Harney Ln
Handel Rd
Pixley Slough
Hibbard Rd
Atkinson Rd
Grassland Rd
Angier Rd
Tokay Colony Rd
Live Oak Rd
Mosher Creek
Frazier Rd
Calaveras River
88
12
74 ft
92 ft
127 ft

024.



Source: Jacobs Engineering Group 2023.

Existing view from North Jack Tone Road near East Kettleman Lane looking south (KOP 1).



Source: Jacobs Engineering Group 2023.

Existing view from Mettler Family Vineyards at East Harney Lane looking north (KOP 2).

Figure 3.2-3a Existing Views



Source: Jacobs Engineering Group 2023.

Existing view from East Kettleman Lane near North Curry Avenue looking northwest (KOP 3).



Source: Jacobs Engineering Group 2023.

Existing view from East Thurman Road looking northeast (KOP 4).

Figure 3.2-3b Existing Views

KOP 4: East Thurman Road (Looking Northeast)

KOP 4 shows the proposed PG&E Thurman Switching Station and LEU Guild Substation site from a public street located in an industrial district along Lodi's eastern perimeter. This motorist's view faces northeast across the undeveloped parcel toward South Guild Avenue. The view of a large industrial warehouse in the background is partially blocked by tractor-trailer rigs parked along the perimeter of the PG&E switching station site. The undeveloped parcel is adjacent to the existing LEU Industrial Substation, and on the far left a corner of the existing substation area, fencing is visible, with the majority of the substation equipment farther to the left and out of this view. In the center of the view, existing LEU service lines can be seen along South Guild Avenue, and on the left, existing PG&E power lines are silhouetted against the sky above isolated tree canopies near the warehouse and the larger stand of trees surrounding Memorial Park and Cemetery. Given the sensitivity, relatively small number of viewers, and location's industrial use and zoning, the overall visual sensitivity of this area is considered low.

3.2.2 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to aesthetics are applicable to the project.

STATE

California Scenic Highway Program

California's Scenic Highway Program was designed to protect scenic state highway corridors from changes that would diminish the aesthetic value of the land adjacent to the highways. The program is administered by the California Department of Transportation (Caltrans). A California highway may be designated as scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes on the traveler's enjoyment of the view (Caltrans 2024).

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City and County) discretionary regulations with respect to aesthetics. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process. Because the LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

County of San Joaquin Public Works Improvement Standards

The County of San Joaquin Department of Public Works approved the County's Improvement Standards document in November 2014. These improvement standards establish minimum development standards and design guidelines for future development, including repair and alteration of streets, roadways, drainage, sewage, parks, landscaping, irrigation, water supply facilities, and all related elements that are necessary to promote and protect the public health, safety, and general welfare of the community. The guidelines address site planning, architectural design, landscaping, management, and personal safety (San Joaquin County 2014b).

San Joaquin County General Plan

The San Joaquin County General Plan (San Joaquin County 2016) contains the following policies that are relevant to the project:

- Policy C-1.2: Character and Quality of Life. The County shall encourage new development in Urban and Rural communities to be designed to strengthen the desirable characteristics and historical character of the

communities, be supported by necessary public facilities and services, and be compatible with historical resources and nearby rural or resource uses.

- **Policy LU-3.10: Visual Access.** The County shall encourage new development to maintain views of hillsides, creeks, and other distinctive natural areas by regulating building orientation, height, and bulk.
- **Policy NCR-7.1: Scenic Roadways.** The County shall protect the visual character of designated scenic roadways.
- **Policy NCR-7.2: Views from Public Land and Roadways.** The County shall ensure that views of waterways, hilltops, and oak groves from public land and public roadways are protected and public access is provided to them whenever possible.
- **Policy NCR-7.4: Visually Complementary Development.** The County shall require new development adjacent to scenic resources to be sited and designed to visually complement those resources, except in MR-Z designated areas.
- **Policy NCR-7.7: Reducing Light Pollution.** The County shall encourage project designs, lighting configurations, and operational practices that reduce light pollution and preserve views of the night sky.
- **Policy NCR-7.8: Underground Utility Lines.** The County shall require all new electric and communication distribution facilities adjacent to scenic routes to be placed underground, whenever feasible. Where overhead utility lines are unavoidable, every effort should be made to reduce the visual impact through elements of design.

City of Lodi General Plan

The City of Lodi General Plan (City of Lodi 2010) contains the following policies that are relevant to the project:

- **Policy CD-G3:** Respect and maintain Lodi's small-town character, its existing neighborhoods, the historic downtown, and historic buildings.
- **Policy CD-P32:** In order to use less energy and reduce light pollution, ensure that lighting associated with new development or facilities (including street lighting, recreational facilities, and parking) shall be designed to prevent artificial lighting from illuminating adjacent residential neighborhoods and/or natural areas at a level greater than one foot candle above ambient conditions.
- **Policy P-G2:** Protect natural resource areas, native vegetation, scenic areas, open space areas, and parks from encroachment or destruction.
- **Policy P-P16:** Ensure safety of users and security of facilities through lighting, signage, fencing, and landscaping, as appropriate and feasible.

3.2.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

This section analyzes aesthetic impacts that would occur from implementation of the proposed project. The evaluation of potential aesthetic and visual resource impacts is based on review of existing site photos and visual simulations provided by PG&E, which represent key vantage points, and the nature, scale, and design of proposed project components. In determining the level of significance, this analysis focuses on the nature and magnitude of visual change associated with the development of the project compared to existing conditions. Systematic documentation of the visual setting and an evaluation of visual changes associated with the proposed project are provided. To convey a sense of existing visual conditions, photographs are included that show representative public views of the project area. Four KOPs have been selected to represent popular viewing locations. To document the visual change that would occur, visual simulations, presented as after images, are provided and analyzed below. The visual impact assessment is based on evaluation of the changes to the existing visual resources that would result from construction and operation of the project. These changes are assessed, in part, by evaluating the KOP after views provided by computer-generated visual simulations and comparing them to the existing visual environment.

The following factors, in combination with the thresholds below, were used to determine whether implementing the proposed project would create adverse visual effects:

- visual features or resources that make up and define the visual character of the viewsheds (the physiographic areas composed of land, water, biotic, and cultural elements that may be viewed and mapped from one or more viewpoints and that have inherent scenic qualities and/or aesthetic values as determined by those who view them),
- quality of the identified visual resources relative to overall regional visual character, and
- major viewer groups and viewer exposure.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant-proposed measures (APMs) that are incorporated into PG&E's components of the proposed project. Similarly, LEU has developed best management practices (BMPs) that would apply to the LEU components of the proposed project. The project includes the following APMs and BMPs related to aesthetics.

PG&E APMs[1]

- **APM AES-1: Aesthetics Impact Reduction During PG&E Construction.** All PG&E project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from the public view where possible. Where this is unavoidable, construction sites, staging areas, and fly yards will be visually screened using temporary screening fencing. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas will be returned to pre-project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.
- **APM AES-2: Use of Dulled Galvanized Finish on PG&E Tubular Steel Poles and PG&E Non-Specular Conductors.** Use of a factory-dulled galvanized finish on new PG&E TSPs and PG&E non-specular (nonreflective) conductors would reduce the potential for a new source of glare and visual contrast resulting from the PG&E TSPs and conductors.

LEU BMPs

- **BMP AES-1: Aesthetics Impact Reduction During LEU Construction.** All LEU project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from the public view where possible. Where this is unavoidable, construction sites, staging areas, and fly yards will be visually screened using temporary screening fencing. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon completion of project construction, project staging and temporary work areas will be returned to pre-project conditions, including regrading of the site and revegetation or repaving of disturbed areas to match pre-existing contours and conditions.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to on aesthetics under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments.* An impact on aesthetics would be considered significant if implementation of the project would:

- 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;

[1] Note that APMs AES-3, AES-3a, and AES-3b are not included in this section because they related to private views of a TSP from a residence and are not applicable to the analysis.

- in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings and in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality; or
- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

ISSUES NOT DISCUSSED FURTHER

State Scenic Highway

There are no designated state scenic highways located within the vicinity of the project area. SR 160, located approximately 23 miles west of the project site, is the nearest state-designated scenic highway, which traverses on top of levees along the Sacramento River from the Contra Costa County line to the southern city limit of the City of Sacramento (Caltrans 2023). SR 160 does not provide views to, nor is it visible from, the project area. Therefore, the project would have no impact on scenic resources in a designated State scenic highway. This topic is not addressed further.

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. Because all work would occur within the existing facility footprints and would be visually consistent with the existing infrastructure, the remote-end PG&E project components would not result in physical environmental changes that could have a substantial adverse effect on a scenic vista; substantially damage scenic resources within a state scenic highway; in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings and in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality; or create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact AES-1: Result in a Substantial Adverse Effect on a Scenic Vista

PG&E & LEU Project Components

The project area is in a predominately rural agricultural setting and contains few views of natural areas or other scenery that would be considered a scenic vista. Recognized scenic vistas within the project area include distant views of the Sierra Nevada foothills and the Diablo Range, as well as lands under agricultural production, such as vineyards and orchards. However, construction and operation of the project would be largely visually consistent and compatible with existing uses and infrastructure in the vicinity of the project area. Construction activities would be spread throughout the project area during the 2–3-year construction period. Activities along the majority of the alignment would be limited to a total of approximately a week of activity associated with preparing individual work areas and access, installing structure foundations, structure assembly, and stringing. These activities would not result in a substantial adverse effect on a scenic vista due to the limited duration and variation of activities. In contrast, the activities at the staging areas would be relatively consistent over a period of up to 34 months, and would typically be used for office trailers, crew and equipment assembly areas, safety and tailgate training areas, equipment and materials storage, and vehicle parking.

Following construction, staging areas would be removed and restored. Substation modifications would be within the modified fence line or adjacent to existing infrastructure. Transmission line segments would be constructed with self-supporting TSP monopole structures, which are typically constructed using galvanized steel. The majority of the

project would either be screened from view with existing vegetation or would blend in with existing adjacent development. As a result, the project components would be minimally visible from off-site locations and compatible with the existing visual quality and character of the surrounding area. The project would not directly result in an adverse effect on a scenic vista. Furthermore, the project would not obstruct views of scenic vistas, including the Coast and Sierra Nevada ranges or nearby rivers.

Implementation of APMs and BMPs

In accordance with APM AES-1 and BMP AES-1, construction staging areas would be sited away from public view where possible and visually screened using temporary screening fencing.

Significance before Mitigation

As discussed in Section 3.2.1, the major scenic vistas in San Joaquin County, including the City of Lodi, encompass views along county roads of the Sierra Nevada foothills and the Diablo Range. Additional scenic vistas include rural portions of the county, such as views of lands under agricultural production, vineyards, and orchards. The majority of the project would either be screened from view with existing vegetation and the use of temporary screening fencing during construction or would blend in with existing adjacent development. In addition, implementation of the APM and BMP described above would require that construction staging areas be located away from public view and visually screened using temporary screening fencing. This would reduce the potential for temporary effects on scenic vistas during construction. Once constructed, the project would not result in a substantial change to existing views of scenic vistas because the project components would be minimally visible from off-site locations and compatible with the existing visual quality and character of the surrounding area. Furthermore, the project would not obstruct views to the Coast and Sierra Nevada ranges or nearby rivers. As a result, the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact AES-2: Substantially Degrade the Existing Visual Character or Quality of Public Views of the Site and Its Surroundings

The analysis below includes a description of the visual changes associated with the project and an evaluation of potential visual effects on key public views, primarily as represented by the set of four KOP visual simulations in Figures 3.2-4a and 3.2-4b. Key factors in determining the degree of visual change are visual contrast, project dominance, and view blockage brought about by project elements. Visual contrast is a measure of the degree of change in line, form, color, and texture that the project would create when compared to the existing landscape. Project dominance is a measure of the project element's apparent size relative to other visible landscape features in the viewshed. View blockage is a measure of the degree to which project elements would obstruct or block views to landscape features established by the project's position or scale.

The significance or degree of visual impact is determined based on evaluation of visual change in relation to visual sensitivity factors, including visual quality of the landscape, number and types of viewers, and degree of exposure of viewers. Described below are the changes in visual quality or character of each KOP including existing conditions, temporary and permanent construction impacts, and operations and maintenance (O&M) activities.



Source: Jacobs Engineering Group 2023.

Visual simulation of proposed project (KOP 1).



Source: Jacobs Engineering Group 2023.

Visual simulation of proposed project (KOP 2).

Figure 3.2-4a Visual Simulations



Source: Jacobs Engineering Group 2023.

Visual simulation of proposed project (KOP 3).



Source: Jacobs Engineering Group 2023.

Visual simulation of proposed project (KOP 4).

Figure 3.2-4b Visual Simulations

PG&E and LEU Project Components

Construction Activities

Construction-related visual impacts along the existing PG&E 60 kV lines and new PG&E 230 kV transmission alignment, including staging and work areas and stringing sites, the temporary presence of equipment, materials, and work crews at the PG&E Lockeford Substation and Thurman Switching Station sites, would not substantially degrade the existing visual character or quality of the site and its surroundings. During construction, visual impacts would include the temporary presence of workers, structures, construction equipment, and vehicles associated with the installation of poles, conductors, and substation components. The PG&E Lockeford Substation and proposed PG&E Thurman Switching Station, as well as the modified PG&E 60 kV power lines, are located in proximity to public roadways. Although construction activities would be visible to motorists and a limited number of residents at these locations, adjacent structures and vegetation would provide some measure of screening.

Construction of the new PG&E 230 kV transmission line would occur primarily on agricultural land located at varying distances from roadways in areas where mechanized agricultural production activities typically employ the use of trucks and other equipment that is not unlike project-related construction equipment. Most commonly, the project would use the existing network of public and private farm roads to access structure work areas, pull-and-tension sites, and staging areas. Public views available to nearby residents and some agricultural workers of construction activities along the PG&E 230 kV transmission alignment would be more limited. Residences generally are isolated, scattered and, for the most part, surrounded to varying degrees by mature vegetation that would screen open views across the landscape. Motorists potentially would have more open views of construction activities where the proposed route would cross area roadways; local roadways crossed by the project transmission alignment generally carry light and intermittent traffic. As illustrated in Figure 3.2-1, above, views from several County-designated scenic roadways would be temporarily affected by construction activities. Specifically, Staging Area 4 would be located adjacent to Jack Tone Road. Views of the construction activity from SR 88 would generally be fleeting given typical roadway speeds. Construction is expected to take approximately 34 months, although construction activity would be visible for considerably less time at any one location along the project alignment.

Project construction would require minimal grading, and while some permanent removal of existing vegetation would be necessary, this would be limited for the most part to grapevines and a small number of orchard trees. Trees that encroach on existing access and spur roads, stringing sites, construction laydown and work areas, staging yards, and helicopter landing zones may be trimmed or removed to permit the safe operation of construction equipment; however, locations of these areas would be selected to minimize the effects on existing vegetation. This visual change would be minor and not particularly noticeable to the public. In the limited instances where tree removal is required, new replacement trees would be planted post construction. Overall, the visual effects of vegetation removal would be minor and temporary, and not particularly noticeable to the public.

Installation of poles and other structures would result in minor disturbance of land within the station areas and along the project transmission alignments. Additionally, minor land disturbance resulting in a limited degree of visual contrast may occur at some of the temporary staging and work areas that would be established as part of the project construction; these areas mainly would be located on previously disturbed land located near or along the project transmission alignment.

Operation and Maintenance

The project would involve the construction of a new PG&E 230 kV transmission line supported by approximately 72 tubular steel poles (TSPs) with an average height of approximately 126 feet along approximately 10.6 miles of predominantly agricultural land, in addition to the expansion of the PG&E Lockeford Substation on existing substation property to accommodate the new transmission components and the construction of a new PG&E Thurman Switching Station on a vacant parcel adjacent to the existing LEU Industrial Substation within the City of Lodi. Three existing PG&E 60 kV lines would be partially removed and reconfigured mainly within their existing alignments to continue operation between PG&E's Lockeford and Lodi Substations. As described in Chapter 2, "Project Description," new TSPs would include a dull galvanized finish on a nonreflective surface to reduce glare and visual contrast. This would minimize the prominence of the project in public views.

Unincorporated San Joaquin County is a non-urbanized area. The proposed PG&E 230 kV transmission structures would be predominantly situated on (private) agricultural land where often intervening vegetation and structures would screen public views of the project. The proposed project would be largely visually consistent and compatible with existing uses and infrastructure in the surrounding area of the project.

Most public views would be from area roadways, and viewers would consist of primarily residents and tourists visiting area vineyards. Although these viewer groups are generally sensitive to changes in the appearance of the area, these viewers are not expected to perceive a change in the visual character of the area due to the speed of motorist travel on the roadways, the intermittent nature of the TSP structures, and the consistency of the infrastructure with existing utilities in the area. Although there are no designated state scenic highways located within the vicinity of the project area, portions of the new PG&E 230 kV transmission line would be visible from a couple of San Joaquin County scenic routes in the project area. These routes include Clements Road, situated approximately 0.6 miles east of the takeoff point from the PG&E Brighton-Bellota transmission corridor, and North Jack Tone Road, which is crossed by the proposed alignment east of PG&E Lockeford Substation (refer to Figure 3.2-1). Views of the PG&E transmission line crossing North Jack Tone Road, as well as the view toward the transmission line available from Clements Road, would be seen in the context of multiple existing transmission lines that closely parallel the project route. The other County-designated scenic routes in the project area are SR 12 and SR 88. The designated scenic portion of SR 12 and SR 88 begins where the two highways meet approximately 3 miles north of PG&E Lockeford Substation. From this location and from the approach to the scenic portion of SR 12 east of Lodi, visibility of project components is limited by viewing distance, as well as the presence of intervening vegetation and structures. SR 88 is crossed by the PG&E transmission line alignment approximately 4 miles southwest of its scenic designation. PG&E project components visible to motorists along SR 88 would be seen in the context of an existing 60 kV power line supported by wood poles that crosses the highway approximately 0.25 miles south of the transmission line alignment. Furthermore, affected views would be fleeting, given typical highway speeds along this stretch of roadway.

As noted above, the CEQA impact evaluation of aesthetic effects in non-urbanized areas is focused on public views. New PG&E transmission structures would be primarily noticeable to area residents, particularly west of PG&E Lockeford Substation. Generally, the distance between residences and proposed infrastructure could change the views of the area but would not substantially degrade the quality of the views or character of the area. Because there are multiple existing nearby transmission structures and overhead lines, the moderate level of incremental visual change would not substantially affect the existing landscape character and would remain consistent with existing infrastructure. Additionally, TSPs would be constructed of galvanized steel to blend with the environment and thereby reducing the potential visual contrast against the sky backdrop

The project would result in visual modifications to the landscape resulting from the PG&E project components, which would primarily be experienced by motorists, residents, and visitors to area wineries and would be seen within the context of a working landscape with considerable modification related to agricultural activity, and where irrigation infrastructure along with agricultural processing, storage, and transport facilities are established visible landscape features. This infrastructure includes built components, such as steel fencing and corrugated metal warehouses. Within the project vicinity, existing electric utility structures are characteristic landscape elements in addition to numerous existing lattice steel towers supporting overhead transmission lines that closely parallel and intersect the approximately 3.8-mile project segment that extends from the PG&E Brighton-Bellota takeoff point to PG&E Lockeford Substation. Along its entire length, the project alignment passes near, or crosses, public roads as well as private farm roads where existing wood poles currently support overhead transmission and distribution lines. Although distant, open views of the project would potentially be available from some locations in the project area. The visual change associated with the project would likely be most noticeable where the alignment closely parallels or crosses paved public roadways, as well as where the alignment passes near more visually sensitive areas, such as residential properties or publicly accessible commercial wineries, which provide relatively close-range, medium- to long-duration views of project elements.

Along the new PG&E 230 kV transmission line, O&M activities, such as routine inspections and emergency repair, would require the periodic short-term use of vehicles and equipment that could be visible to the public. These activities would occur primarily on agricultural land at varying distances from roadways in areas where mechanized

agricultural production activities typically employ the use of trucks and other equipment that is not unlike project maintenance equipment. Maintenance could include activities such as repairing conductors, replacing insulators, repairing or replacing other hardware components, tree trimming, brush and weed control, and access road maintenance. Given the existing presence of mechanized agricultural activities and the limited number of affected viewers, these short-term activities would not substantially degrade the existing visual character of the landscape.

Within the City of Lodi, the PG&E project includes the construction of a new PG&E switching station on a vacant parcel adjacent to the existing LEU Industrial Substation, located within an industrial-zoned district characterized by existing industrial and commercial facilities and associated railroad lines. Modifications to existing PG&E 60 kV lines and removal of a portion of an existing PG&E 60 kV wood pole power line would occur in an industrial-zoned district within the City of Lodi. Modifications may be noticeable but would represent a minor change in visual effect in an industrial setting that includes adjacent built features of similar material, scale, and appearance. The modified PG&E 60 kV line would be seen by viewers who generally would be familiar with the surrounding industrial environment. Permanent visual change resulting from modifications to the existing PG&E Lockeford Substation and new PG&E Thurman Switching Station sites would be noticeable but minor and would not substantially alter or degrade the existing visual character of the landscape in these areas.

At the new LEU Guild Substation, modified LEU Industrial Substation, and relocated 12 kV feeder line, the O&M activities would represent a minor addition to ongoing activities at LEU Industrial Substation and other existing LEU 12 kV lines on adjacent roadways. These activities would not substantially degrade the existing visual character of the landscape.

Representative Viewpoints

KOP 1: North Jack Tone Road (PG&E Project Components)

Figures 3.2-3a and 3.2-4a, show an existing and a post-project view of KOP 1 along North Jack Tone Road near the intersection with East Kettleman Lane. This KOP shows numerous wood utility poles supporting an existing power line that parallels the roadway on the right, whereas multiple existing lattice steel structures support several collocated transmission lines that cross the road a short distance beyond.

Figure 3.2-4a visual simulation illustrates where the double-circuit PG&E 230 kV transmission line would cross the roadway in the immediate foreground. The new TSP structure on the right side of the road would be noticeable; however, because of the presence of numerous existing structures, it would not dominate the view. Given the brief duration of motorists' views, and because there are multiple existing nearby transmission structures and overhead lines, the moderate level of incremental visual change at this location would not substantially affect the existing landscape character.

KOP 2: Mettler Vineyards (PG&E Project Components)

Figure 3.2-3a is a view from Mettler Vineyards, a commercial winery located along East Harney Lane. Taken at standing eye-level, this view looking north across a mature vineyard is framed by the winery's indoor tasting room and a decorative masonry wall in the foreground. Slightly visible on the horizon are stands of mature trees along East Kettleman Lane located approximately 0.8 miles away.

Figure 3.2-4a is a visual simulation that shows the new PG&E 230 kV transmission line at a distance of approximately 0.4 mile, where a pair of new TSPs can be seen silhouetted against the sky on the left and right, beyond the expanse of vineyard in the foreground. Although the new project structures are noticeable against the light sky backdrop and this viewpoint is defined as a moderate to high viewer sensitivity area, the project structures do not dominate this view in which the grapevines, as well as decorative landscape and structural elements, provide focal points in the immediate foreground. Additionally, the approximately 6-foot-tall grapevines would effectively screen views of winery visitors who are seated at the outdoor tables, and thus the project would not be visible from this seated vantage point.

KOP 3: Kettleman Lane (PG&E Project Components)

KOP 3 is farther west, where the new PG&E 230 kV project alignment parallels North Curry Avenue just east of Lodi. Figure 3.2-3b shows a motorist's view from East Kettleman Lane, a well-traveled public roadway approaching the eastern perimeter of Lodi's industrial zone. A residence seen on the right edge of the view is one of several that are

interspersed among vineyards along both North Curry Avenue and East Kettleman Lane. For residents in this area, mature vegetation lining the roadways and enclosing many of the residential properties generally screens open views of the landscape. Observed in the foreground silhouetted against the sky, wood utility poles support numerous overhead power and telecommunication lines along North Curry Avenue while several low-rise industrial warehouse structures also are partially visible in the background past an expanse of vineyard in the foreground.

The KOP 3 visual simulation in Figure 3.2-4b shows two new PG&E 230 kV TSPs supporting overhead conductors silhouetted against the sky where the project alignment skirts the edge of an industrial complex beyond the grapevines seen in the foreground. The new structure on the left is noticeably taller and larger in diameter than the nearby wood poles; however, because of the presence of existing wood poles visible at this location, the new poles do not dominate the view. Overall, the introduction of the new PG&E project structures would represent a minor change to the visual setting that includes existing electrical infrastructure, as well as industrial structures in the background.

KOP 4: East Thurman Road (PG&E and LEU Project Components)

Figure 3.2-3b shows a view of the proposed LEU Guild Substation and PG&E switching station site from East Thurman Road, a public street located in an industrial district along the City of Lodi's eastern perimeter. Looking toward South Guild Avenue, this motorist's view shows the undeveloped parcel adjacent to the existing LEU Industrial Substation against the backdrop of a large industrial warehouse on the right. On the far left, a corner of the existing LEU Industrial Substation fencing is visible, with the majority of the substation equipment farther to the left and out of this view. Silhouetted against the sky near the center left of the view, existing PG&E 60 kV power lines situated along a rail corridor on the far side of the site can be seen above tree canopies near the warehouse; a larger stand of trees surrounds Memorial Park and Cemetery, located beyond South Guild Avenue.

The visual simulation in Figure 3.2-4b depicts part of the new LEU Guild Substation on the left and the new PG&E Thurman Switching Station in the center. This close-range view of the project shows that the new perimeter fences would screen lower portions of substation and switching station components. Within the perimeter fence, taller support structures ranging in height from approximately 45 feet to 55 feet and an approximately 150-foot-tall communications (or microwave) tower adjacent to the facility on the left are visible against a sky backdrop. The new PG&E communications tower would be approximately 125 feet tall. New TSP structures ranging in height from 130 feet to 145 feet would support the new PG&E 230 kV transmission line. They would be partially visible beyond the new PG&E switching station and extend beyond the existing warehouse in the center of the view. The project also includes removing and reconfiguring some existing PG&E 60 kV poles partially visible behind the switching station in this view. Located adjacent to existing substation facilities, the new PG&E switching station and associated structures would be seen in the context of numerous similar electrical utility structures and substation components. As a result, the new PG&E facility would represent a minor change in visual effect in an industrial setting that includes adjacent built features of similar material, scale, and appearance. Project components would be seen by a limited number of viewers, who generally would be familiar with the surrounding industrial environment; the overall visual sensitivity at this location is considered low to moderate because of its location, industrial use, and zoning.

Summary of KOPs

As discussed previously and demonstrated by the set of visual simulations from KOPs presented in Figures 3.2-4a and 3.2-3b, although the construction of the PG&E project components would result in visual changes that would be noticeable to varying degrees, overall the effects of the PG&E project components would not substantially degrade the existing visual character or quality of public views in non-urbanized areas, or conflict with applicable zoning and other regulations governing scenic quality in the urbanized area of Lodi.

Implementation of APMs and BMPs

Implementation of APM AES-1 and BMP AES-1 would require construction staging, material storage, and work areas to be located away from public view wherever possible. Where this is unavoidable, construction sites and staging areas would be visually screened using temporary screening fencing. Additionally, all areas that would be temporarily disturbed by construction would be restored to conditions as close to preconstruction as feasible following the completion of construction.

Construction and operation of the PG&E and LEU project components would affect the existing visual character and quality of public views of the project area; however, implementation of APM AES-1 and BMP AES-1 would reduce visual contrast and potential visibility of land disturbance in areas temporarily disturbed by construction by restoring the land to conditions as close to preconstruction as feasible, or to the conditions agreed upon between the landowner and PG&E following the completion of construction. While the construction of the PG&E project components would result in visual changes that would be noticeable to varying degrees the project would not substantially degrade the existing visual character or quality of public views in non-urbanized areas, or conflict with applicable zoning and other regulations governing scenic quality in the urbanized area of Lodi.

Significance before Mitigation

Construction and operation of the project would be largely visually consistent and compatible with existing uses and infrastructure surrounding the project area and would not be located in areas of high viewer sensitivity, with the exception of KOP 2. Project components would be either screened from view with existing vegetation or would appear consistent with existing adjacent development. As a result, the project components would be moderately visible from off-site locations, including nearby residences and businesses. However, the proposed infrastructure would be generally compatible with the existing visual quality and character of the surrounding area. As a result of conditions outlined previously, and implementation of the APMs and BMPs described above, the project would not substantially degrade the existing visual character of the landscape surrounding the project area. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact AES-3: Create a New Source of Substantial Light or Glare That Would Adversely Affect Day or Nighttime Views

PG&E Project Components

The 230 kV transmission line and PG&E Lockeford Substation are predominantly situated in a rural setting where lighting sources tend to be localized and associated with agricultural processing facilities, residences, and some roadway intersections. Street lighting and outdoor industrial facility lighting is widespread in the area around PG&E Thurman Switching Station and service line, 60 kV line, and 230 kV line construction within the City of Lodi.

Although project construction would occur mostly during daylight hours, occasionally some nighttime work may be necessary that would require limited temporary lighting at some work areas. In addition, for the duration of construction, staging yards may require nighttime security lighting. Outside the City of Lodi, given the limited amount of nighttime light sources in the area, construction lighting used along the PG&E transmission line alignments and in the PG&E Lockeford Substation area may create a new source of substantial temporary light in the area if lights are directed toward roadways or residences.

No new permanent lighting is proposed along the PG&E 230 kV transmission line. New nighttime lighting on some new structures at PG&E Lockeford Substation and PG&E Thurman Switching Station would be operated as needed for safety, security, and for emergency nighttime work. As discussed in Chapter 2, "Project Description," outdoor lighting would include nonglare or hooded fixtures and directional lighting and thereby reduce the potential for light spillage. As described above, all new steel structures would be galvanized to reduce glare.

Implementation of APMs

In accordance with APM AES-1, temporary construction lighting would be directed on-site and away from potentially sensitive receptors and would include shields to prevent light spillover effects. Additionally, construction staging areas would be sited away from public view where possible and visually screened using temporary screening fencing. As described in Chapter 2, "Project Description," and in APM AES-2, equipment at PG&E Lockeford Substation and the new PG&E Thurman Switching Station would be a nonreflective neutral gray color and galvanized steel structures would weather to a dull, nonreflective patina which would minimize the potential effect of glare.

As noted above, the potential for light impacts with implementation of the project would be minimal because no permanent lighting along the PG&E 230 kV transmission line is proposed. Minimal nighttime lighting is proposed at the existing PG&E Lockeford Substation and PG&E Thurman Switching Station, where security lighting currently operates. Implementation of APM AES-1 would require directional lighting with shielded and cutoff-type light fixtures that would minimize glare as well as light spillage and skyglow.

LEU Project Components

LEU project components are predominantly situated in an urban/industrial setting where lighting sources tend to be localized and associated with agricultural processing facilities, warehouses, and some roadway intersections. Street lighting and outdoor industrial facility lighting is widespread in the area around LEU Industrial and Guild Substations, including the feeder line within the City of Lodi. Although LEU's project construction is expected to occur mostly during daylight hours, there may occasionally be some necessary nighttime work and would require limited temporary lighting at some work areas. In addition, for the duration of construction, staging yards may require nighttime security lighting. As described in Chapter 2, "Project Description," and consistent with project design, equipment at the new LEU Guild Substation would be a nonreflective neutral gray color and galvanized steel structures which would weather to a dull, nonreflective patina, minimizing the potential effect of glare. New nighttime lighting on some new structures at LEU Guild Substation would be operated as needed for safety, security, and for emergency nighttime work. Additionally, as discussed in Chapter 2, "Project Description," outdoor lighting would include nonglare or hooded fixtures and directional lighting and thereby reduce the potential for light spillage.

Implementation of BMPs

In accordance with BMP AES-1, construction lighting would be directed on-site and away from potentially sensitive receptors and would include shields to prevent light spillover effects. Additionally, construction staging areas would be sited away from public view where possible and visually screened using temporary screening fencing.

Significance before Mitigation

Implementation of the APMs and BMPs described above would require the use of nonreflective surfaces and directional lighting with shielded and cutoff-type light fixtures that would minimize light spillage and skyglow, and therefore reduce the potential for light and glare effects. As a result, the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.3 AGRICULTURE

This section describes the existing agricultural resources within and near the project area, applicable regulatory requirements related to agriculture, the methods used for the assessment of impacts, and the potential direct and indirect environmental impacts on agricultural resources associated with implementation of the project. The information in this section is based on the California Department of Conservation (CDOC) Farmland Mapping and Monitoring Program (FMMP) data; Williamson Act contract maps; aerial photographs; and the San Joaquin County and City of Lodi general plans and zoning ordinances.

Several comments related to agriculture were received in response to the notice of preparation (NOP). Comments generally expressed concerns related to potential disruption of agricultural practices during and following construction of the project. Commenters stated that the proposed transmission lines would restrict landowners' ability to use aerial application of materials (e.g., fertilizer) to vineyards and fields, requiring less efficient and more costly alternate application methods, as well as limit the property owners' use of land and ability to change crops.

Commenters also identified potential conflicts with existing agricultural wells and the need to relocate existing wells and associated infrastructure. Additionally, commenters requested that the installation of tubular steel poles (TSPs) avoid underground water infrastructure, such as irrigation pipes. Finally, comments identified the potential for the project to negatively affect the agrotourism and wine industry.

See Appendix A for all comments received during the public scoping period. These issues are addressed in the impact analysis below. The effects of the project on agricultural wells are further discussed in Section 3.11, "Hydrology and Water Quality," and the effects on agrotourism at wineries are further discussed in Section 3.15, "Public Services and Recreation." Pursuant to Section 15131 of the CEQA Guidelines, the focus of the analysis in this EIR is on the physical changes in the environment that would result from implementation of the project. As explained in Section 3.1.2, "Economic Effects," economic or social effects of the project, such as diminished land values and financial returns and disproportionate effects to small farmers from modified agricultural practices, are not considered significant effects on the environment under CEQA and are not discussed further in this EIR.

3.3.1 Environmental Setting

REGIONAL SETTING

The project area is within northeastern San Joaquin County and an industrial area of the City of Lodi. Northeastern San Joaquin County is predominantly agricultural, with retail wineries, rural and semirural residential development outside the City of Lodi, and small concentrated areas of industrial and commercial business along transportation corridors.

San Joaquin County is in the center of California's vast agricultural heartland, commonly known as the Central Valley. San Joaquin County encompasses approximately 921,600 acres (or about 1,440 square miles) of relatively level, agriculturally productive lands. Agriculture remains the economic base of the county and is a $6.6 billion industry that employs nearly 17 percent of the county's population (San Joaquin County 2016). San Joaquin County is the top producer, statewide, of asparagus, with 24,000 acres of farmland dedicated to this single crop. In recent years, the leading crop in San Joaquin County has shifted to wine grapes (San Joaquin County 2022).

AGRICULTURAL RESOURCES

Figure 3.3-1 depicts agricultural resources within 0.5 miles of the project components based on agricultural crop data compiled by the San Joaquin County Office of the Agricultural Commissioner. As shown on Figure 3.3-1, the proposed PG&E 230 kV alignment within unincorporated San Joaquin County traverses land used for the production of crops, including grapes, cherries, forage hay, oats, walnut, corn, oats, and almonds. The PG&E Lockeford Substation is a 20-acre property located on two parcels (Assessor Parcel Map Numbers [APNs] 05126022 and 05126023) that are primarily surrounded by active agricultural land use on designated agricultural land. PG&E does not use its existing substation property outside the existing fence line for agricultural purposes. However, active agricultural uses have encroached onto the northeast corner of the PG&E substation property, outside the existing fence line, in a portion of the substation

fence line expansion area. Within the City of Lodi, no PG&E or LEU project components intersect with lands containing agricultural resources.

Agricultural wells are common in the project area. As shown on Figure 3.11-3 in Section 3.11, "Hydrology and Water Quality," two wells are identified within the proposed PG&E 230 kV alignment and are over 150 feet away from proposed construction areas (Appendix B, page 4 and page 6).

IMPORTANT FARMLAND

Public Resources Code (PRC) Section 21060.1 defines "agricultural land" as land categorized by the CDOC as Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. These designations are collectively referred to as Important Farmland and defined as follows:

- **Prime Farmland:** Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Farmland of Statewide Importance:** Farmland similar to Prime Farmland, but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Unique Farmland:** Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. Land must have been cropped at some time during the 4 years prior to the mapping date.

Figure 3.3-2 depicts areas within 0.5 miles of the project components that are classified by the CDOC as Important Farmland. The PG&E Lockeford Substation includes land categorized as Prime Farmland within the existing fence line, and lands categorized as Prime Farmland and Farmland of Statewide Importance are within the substation fence line expansion area. Within unincorporated San Joaquin County, the proposed PG&E 230 kV alignment intersects with lands designated Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Within the City of Lodi, no PG&E or LEU project components intersect with lands designated as Important Farmland.

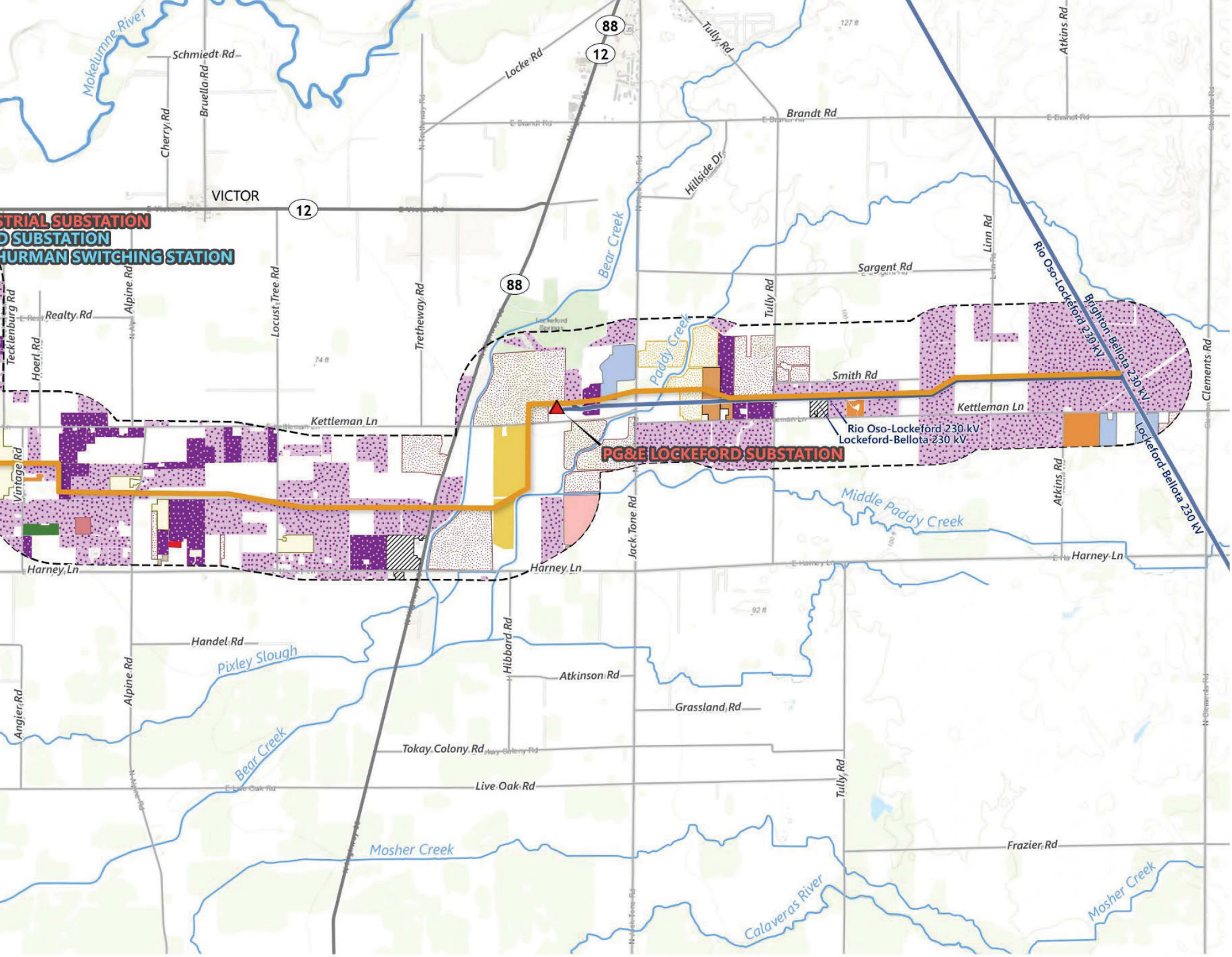
WILLIAMSON ACT CONTRACTS

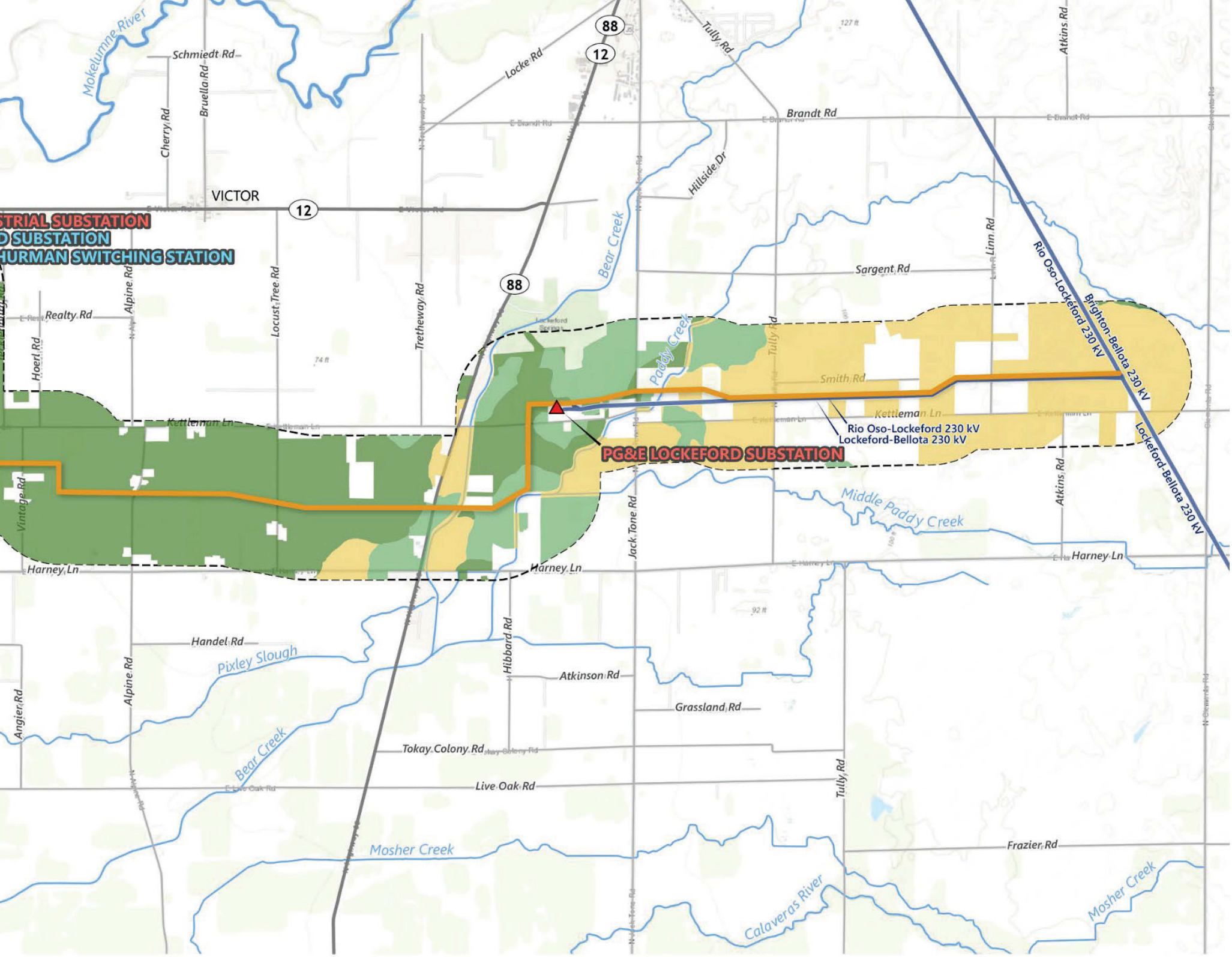
Figure 3.3-3 depicts parcels under Williamson Act contracts that intersect with or are within 0.5 miles of the project components. As shown on Figure 3.3-3, the PG&E Lockeford Substation property is not on land under a Williamson Act contract; however, parcels immediately adjacent to the substation are enrolled in Williamson Act contracts. The portion of the proposed PG&E 230 kV alignment within unincorporated San Joaquin County crosses multiple parcels that are enrolled in Williamson Act contracts. Within the City of Lodi, no PG&E or LEU project components are on land under a Williamson Act contract.

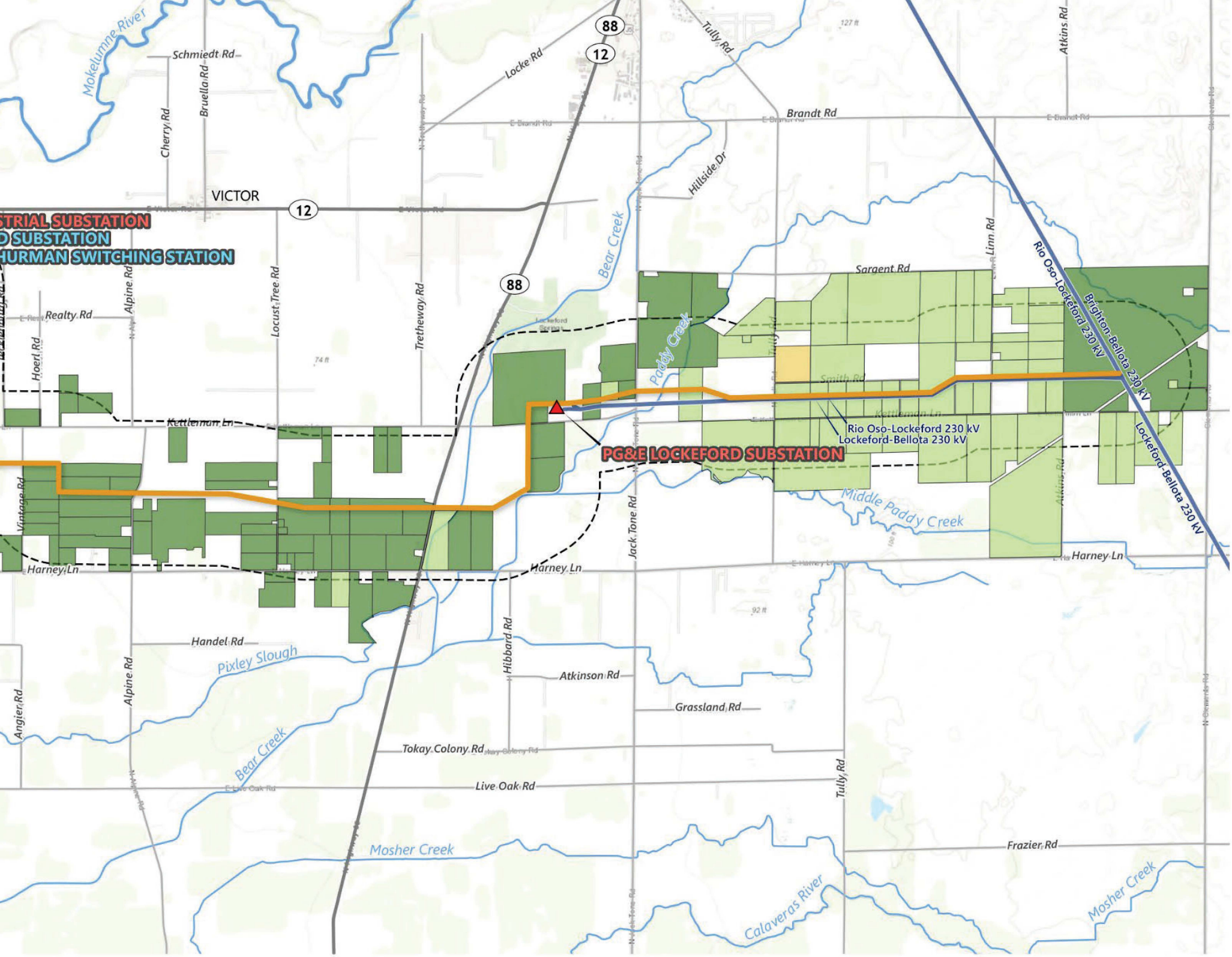
AGRICULTURAL GENERAL PLAN LAND USE AND ZONING DESIGNATIONS

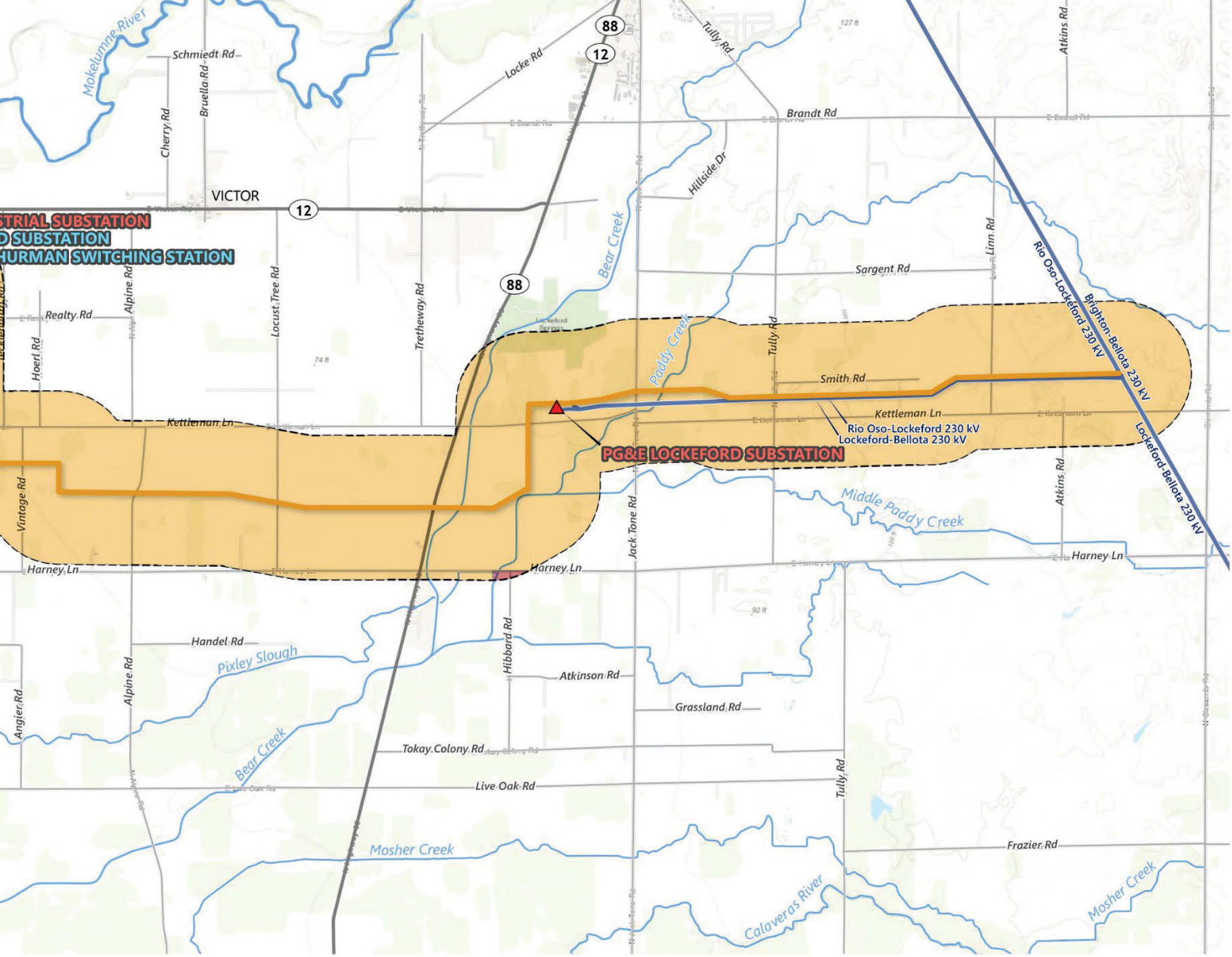
Figure 3.3-4 depicts land with agricultural zoning within 0.5 miles of the project components. San Joaquin County designates agricultural land uses and zoning within its jurisdiction. Within unincorporated San Joaquin County, the project area includes land designated for General Agriculture (A/G) land uses, which provide for large-scale agricultural production and associated processing, sales, and support uses. The General Agriculture designation typically applies to areas outside land planned for urban development where soils are capable of producing a wide variety of crops or supporting grazing. Typical building types for this land use designation include low-intensity structures associated with farming and agricultural processing and sales. Within unincorporated San Joaquin County, the project area also includes land zoned General Agriculture (40 acres). This zoning designation was established to preserve agricultural lands with a minimum parcel size of 40 acres for the continuation of commercial agriculture enterprises.

The City of Lodi designates agricultural land uses within its jurisdiction, but has not established agricultural zoning districts. No portions of the project area within the City of Lodi have agricultural land use or zoning.


STRIAL SUBSTATION
D SUBSTATION
HURMAN SWITCHING STATION
PG&E LOCKEFORD SUBSTATION
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
Rio Oso-Lockeford 230 kV
Brighton-Bellota 230 kV
Lockeford-Bellota 230 kV
VICTOR
88
12
Mokelumne River
Schmiedt Rd
Cherry Rd
Bruella Rd
Locke Rd
Tully Rd
Brandt Rd
Hillside Dr
Bear Creek
Sargent Rd
Linn Rd
Atkins Rd
Clements Rd
Realty Rd
Tecklenburg Rd
Hoerl Rd
Alpine Rd
Locust Tree Rd
Tretheway Rd
Paddy Creek
Smith Rd
Kettleman Ln
Vintage Rd
Middle Paddy Creek
Jack Tone Rd
Harney Ln
Handel Rd
Pixley Slough
Hibbard Rd
Atkinson Rd
Grassland Rd
Angier Rd
Tokay Colony Rd
Live Oak Rd
Mosher Creek
Frazier Rd
Calaveras River


STRIAL SUBSTATION
D SUBSTATION
HURMAN SWITCHING STATION
PG&E LOCKEFORD SUBSTATION
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
Rio Oso-Lockeford 230 kV
Brighton-Bellota 230 kV
Lockeford-Bellota 230 kV
VICTOR
88
12
Mokelumne River
Schmiedt Rd
Cherry Rd
Bruella Rd
Locke Rd
Tully Rd
Brandt Rd
Hillside Dr
Bear Creek
Sargent Rd
Linn Rd
Atkins Rd
Realty Rd
Hoerl Rd
Alpine Rd
Locust Tree Rd
Tretheway Rd
Paddy Creek
Smith Rd
Kettleman Ln
Vintage Rd
Jack Tone Rd
Middle Paddy Creek
Harney Ln
Handel Rd
Pixley Slough
Hibbard Rd
Atkinson Rd
Grassland Rd
Angier Rd
Tokay Colony Rd
Live Oak Rd
Mosher Creek
Frazier Rd
Calaveras River
Farm
Exist


STRIAL SUBSTATION
D SUBSTATION
HURMAN SWITCHING STATION
PG&E LOCKEFORD SUBSTATION
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
Rio Oso-Lockeford 230 kV
Brighton-Bellota 230 kV
Lockeford-Bellota 230 kV
VICTOR
88
12
Mokelumne River
Schmiedt Rd
Cherry Rd
Bruella Rd
Locke Rd
Tully Rd
Brandt Rd
Hillside Dr
Bear Creek
Linn Rd
Sargent Rd
Realty Rd
Alpine Rd
Hoert Rd
Locust Tree Rd
Tretheway Rd
Paddy Creek
Smith Rd
Kettleman Ln
Vintage Rd
Jack Tone Rd
Middle Paddy Creek
Atkins Rd
Harney Ln
Handel Rd
Pixley Slough
Hibbard Rd
Atkinson Rd
Grassland Rd
Angier Rd
Tokay Colony Rd
Live Oak Rd
Mosher Creek
Frazier Rd
Calaveras River
74 ft
92 ft
127 ft


STRIAL SUBSTATION
D SUBSTATION
HURMAN SWITCHING STATION
PG&E LOCKEFORD SUBSTATION
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
Brighton-Bellota 230 kV
Lockeford-Bellota 230 kV
VICTOR
88
12
Mokelumne River
Schmiedt Rd
Cherry Rd
Bruella Rd
Locke Rd
Tully Rd
Brandt Rd
Hillside Dr
Bear Creek
Sargent Rd
Linn Rd
Atkins Rd
Realty Rd
Hoerl Rd
Alpine Rd
Locust Tree Rd
Tretheway Rd
Paddy Creek
Smith Rd
Kettleman Ln
Vintage Rd
Jack Tone Rd
Middle Paddy Creek
Harney Ln
Handel Rd
Pixley Slough
Hibbard Rd
Atkinson Rd
Grassland Rd
Angier Rd
Tokay Colony Rd
Live Oak Rd
Mosher Creek
Frazier Rd
Calaveras River

3.3.2 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to agriculture are applicable to the project.

STATE

Farmland Mapping and Monitoring Program

The CDOC established the Farmland Mapping and Monitoring Program (FMMP) in 1982, as a nonregulatory program to provide a consistent and impartial analysis of agricultural land use and land use changes throughout California. The FMMP now maps agricultural and urban land use for nearly 98 percent of the state's privately held land. The California Important Farmland Map created by the FMMP is a composite of land use data and USDA data on soil type. Land use is established by the FMMP through aerial photograph interpretation. The minimum area mapped by the FMMP is 10 areas; land uses that occur in areas smaller than 10 acres are aggregated with the most appropriate adjacent land use category. The FMMP rates and classifies agricultural land according to soil quality, irrigation status, and other criteria. Important Farmland categories are Prime Farmland, Farmland of Statewide Importance, and Unique Farmland and are defined above in Section 3.3.1, "Environmental Setting." Other FMMP categories include Farmland of Local Importance, Grazing Land, Urban and Built-Up Land, Other Land, and Water (CDOC 2024).

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965 (commonly referred to as the Williamson Act) is designed to preserve agricultural and open space land. The Williamson Act establishes a program of contracts with private landowners who voluntarily restrict their land to agricultural and open space uses. The program is a two-step process involving the establishment of an agricultural preserve by the local legislative body and then approval of a land conservation contract. In return, owners of Williamson Act parcels receive a lower property tax rate consistent with the land's actual use instead of its market value. Lands under contract may also support uses that are "compatible with the agricultural, recreational, or open-space use of [the] land" subject to the contract (California Government Code Section 51201[e]).

Government Code Section 51290 states that "(a) it is the policy of the state to avoid, whenever practicable, the location of any federal, state, or local public improvements and any improvements of public utilities, and the acquisition of land therefor, in agricultural preserves," and "(b) it is further the policy of the state that whenever it is necessary to locate such an improvement within an agricultural preserve, the improvement shall, whenever practicable, be located upon land other than land under a contract pursuant to this chapter." However, Section 51293 states that "the location or construction of any public utility improvement which has been approved by the Public Utilities Commission" is exempt from the requirement of preventing the placement of public improvements within Williamson Act contract lands.

California Government Code Section 51222 states that "it is in the public interest for local officials and landowners to retain agricultural lands which are subject to contracts entered into pursuant to this act in parcels large enough to sustain agricultural uses permitted under the contracts." Pursuant to this section, agricultural land is presumed to be in parcels large enough to sustain their agricultural use if the land is "(1) at least 10 acres in size in the case of prime agricultural land, or (2) at least 40 acres in size in the case of land that is not prime agricultural land."

California Government Code Section 51238 states that "the erection, construction, alteration, or maintenance of gas, electric, water, communication, or agricultural laborer housing facilities are determined to be compatible uses within any agricultural preserve." This section further states that "no land occupied by gas, electric, water, communication, or agricultural laborer housing facilities shall be excluded from an agricultural preserve by reason of that use."

California Farmland Conservancy Program

The California Farmland Conservancy Program was established under PRC Sections 10200–10277 to promote the long-term preservation of agricultural lands in California through the use of agricultural conservation easements. In addition to funding provided for agricultural easement acquisition, California Farmland Conservancy Program grant funds are available for projects that develop policy or planning oriented to agricultural land protection, and for improvements to land already under an agricultural conservation easement (e.g., erosion control, riparian area improvements). The program is authorized to accept donations from private entities if CDOC is the designated beneficiary of the donation and it uses the funds for purposes of the program in a county specified by the donor (PRC Section 10231.5).

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local discretionary regulations. However, local plans and policies are considered for informational purposes. Because LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County General Plan

The Land Use Element of the *San Joaquin County General Plan* (San Joaquin County 2016) contains the following policies related to agricultural resources that are relevant to the project:

- **LU-7.1: Protect Agricultural Land.** The County shall protect agricultural lands needed for the continuation of viable commercial agricultural production and other agricultural enterprises.
- **LU-7.10: Agricultural Mitigation Program.** The County shall continue to require agricultural mitigation for projects that convert agricultural lands to urban uses.
- **LU-7.12: Agricultural Land Conversion Mitigation.** The County shall maintain and implement the Agricultural Mitigation Ordinance to permanently protect agricultural land within the County.
- **LU-7.14: Agricultural Preserves.** The County shall encourage all areas designated for agricultural uses to be placed in an agricultural preserve and be eligible for Williamson Act contracts, provided the land is not anticipated for development for at least 10 years.
- **LU-7.15: Williamson Act Contracts.** The County shall continue to administer the Williamson Act program and shall maintain procedures for Williamson Act contracts consistent with the policies in the General Plan.

City of Lodi

City of Lodi General Plan

The *City of Lodi General Plan* (City of Lodi 2010) contains the following policies related to agricultural resources that are relevant to the project:

- **C-G1:** Promote preservation and economic viability of agricultural land surrounding Lodi.
- **C-G2:** Maintain the quality of the Planning Area's soil resources and reduce erosion to protect agricultural productivity.
- **C-P1:** Work with San Joaquin County and the City of Stockton to maintain land surrounding Lodi in agricultural use. Encourage the continuation of Flag City as a small freeway-oriented commercial node, with no residential uses.
- **C-P5:** Ensure that urban development does not constrain agricultural practices or adversely affect the economic viability of adjacent agricultural practices. Use appropriate buffers consistent with the recommendations of the San Joaquin County Department of Agriculture (typically no less than 150 feet) and limit incompatible uses (such as schools and hospitals) near agriculture.

Lodi Municipal Code

Chapter 8.18 of the *Lodi Municipal Code* states that "it is the policy of the city to protect, preserve and encourage the use of viable agricultural lands for the production of food and other agricultural products. When non-agricultural land uses extend into or encroach upon agricultural areas, it is likely that conflicts will arise between such land uses and the agricultural operations. These conflicts often result in an involuntary curtailment or cessation of agricultural operations, are detrimental to the local economy, and discourage investment in such agricultural operations." The purpose of the chapter is to reduce the occurrence of conflict between agricultural and nonagricultural land uses within the City of Lodi. The chapter requires sellers or transferors of real property to issue disclosure statements to buyers regarding agricultural operations affecting their properties. In addition, the chapter requires property owners to be notified of agricultural operations affecting their properties when applying for city building permits.

3.3.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

The following evaluation is based on CDOC FMMP data and maps; Williamson Act contract maps; aerial imagery; and general plans, zoning ordinances, and maps produced by San Joaquin County and the City of Lodi. The analysis describes the impact of the project on agricultural resources after consideration of existing regulations and applicant-proposed measures.

Impacts on Important Farmland were analyzed using 2018 FMMP data compared with the project's preliminary engineering design and construction and maintenance work areas and access. For the purposes of this analysis, and as discussed in Section 3.3.1, "Environmental Setting," Important Farmland is considered any land designated by 2018 FMMP data as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (PRC Section 21060.1). The impacted acreage was calculated for areas that would experience temporary and permanent ground disturbance based on data provided by PG&E. Areas of temporary ground disturbance were determined using the boundaries of construction work areas, staging areas, and temporary access roads. Areas of permanent ground disturbance were determined using the footprint for new and expanded facilities and infrastructure, which are stations and TSPs. As described in Section 2, "Project Description," the footprint of each TSP would range from approximately 7.1 to 38.5 square feet. For a conservative analysis using the upper limit of this range, it is assumed that each pole would have a footprint of 38.5 square feet and a surrounding 10-foot buffer for vegetation clearance around the base of each pole. Therefore, the area of permanent ground disturbance for each TSP is assumed to be 0.0131 acre.

The conversion of Important Farmland to non-agricultural use would be considered significant if the project reduces a mapping unit of Important Farmland to less than 10 acres. The California Important Farmland Map employs 10 acres as the minimum mapping unit on the maps, with features smaller than 10 acres absorbed into the surrounding classifications. Therefore, parcels that fall below this threshold may lose the Farmland designation at the next bi-annual update. Impacts on land enrolled in Williamson Act contracts were analyzed using 2023 data from CDOC. The analysis quantifies the acres of land enrolled in Williamson Act contracts that would be taken out of agricultural production using the proposed areas of temporary and permanent ground disturbance provided by PG&E. A conflict with a Williamson Act contract would occur if a project introduces new permanent facilities that are not considered compatible uses of contracted Williamson Act lands under California Government Code Section 51238. In addition, a conflict would occur if a project reduces the available agricultural land within a parcel to less than 10 acres in the case of prime farmland or to less than 40 acres in the case of nonprime farmland. These thresholds are the minimum acreage requirements that the California Government Code (Section 51222) establishes as the minimum parcel size presumed necessary to sustain agricultural use (refer to Section 3.3.2, "Regulatory Setting").

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant-proposed measures (APMs) that are incorporated into PG&E's components of the proposed project. The project includes the following APM related to agricultural resources.

PG&E APMs

- APM AGR-1: Minimize Impacts on Active Agricultural Areas.
  - Prior to construction, PG&E will provide written notice to landowners outlining construction activities, preliminary schedule, and timing of restoration efforts.
  - PG&E will coordinate with landowners to minimize construction-related disruptions to seasonal farming operations. To the extent reasonably feasible, PG&E will schedule construction activities to minimize disruptions to harvesting, planting, and crop maintenance activities, such as fertilizer application and crop dusting.
  - PG&E will establish temporary overland access routes and work areas to minimize disruptions to agricultural infrastructure (including irrigation lines, wells, pumps, ditches, and drains) to the greatest extent reasonably feasible. If necessary, and upon agreement between PG&E and the landowners, agricultural infrastructure will be protected with temporary materials (for example, steel plates, blankets) to prevent inadvertent damage during construction. Where feasible, overland routes within orchards and vineyards will be aligned with the planting layout or otherwise to minimize tree and vine removal.
  - If trees or other crops cannot be avoided by PG&E as specified previously, impacts will be limited to the minimum necessary to construct the project, and PG&E will provide the agricultural landowner with fair market compensation for crops removed, crops unable to be harvested, lost planting cycles, and any damaged infrastructure.
  - PG&E will restore agricultural land temporarily impacted by construction to pre-project conditions following completion of construction, including areas impacted by establishment of temporary staging, laydown and storage areas, overland access, guard structures, and pull sites. If grading occurs in actively planted agricultural areas, topsoil will be stockpiled and used to backfill excavations to pre-existing grade when construction is complete. Restoration of sites will involve removing any rock or material imported to stabilize the site, replacing topsoil, decompacting any soil that has been compacted by heavy equipment, and replanting agricultural crops. The responsibility of performing these various tasks may be stipulated in an agreement between PG&E and the landowner. If a landowner is better equipped or prefers to replant crops or perform other tasks themselves, then PG&E will provide just compensation for this work.

LEU BMPs

No best management practices (BMPs) related to agricultural resources are proposed as part of the project.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to agricultural resources under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. An agricultural resources impact would be significant if implementation of the project would:

- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- conflict with existing zoning for agricultural use or a Williamson Act contract;
- conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220[g]), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104[g]);
- result in the loss of forest land or conversion of forest land to non-forest use; or
- involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

ISSUES NOT DISCUSSED FURTHER

Forest Land and Timberland: PG&E and LEU Project Components

PRC Section 12220(g) defines "forest land" as land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. PRC Section 4526 defines "timberland" as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Timberland Production Zone is land that can be used for growing and harvesting timber and for compatible uses.

San Joaquin County and the City of Lodi do not contain any lands zoned for forest land, timberland, or timberland production. No project components would be constructed or operated on forest land, as defined in PRC Section 12220(g), or timberland, as defined in PRC Section 4526. PG&E project-related activities outside San Joaquin County would occur within existing fenced station facilities, which do not contain forest land or timberland. Therefore, the project would not result in impacts on forest land, timberland, and Timberland Production Zones. This issue is not discussed further.

Important Farmland, Agricultural Zoning, and Williamson Act Land: LEU Project Components

Temporary construction activities and permanent facilities for the LEU project components would not be located on Important Farmland. In addition, the LEU project components would not discourage the continued use of adjacent land for agricultural use and would not result in changes that would induce growth. Therefore, the LEU portion of the project would not result in the conversion of Important Farmland to nonagricultural use or involve other changes in the existing environment that could result in the conversion of Important Farmland to nonagricultural use. These issues are not discussed further for the LEU portion of the project.

Temporary construction activities and permanent facilities for the LEU project components are entirely within the City of Lodi on lands zoned Industrial and Public/Quasi-Public. The LEU project components are not located on lands zoned for agricultural use or agricultural land under Williamson Act contracts. Therefore, the LEU project components would not result in conflicts with existing zoning for agricultural use or a Williamson Act contract. These issues are not discussed further for the LEU portion of the project.

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project components would not result in physical environmental changes that could result in conversion of Farmland to non-agricultural use; conflict with existing zoning for agricultural use, Williamson Act contract, or forest land; result in the loss of forest land or conversion of forest land to non-forest use; or involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact AG-1: Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to Nonagricultural Use

PG&E Project Components

Construction Activities

As listed in Table 3.3-1 and shown on Figure 3.3-2, temporary work areas and access for construction of the PG&E project components would occur on approximately 43.67 acres of designated Important Farmland within unincorporated San Joaquin County.

Table 3.3-1 Area of Important Farmland within Temporary Work Areas and Access Roads

Important Farmland Designation	Approximate Acreage within Temporary Work Areas and Access Roads for the PG&E Project Components
Prime Farmland	27.30 acres
Unique Farmland	8.11 acres
Farmland of Statewide Importance	8.24 acres
Total Important Farmland	**43.67 acres**

Source: Jacobs Engineering Group 2023.

Most temporary work areas around PG&E structures would be parallel or adjacent to agricultural, city, or county roads. Consequently, most work areas would be accessed directly from adjacent roads. Most of the existing paved and unpaved roads in the project vicinity are currently used for large agricultural vehicle and equipment movement during field preparation, planting, maintenance, and harvesting.

As shown in Table 2-7 of Chapter 2, "Project Description," approximately 28 almond trees, 17 walnut trees, 73 cherry trees, 154 apple trees, 80 olive trees, and 4,089 grape vines would be removed to establish temporary work areas and access (Jacobs Engineering Group 2023). Removed crops would be replaced in-kind after construction as mutually decided in a temporary construction easement agreement between the property owners and PG&E.

The proposed PG&E project components have been designed to minimize impacts on agricultural resources. New or modified PG&E easements would be required between property owners and PG&E, allowing PG&E to construct, operate, and maintain the new infrastructure. Upon completion of construction activities, all areas of temporary ground disturbance would be returned to pre-construction condition, unless otherwise requested by the landowners.

Operation and Maintenance

As summarized in Table 3.3-2 and shown on Figure 3.3-2, permanent PG&E project components would be installed on approximately 1.41 acres of Important Farmland. The project would require installation of approximately 57 TSP structures to support new PG&E transmission lines, which would permanently convert approximately 0.44 acre of Prime Farmland, 0.16 acre of Unique Farmland, and 0.14 acre of Farmland of Statewide Importance to nonagricultural uses associated with electrical infrastructure. In addition, modifications to the existing PG&E Lockeford Substation on PG&E property would permanently convert approximately 0.49 acres of Prime Farmland and approximately 0.18 acres of Farmland of Statewide Importance to accommodate the expanded footprint of the substation on the north side of the existing facility's fence line, where agricultural uses have encroached onto the northeast corner of the PG&E substation property occurs through direct encroachment.

Table 2-7 in Chapter 2, "Project Description," summarizes the estimated agricultural crop removal needed to establish permanent facility footprints and maintain conductor clearances in accordance with General Order 95, which specifies rules for overhead electrical line construction. Approximately 7 almond trees, 42 walnut trees, 37 cherry trees, 97 apple trees, 108 olive trees, and 2,695 grape vines would be permanently removed to accommodate the installation and operation of the new PG&E 230 kV line. Crops would be prevented from growing within 10 feet of the base of

new PG&E transmission structures. Additionally, certain orchard trees that could grow to heights that may interfere with the PG&E line clearance required for safe operation, such as walnut and almond, may be excluded from being replanted or planted as part of the PG&E easement agreement. The primary crop that would be permanently removed by the proposed PG&E project components is grapes.

Table 3.3-2 Area of Important Farmland Intersecting the PG&E Project Components

Important Farmland Designation	Approximate Acreage Intersecting the PG&E Project Components
Prime Farmland	0.44 acres (permanent pole footprint)
	0.49 acres (permanent fenced substation expansion)
Unique Farmland	0.16 acres (permanent pole footprint)
Farmland of Statewide Importance	0.14 acres (permanent pole footprint)
	0.18 acres (permanent fenced substation expansion)
Total Important Farmland	1.41 acres

Source: Jacobs Engineering Group 2023.

Agricultural operations, such as the movement of farm equipment and aerial application of pesticides, in the vicinity of overhead power lines and TSPs may be restricted. However, the presence of this utility infrastructure would not prevent ongoing use of any individual property for agricultural use. The conversion of Important Farmland would be distributed over 42 parcels, ranging from 0.013 to 0.040 acre of conversion per parcel.

As noted above, the proposed PG&E project components have been designed to minimize impacts on agricultural resources. New or modified PG&E easements would be required between property owners and PG&E, allowing PG&E to construct, operate, and maintain the new infrastructure. Where possible, existing access roads would be used for maintenance of the proposed PG&E project components, which would occur every 5 years over the 75-year transmission line life span. Maintenance access through active agricultural areas would occur on a limited basis because the proposed transmission line components would require infrequent ground-based inspection. Inspection activities are not likely to require a vehicle to be located at a structure base. Should agricultural impacts occur during O&M, restoration and compensation would follow the terms of the property easement agreement between PG&E and the landowner. O&M of PG&E project components would not convert additional Important Farmland to nonagricultural use.

Implementation of APMs

PG&E would implement APM AGR-1 to minimize impacts on active agricultural areas. Specifically, APM AGR-1 requires PG&E to notify landowners of proposed project activities, coordinate with landowners to minimize construction-related disruptions, establish overland access routes and work areas to minimize disruptions to agricultural infrastructure, provide fair market compensation for the removal of crops or damaged infrastructure, and restore or provide compensation to landowners to restore agricultural land temporarily impacted by construction to pre-project conditions.

Significance before Mitigation

Temporary construction activities for the PG&E project components would occur on approximately 43.67 acres of Important Farmland. APM AGR-1, described above, would provide agricultural landowners with fair market compensation for crops removed, crops unable to be harvested or replanted, lost planting cycles, damaged infrastructure, and restoration of impacted agriculture land during PG&E construction activities. APM AGR-1 would minimize the potential for inconvenience and monetary loss associated with construction of utilities on Important Farmland. Upon completion of construction of PG&E project components, all areas of temporary ground disturbance would be returned to pre-construction condition, unless otherwise requested by the landowners. Because temporarily impacted farmland would be restored after construction, construction activities would not result in the conversion of Important Farmland to nonagricultural use.

Permanent PG&E project components, including new TSPs and expanded substations, would encompass a combined total of approximately 1.41 acres of Important Farmland. Although the project would result in the removal of existing agricultural crops and modifications to existing agricultural operations in the vicinity of overhead power lines and TSPs, the project would not prevent ongoing use of the properties for agricultural use. As described under "Analysis Methodology" above, the conversion of Important Farmland to non-agricultural use would be considered significant if the project reduces a mapping unit of Important Farmland to less than 10 acres. The conversion of Important Farmland would be distributed over 42 parcels, ranging from 0.013 to 0.040 acre of conversion per parcel. Because the total conversion of Important Farmland to non-agricultural at any single parcel would be no more than 0.040 acre, no individual mapping unit of Important Farmland would be reduced to less than 10 acres such that it could no longer be considered or mapped as Important Farmland by the CDOC. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact AG-2: Conflict with Existing Zoning for Agricultural Use or a Williamson Act Contract

PG&E Project Components

As shown on Figure 3.3-4, the PG&E project components would occur on land with agricultural zoning within unincorporated San Joaquin County. The proposed PG&E 230 kV transmission line intersects land zoned General Agricultural (40 acres). In addition, the PG&E Lockeford Substation and the existing PG&E Rio Oso–Lockeford transmission structure to be relocated are on PG&E property zoned General Agricultural (40 acres). According to Table 9-605.2 of the San Joaquin County Municipal Code, major utilities are permitted in the General Agriculture zone district subject to site approval. Because the PG&E project components are considered permitted and compatible uses with existing agricultural zoning, the project would not change the designation of any land from an agricultural to a nonagricultural use. Therefore, the project would not result in a conflict with existing zoning for agricultural use.

As shown on Figure 3.3-3, the PG&E 230 kV transmission line installation, Lockeford Substation expansion, and temporary construction areas (laydown yards, pull-and-tension sites, overland routes) would partially occur on parcels enrolled in Williamson Act contracts. During project construction, portions of these areas totaling approximately 43.16 acres would be taken out of production to accommodate PG&E construction activities, delivery and staging of construction materials, installation of poles and lines, and access for construction crews.

Approximately 0.53 acre of land under Williamson Act contracts would be permanently taken out of production for the footprint of the TSPs (Table 3.3-3). A total of 40 poles would be installed on land under Williamson Act contracts, which would be distributed over 23 different parcels. For the purpose of this assessment, calculations are performed at the parcel level; however, agricultural preserves established under the Williamson Act may be composed of several parcels to meet the minimum acreage qualifications.

As shown in Table 3.3-3, the potential land conversion on any individual parcel would be less than a tenth of an acre. Although several parcels are below the minimum acreage requirements to enter into Williamson Act contracts, as specified in California Government Code Section 51222 (APN 5126007 is below the 10-acre threshold for prime farmland and APNs 5126012, 5304013, 5308010, 5308012, 5308017, 5308019, 5308020, 5314014, and 5314020 are below the 40-acre threshold for nonprime farmland), these parcels may be combined with other parcels under the contract. No parcel that is large enough to meet the minimum acreage requirement to enter into a Williamson Act contract would be reduced to less than 10 acres for prime farmland or 40 acres for nonprime farmland as a result of the project. Farmers would be required to modify existing agricultural operations, such as the movement of farm equipment and aerial application of pesticides, in the vicinity of overhead power lines and TSPs. However, the presence of this utility infrastructure would not prevent ongoing agricultural use of the properties under the Williamson Act. The minor reduction in size of the current Williamson Act parcels due to the TSPs would not disqualify these parcels from maintaining their designation as agricultural preserves because the area of land taken out of production for any one parcel would be negligible, ranging between 0.0131 to 0.0655 acre per parcel (Table 3.3-3).

Table 3.3-3 Williamson Act Land Permanently Taken Out of Production from Tubular Steel Poles

APN	Classification	Size of Existing Parcel (acres)[1]	Area of Land Taken out of Production (acres)	Number of TSPs
5126007	Prime	9.47	0.0131	1
5126012	Nonprime	10.13	0.0131	1
5126013	Prime	19.38	0.0262	2
5126019	Prime	148.72	0.0262	2
5304013	Nonprime	38.72	0.0131	1
5308010	Nonprime	19.78	0.0131	1
5308012	Nonprime	38.12	0.0131	1
5308017	Nonprime	19.14	0.0131	1
5308019	Nonprime	19.45	0.0131	1
5308020	Nonprime	19.27	0.0131	1
5314014	Nonprime	78.74	0.0131	1
5314020	Nonprime	19.83	0.0131	1
5314028	Prime	19.70	0.0131	1
5316009	Prime	605.47	0.0393	3
6113305	Prime	19.31	0.0131	1
6113306	Prime	20.02	0.0131	1
6113319	Prime	34.18	0.0131	1
6113330	Prime	41.68	0.0524	4
6315056	Prime	54.98	0.0393	3
6316032	Prime	44.58	0.0393	3
6316033	Prime	44.99	0.0655	5
6325033	Prime	39.13	0.0262	2
6325034	Prime	36.01	0.0262	2
Total			**0.53**	**36**

Notes: [1] Agricultural preserves established under the Williamson Act may be composed of several parcels to meet the minimum acreage qualifications.

Source: Compiled by Ascent in 2024.

Furthermore, electric utility facility construction and maintenance activities are considered compatible uses of contracted Williamson Act lands under California Government Code Section 51238. California Government Code Section 51238 states that "the erection, construction, alteration, or maintenance of gas, electric, water, communication, or agricultural laborer housing facilities are hereby determined to be compatible uses within any agricultural preserve." Placing PG&E project components on existing parcels under Williamson Act contracts would not change the land use designation for the parcels or conflict with the underlying intent of the contracts, which are to preserve agricultural land in agricultural use.

Implementation of APMs

PG&E would implement APM AGR-1 to minimize impacts on active agricultural areas. Specifically, in accordance with APM AGR-1, PG&E would notify landowners of proposed project activities, coordinate with landowners to minimize construction-related disruptions, establish overland access routes and work areas to minimize disruptions to agricultural infrastructure, provide fair market compensation for the removal of crops or damaged infrastructure, and restore or provide compensation to landowners to restore agricultural land temporarily impacted by construction to pre-project conditions.

Significance before Mitigation

The PG&E portion of the proposed project is not subject to local land use and zoning regulations. Regardless, the PG&E project components would be considered a permitted use in areas with agricultural zoning in unincorporated San Joaquin County. Therefore, the project would not conflict with existing zoning.

Approximately 43.16 acres of land enrolled in Williamson Act contracts would be temporarily taken out of production to accommodate PG&E construction activities. Upon completion of construction of PG&E project components, all temporary ground disturbance would be returned to pre-construction condition, unless otherwise requested by the landowners. APM AGR-1, described above, would provide the agricultural landowner with fair market compensation for crops removed, crops unable to be harvested or replanted, lost planting cycles, damaged infrastructure, and restoration of impacted agriculture land during PG&E construction activities.

Approximately 0.53 acres of land enrolled in Williamson Act contracts would be permanently taken out of production for the footprint of the TSPs, which would be distributed over 23 different parcels. The area of land taken out of production for any one parcel would be negligible, ranging between 0.0131 to 0.0655 acre per parcel, and would not prevent ongoing agricultural use of the properties under the Williamson Act. Further, the electrical facilities would be compatible uses under the existing Williamson Act contracts. Placing PG&E project components on existing parcels under Williamson Act contracts would not change the land use designation for the parcels or conflict with the underlying intent of the contracts, which are to preserve agricultural land in agricultural use. Therefore, the project would not result in conflicts with Williamson Act contracts. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact AG-3: Involve Other Changes in the Existing Environment That Could Result in Conversion of Important Farmland to Nonagricultural Use

PG&E Project Components

As discussed further in Section 3.14, "Population, Employment, and Housing," the project would strengthen the existing power infrastructure to better serve existing and planned future customers in the area, including agricultural users, by preventing service interruptions and allowing customers to continue operating with a more reliable power source. The project does not propose new housing, businesses, or other land use changes, including the extension of roads or infrastructure to previously undeveloped areas. Therefore, the project would not induce population growth in the area that would accelerate the conversion of agricultural land to urban and built-up land. Project implementation would not discourage the continued use of adjacent land for agricultural use.

As described in Section 3.3.1, "Environmental Setting," Important Farmland is designated based on physical properties, including water supply, soil quality, and topography. Agricultural wells are common in the project area, and the transmission line route avoids most of the known agricultural well locations. As shown on Figure 3.11-3 in Section 3.11, "Hydrology and Water Quality," two wells are identified within the proposed transmission line right of way (near structures E9 and E12; refer to Appendix B, page 4 and page 6), and appropriate vertical and horizontal clearances have been accounted for in the transmission line design to provide adequate clearance for well maintenance equipment at these known well locations. With project approval and final design, well information would be confirmed and updated as needed in coordination with landowners, and if necessary, the pole siting would be adjusted within the parameters analyzed in this EIR to avoid impacts to wells. It is assumed that no wells would be relocated as part of the proposed project. Therefore, project implementation would not result in changes to existing water supplies, such that conversion of Important Farmland to nonagricultural use would occur. The project would not involve any other changes to the physical environment, such as changes to soil quality or topography, that could result in conversion of Important Farmland to nonagricultural use.

The potential for the project to negatively affect agrotourism at commercial wineries is addressed in Section 3.2, "Aesthetics," and Section 3.15, "Public Services and Recreation." As discussed further in Section 3.2, the project components would generally be screened from view by landscaping and would blend in within existing adjacent development. As a result, the project components would be minimally visible from off-site locations and would be

compatible with the existing visual quality and character of the surrounding area. As discussed further in Section 3.15, the project would not impair the agrotourism use of the project area. Therefore, the project would not diminish scenic quality or recreational opportunities in a manner that would discourage agrotourism, such that conversion of Important Farmland to nonagricultural use would occur.

As indicated in the discussion above, the project would not involve changes in the existing environment that could result in the conversion of Important Farmland to nonagricultural use.

Implementation of APMs

No applicable APMs are proposed as part of the project.

Significance before Mitigation

The project is intended to provide a more reliable power source to existing and planned future customers, including agricultural users, and would not induce population growth in the region. The project would not induce population growth that could affect agriculture. The project would not change the characteristics of the physical environment that support Important Farmland, such as the soil quality, topography, and water supply. In addition, the project would not diminish the scenic quality or recreational opportunities in a manner that would discourage agrotourism. Therefore, the project would not involve changes in the existing environment that could result in the conversion of Important Farmland to nonagricultural use. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.4 AIR QUALITY

This section summarizes the applicable federal, state, regional, and local air quality regulations; describes the existing air quality conditions in the project vicinity; and analyzes the potential air quality impacts associated with implementation of the project.

No comments related to air quality were received in response to the notice of preparation (NOP). See Appendix A for all NOP comments received during the public scoping period.

3.4.1 Environmental Setting

The project site is located in the San Joaquin Valley Air Basin (SJVAB) in the southern half of California's Central Valley. The SJVAB includes all of San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, and Kings Counties as well as part of Kern County. The existing air quality conditions in the SJVAB are determined by natural factors, such as topography, meteorology, and climate, as well as emissions released by existing air pollutant sources and the atmosphere's ability to transport and dilute those emissions.

CLIMATE, METEOROLOGY, AND TOPOGRAPHY

The SJVAB encompasses an area approximately 250 miles long that averages 35 miles wide and is shaped like a narrow bowl. The SJVAB is bordered by the Sierra Nevada mountains to the east (ranging from 8,000 to more than 14,000 feet in elevation), the Coast Ranges to the west (averaging 3,000 feet in elevation), and the Tehachapi Mountains to the south (6,000–7,981 feet in elevation). There is a slight downward elevation gradient from Bakersfield in the southeast end (408 feet in elevation) to sea level at the northwest end where the Central Valley opens to the San Francisco Bay at Carquinez Straits (SJVAPCD 2015). The SJVAB is in a Mediterranean climate zone. The SJVAB is typically arid in the summer; cool temperatures and tule fog (a dense ground fog) are prevalent in the winter and fall. Average high temperatures in the summer are in the mid 90°F range; average low temperatures in winter are in the high 40°F range. January is typically the wettest month of the year, with an average of approximately 2 inches of rain. Wind direction typically is from the northwest with speeds around 30 mph. The subtropical high-pressure cell is strongest during spring, summer, and fall and produces subsiding air that can result in temperature inversions in the Central Valley. Wintertime high-pressure events often last many weeks, with surface temperatures in the 30°F range. During these events, fog can be present, and inversions can be strong. Winter inversions can inhibit vertical mixing of pollutants to a few hundred feet (SJVAPCD 2015).

CRITERIA AIR POLLUTANTS

Concentrations of criteria air pollutants are used to indicate the quality of the ambient air. A description of key criteria air pollutants in the SJVAB and their potential impacts on human health is provided below. The SJVAB's attainment status for the CAAQS and the NAAQS are shown in Table 3.4-2.

Ozone

Ozone is a photochemical oxidant (a substance whose oxygen combines chemically with another substance in the presence of sunlight) and the primary component of smog. It is not directly emitted into the air but is formed through complex chemical reactions between precursor emissions of reactive organic gases (ROG) and NO_X in the presence of sunlight. ROG are volatile organic compounds (VOCs) that are photochemically reactive. For the purposes of CEQA analyses, "ROG" and "VOCs" are terms used interchangeably and represent the same group of emissions. ROG emissions result primarily from incomplete combustion and the evaporation of chemical solvents and fuels. NO_X are a group of gaseous compounds of nitrogen and oxygen that result from the combustion of fuels. CARB no longer provides region-wide projections. However, statewide, emissions of the ozone precursors ROG and NO_X have decreased over the past several years because of more stringent motor vehicle standards and cleaner-

burning fuels. Emissions of ROG and NO_X decreased from 2000 to 2010 and are projected to continue decreasing from 2010 to 2035 (CARB 2013).

Acute health effects of ozone exposure include increased respiratory and pulmonary resistance, cough, pain, shortness of breath, and lung inflammation. Chronic health effects include permeability of respiratory epithelia and possibility of permanent lung impairment (EPA 2024a).

Table 3.4-1 Attainment Status Designations for the SJVAB

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	Nonattainment (8-hour)[1]	Nonattainment (1-hour) classification: serious[3]
	Nonattainment (8-hour)[2]	Nonattainment (8-hour)
Respirable particulate matter (PM_{10})	Attainment	Nonattainment
Fine particulate matter ($PM_{2.5}$)	Nonattainment	Nonattainment
Carbon monoxide (CO)	Unclassified/attainment	Attainment
Nitrogen dioxide (NO_2)	Unclassified/attainment	Attainment
Sulfur dioxide (SO_2)[5]	Unclassified/attainment	Attainment
Lead (Particulate)	Unclassified/attainment	Attainment
Hydrogen sulfide	No federal standard	Unclassified
Sulfates		Attainment
Visibly reducing particles		Unclassified
Vinyl chloride		Unclassified

[1] 2008 Standard.

[2] 2015 Standard.

[3] Per Health and Safety Code Section 40921.5(c), the classification is based on 1989–1991 data and therefore does not change.

Sources: CARB 2020, EPA 2023.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a brownish, highly reactive gas present in all urban environments. The major human-made sources of NO_2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X and are reported as equivalent NO_2. Because NO_2 is formed and depleted by reactions associated with photochemical smog (ozone), the NO_2 concentration in a geographical area may not be representative of the local sources of NO_X emissions (EPA 2024a). In the SJVAB, mobile sources account for up to 85 percent of the air basin's smog (SJVAPCD 2024).

Acute health effects of exposure to NO_X includes coughing, difficulty breathing, vomiting, headache, eye irritation, chemical pneumonitis, pulmonary edema, breathing abnormalities, cyanosis, chest pain, rapid heartbeat, and death. Chronic health effects include chronic bronchitis and decreased lung function (EPA 2024a).

Particulate Matter

Respirable particulate matter with an aerodynamic diameter of 10 micrometers or less is referred to as PM_{10}. PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust; soot and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust; and particulate matter formed in the atmosphere by reaction of gaseous precursors (CARB 2013). Fine particulate matter ($PM_{2.5}$) includes a subgroup of smaller particles that have an aerodynamic diameter of 2.5 micrometers or less. PM_{10} emissions in the SJVAB are dominated by emissions from area sources, primarily fugitive dust from vehicle travel on unpaved and paved roads, farming operations, construction and demolition, and particles from residential fuel combustion. Direct emissions of PM_{10} are projected to remain relatively constant through 2035. Emissions of $PM_{2.5}$ in the SJVAB are dominated by the same sources as emissions of PM_{10} (CARB 2013). Additionally, emissions of ambient $PM_{2.5}$ are heavily influenced by

secondary source emissions, such as nitrates, sulfates, and organic compounds from combustion processes, including biomass burning, soil and road dust, livestock operations, and use of aerosols (Behera and Sharma 2010). While primary $PM_{2.5}$ is from direct emissions, secondary $PM_{2.5}$ is formed in the atmosphere through photochemical reactions, condensation, and other atmospheric processes.

A number of adverse health impacts have been associated with exposure to both $PM_{2.5}$ and PM_{10} (CARB 2024). Short-term exposures to PM_{10} have been associated with primarily worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits. For $PM_{2.5}$, short-term exposures (up to 24 hours in duration) have been associated with premature mortality, increased hospital admissions for heart or lung cases, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and worldwide. Long-term (months to years) exposure to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases and in children with reduced lung function growth.

Carbon Monoxide

CO is an odorless, colorless gas formed by the incomplete combustion of fuels. CO is a product of motor vehicle exhaust, which comprises the majority of ambient CO concentrations. High concentrations of CO generally occur in areas with heavy traffic congestion. Other sources of CO emissions include industrial processes, such as carbon black manufacturing, non-transportation-related fuel combustion, and natural sources, such as wildfires. CO can cause harmful health effects by reducing oxygen delivery to the body's organs (including the heart and brain) and tissues. For people with heart disease, short-term exposure to CO can further affect their body's capacity to respond to the increased oxygen demands of exercise or exertion. CO can also be deadly in indoor environments and closed spaces. The San Joaquin Valley has been in attainment for CO since 1994 (SJVAPCD n.d.).

MONITORING STATION DATA AND ATTAINMENT DESIGNATIONS

CARB maintains ambient air monitoring stations for criteria pollutants throughout California. The air monitoring stations closest to the project area are at University Park and on Hazelton Street in Stockton. Because the Stockton-Hazleton Station does not include data from 2022, only the air monitoring data recorded at the University Park Station is used. Table 3.4-2 summarizes available data from the University Park Station for 2021 and 2022, as these are the only years available. As shown, multiple exceedances of the NAAQS and CAAQS, primarily for particulate matter, have recently been recorded.

Table 3.4-2 Summary of Annual Data on Ambient Air Quality Near the Project Area (2021–2022)

	2021	2022
Ozone		
Maximum concentration (1-hour/8-hour avg, 0.09 ppm/0.070 ppm)	0.040/0.036	0.141/0.113
Number of days state/national standard exceeded (8-hour avg, 0.070 ppm)	0	1
Number of days national standard exceeded (1-hour, 0.09 ppm)	0	1
Fine Particulate Matter ($PM_{2.5}$)		
Maximum concentration (24-hour 12 µg/m^3)	39.5	51.9
Number of days national standard exceeded (24-hour measured 12 µg/m^3)	1	6
Respirable Particulate Matter (PM_{10})		
Maximum concentration (24-hour 50 µg/m^3)	69.5	80.6
Number of days state standard exceeded (24-hour 50 µg/m^3)	3	24
Number of days national standard exceeded (24-hour 150 µg/m^3)	0	0

Notes: avg = average; µg/m^3 = micrograms per cubic meter; ppm = parts per million.

Source: CARB 2023a.

Both CARB and the US Environmental Protection Agency (EPA) use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants (attainment designations are summarized above in Table 3.4-1).

TOXIC AIR CONTAMINANTS

According to the *California Almanac of Emissions and Air Quality* (CARB 2013), the majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a PM-exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. These estimates can be used as a surrogate for diesel PM where information specific to diesel PM is limited due to its highly dispersive character. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

Diesel PM poses the greatest health risk among these 10 TACs mentioned. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (CARB 2013).

Through the implementation of air quality improvement strategies in the SJVAB over the past 20 years, concentrations of $PM_{2.5}$ have decreased significantly across the region. During the winter, when concentrations of $PM_{2.5}$ tend to be the highest, the number of days in which the standard for $PM_{2.5}$ was exceeded has decreased since 2002, when 39 percent of days in the winter months exceeded the $PM_{2.5}$ standard in the period from 2002 to 2003. Between 2022 and 2023, only 7 percent of days in the winter months had an exceedance of the $PM_{2.5}$ standard (SJVAPCD 2024).

ODORS

Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals can smell very minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person may be perfectly acceptable to another (e.g., fast food restaurant, perfume). It is important to also note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. Within the region encompassing the project area, odor sources include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, and food packaging plants (SJVAPCD 2015).

SENSITIVE RECEPTORS

Sensitive receptors are hospitals, residences, schools, daycare facilities, elderly housing, and convalescent facilities. These are places where the occupants may be relatively more susceptible to the adverse effects of exposure to TAC emissions and other pollutants. The land use designations along the proposed project alignment in unincorporated San Joaquin County are mostly agricultural land and open space/resource conservation. The majority of the agricultural land is vineyards and associated support facilities. There are approximately 92 residences located within

1,000 feet of the proposed PG&E transmission line alignment. Within the City of Lodi, land use designations along the new PG&E 230 kV lines, reconfigured 60 kV lines, and the switching station are Industrial and Public/Quasi-Public. LEU's Industrial and Guild Substations are bound by railroads and industrial facilities. The remainder of the proposed project in the City of Lodi is located on industrial-designated land. LEU's portion of the project is located approximately 760 feet from a residence where the eastern end of the 12 kV feeder line conversion to underground would occur. There are no nonresidential receptors, such as hospitals, schools, or daycare centers, within 1,000 feet of the project area. (See Section 3.12, "Land Use and Planning," for further discussion of land use designations.)

3.4.2 Regulatory Setting

Air quality in the project area is regulated through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, planning, policymaking, education, and a variety of programs. The agencies responsible for improving the air quality within the air basins are discussed below.

FEDERAL

The US Environmental Protection Agency (EPA) has been charged with implementing national air quality programs. EPA's air quality mandates draw primarily from the federal Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments to the CAA were made by Congress in 1990. EPA's air quality efforts address both criteria air pollutants and hazardous air pollutants (HAPs).

Criteria Air Pollutants

The CAA required EPA to establish national ambient air quality standards (NAAQS) for six common air pollutants found all over the United States, referred to as criteria air pollutants. EPA has established primary and secondary NAAQS for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter with an aerodynamic diameter of 10 micrometers or less (PM_{10}), fine particulate matter with an aerodynamic diameter of 2.5 micrometers or less ($PM_{2.5}$), and lead. Criteria air pollutants are compounds that, at certain concentrations, can cause harm to human and animal health and the environment. Extensive scientific and economic research has been conducted to evaluate the specific concentrations where these pollutants may cause harm to health and environment. These concentrations are reflected in EPA's NAAQS, which are shown in Table 3.4-3. The primary standards protect public health, and the secondary standards protect public welfare.

The CAA also required each state to prepare a state implementation plan (SIP) for attaining and maintaining the NAAQS. The federal Clean Air Act Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. EPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments and whether implementation will achieve air quality goals. If EPA determines a SIP to be inadequate, EPA may prepare a federal implementation plan that imposes additional control measures. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary air pollution sources in the air basin.

California's SIP is updated periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The current SIP is a compilation of plans and regulations that govern how the region and state will comply with the CAA requirements to attain and maintain the NAAQS for ozone and $PM_{2.5}$.

The National Highway Traffic Safety Administration (NHTSA) also regulates vehicle emissions through the Corporate Average Fuel Economy (CAFE) Standards. The CAFE Standards, which were enacted by Congress in 1975, set fleet-wide averages that must be achieved by each automaker for its car and truck fleet. The purpose of the CAFE Standards is to reduce energy consumption by increasing the fuel economy of cars and light trucks. On April 1, 2022, the transportation secretary unveiled new CAFE standards for 2024–2026 model year passenger cars and light-duty trucks that require new vehicles sold in the United States to average at least 40 miles per gallon.

Table 3.4-3 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California (CAAQS)[a,b]	National (NAAQS)[c] Primary[b,d]	National (NAAQS)[c] Secondary[b,e]
Ozone	1-hour	0.09 ppm (180 µg/m^3)	—[e]	Same as primary standard
	8-hour	0.070 ppm (137 µg/m^3)	0.070 ppm (147 µg/m^3)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	Same as primary standard
	8-hour	9 ppm[f] (10 mg/m^3)	9 ppm (10 mg/m^3)	
Nitrogen dioxide (NO_2)	Annual arithmetic mean	0.030 ppm (57 µg/m^3)	53 ppb (100 µg/m^3)	Same as primary standard
	1-hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	—
Sulfur dioxide (SO_2)	24-hour	0.04 ppm (105 µg/m^3)	—	—
	3-hour	—	—	0.5 ppm (1300 µg/m^3)
	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	—
Respirable particulate matter (PM_{10})	Annual arithmetic mean	20 µg/m^3	—	Same as primary standard
	24-hour	50 µg/m^3	150 µg/m^3	
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	12 µg/m^3	9.0 µg/m^3	15.0 µg/m^3
	24-hour	—	35 µg/m^3	Same as primary standard
Lead [f]	Calendar quarter	—	1.5 µg/m^3	Same as primary standard
	30-day average	1.5 µg/m^3	—	—
	Rolling 3-month average	—	0.15 µg/m^3	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m^3)	No national standards	
Sulfates	24-hour	25 µg/m^3		
Vinyl chloride [f]	24-hour	0.01 ppm (26 µg/m^3)		
Visibility-reducing particulate matter	8-hour	Extinction of 0.23 per km		

Notes: µg/m^3 = micrograms per cubic meter; CAAQS = California ambient air quality standards; km = kilometers; NAAQS = national ambient air quality standards; ppb = parts per billion; ppm = parts per million.

a California standards for ozone, carbon monoxide, SO_2 (1- and 24-hour), NO_2, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

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

c National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than 1. The $PM_{2.5}$ 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact EPA for further clarification and current federal policies.

d National primary standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

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

f The California Air Resources Board has identified lead and vinyl chloride as toxic air contaminants with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: CARB 2016, CARB 2024, EPA 2024b.

The EPA has also established emission standards for on- and off-road heavy-duty diesel engines used in trucks and other equipment. They were established in part because diesel engines are a significant source of oxides of nitrogen (NO_X), PM_{10}, and $PM_{2.5}$, and because EPA has identified diesel particulate matter (diesel PM) as a probable carcinogen.

In concert with the diesel engine emission standards, EPA regulations have also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The new standards reduced the amount of sulfur allowed by 97 percent for highway diesel fuel (from 500 parts per million by weight [ppmw] to 15 ppmw), and by 99 percent for off-highway diesel fuel (from about 3,000 ppmw to 15 ppmw). The low-sulfur highway fuel (15 ppmw sulfur), also called ultra-low-sulfur diesel, is currently required for use by all vehicles in the United States (EPA 2023). All the aforementioned federal diesel engine and diesel fuel requirements have been adopted by California, in some cases with modifications making the requirements more stringent or the implementation dates sooner.

Hazardous Air Pollutants and Toxic Air Contaminants

The toxic air contaminants (TACs), or in federal parlance HAPs, are a defined set of airborne pollutants that may pose a present or potential hazard to human health. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

A wide range of sources, from industrial plants to motor vehicles, emit TACs. The health effects associated with TACs are quite diverse and generally are assessed locally, rather than regionally. TACs can cause long-term health effects, such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage, or short-term acute effects, such as eye watering, respiratory irritation (a cough), runny nose, throat pain, and headaches.

For evaluation purposes, TACs are separated into carcinogens and noncarcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Carcinogens are assumed to have no safe threshold below which health impacts would not occur. This contrasts with criteria air pollutants for which acceptable levels of exposure can be determined and for which the ambient standards have been established (see Table 3.4-3). Cancer risk from TACs is expressed as excess cancer cases per one million exposed individuals, typically over a lifetime of exposure.

EPA regulates HAPs through its National Emission Standards for Hazardous Air Pollutants (NESHAPs). The standards for a particular source category require the maximum degree of emission reduction that EPA determines to be achievable, which is known as the Maximum Achievable Control Technology standards. These standards are authorized by Section 112 of the 1970 CAA and the regulations are published in 40 Code of Federal Regulations (CFR) Parts 61 and 63.

STATE

California Air Resources Board

The California Air Resources Board (CARB) is the agency responsible for coordinating and providing oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, required CARB to establish the California ambient air quality standards (CAAQS) (see Table 3.4-3).

Criteria Air Pollutants

CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the federally regulated criteria air pollutants mentioned above. In most cases, the CAAQS are more stringent than the NAAQS (see Table 3.4-3). Differences in the standards are generally explained by the health effect studies considered during the standard-setting process and the interpretation of the studies. In addition, the CAAQS incorporate a margin of safety to protect sensitive individuals.

The CCAA requires that all local air districts in the state endeavor to attain and maintain the CAAQS by the earliest date practical. It specifies that local air districts should focus on reducing the emissions from transportation and area-wide emission sources. The CCAA also provides air districts with the authority to regulate indirect sources, such as vehicle movement and residential, commercial, and industrial development.

Toxic Air Contaminants

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (Hot Spots Act) (AB 2588, Chapter 1252, Statutes of 1987). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review are required before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted EPA's list of HAPs as TACs (CARB 1993). Most recently in 1998, diesel PM was added to CARB's list of TACs (CARB n.d.).

After a TAC is identified, CARB adopts an airborne toxics control measure (ATCM) for sources that emit that particular TAC. If a threshold exists for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If no safe threshold exists, the measure must incorporate the best available control technology (BACT) for toxins to minimize emissions.

The Hot Spots Act requires that facilities that emit toxic substances above a specified level to prepare an inventory of toxic emissions, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CARB has adopted diesel exhaust control measures and more stringent emission standards for various transportation-related mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators). Over time, the replacement of older vehicles will result in a vehicle fleet that produces substantially lower levels of TACs than under current conditions. Mobile-source emissions of TACs (e.g., benzene, 1-3-butadiene, diesel PM) have been reduced significantly over the last decade and will be reduced further in California through a progression of regulatory measures (e.g., Low Emission Vehicle/Clean Fuels and Phase II reformulated gasoline regulations) and control technologies. With implementation of CARB's Risk Reduction Plan and other regulatory programs, it is estimated that emissions of diesel PM will be less than half of those in 2010 by 2035 (CARB 2023b). Adopted regulations are also expected to continue to reduce formaldehyde emissions emitted by cars and light-duty trucks. As emissions are reduced, it is expected that risks associated with exposure to the emissions will also be reduced.

REGIONAL

Air Quality Plans

The San Joaquin Valley Air Pollution Control District (SJVAPCD) and CARB develop air quality planning documents for pollutants for the project area, which is classified as a federal nonattainment or maintenance area. These planning documents are approved by EPA. The following sections summarize SJVAPCD's air quality plans.

Ozone Plan

2022 Plan for the 2015 8-Hour Ozone Standard: The most recently adopted plan for ozone that applies to the project is the *2022 Plan for the 2015 8-Hour Ozone Standard* (2022 Ozone Plan). In their review of the 2022 Ozone Plan, CARB staff concluded that the 2022 Ozone Plan meets the requirements of the Clean Air Act for the 70 ppb 8-hour ozone standard and recommended that CARB adopt an aggregate emissions reduction commitment along with the 2022 Ozone Plan, as revisions to the California SIP. To achieve the requirements of the Clean Air Act for the 70 ppb 8-hour ozone standard, the 2022 Ozone Plan includes an attainment demonstration, reasonable further progress (RFP), reasonably available control measure (RACM), and transportation conformity demonstrations, an emissions inventory, and other elements (CARB 2022a).

PM_{10} Plan

2007 PM_{10} Maintenance Plan and Request for Redesignation: The most recently adopted plan for PM_{10} that applies to the project is the *2007 PM_{10} Maintenance Plan and Request for Redesignation*. This plan provides verification of continued PM_{10} attainment, a contingency plan, an attainment emissions inventory, a maintenance demonstration, and a demonstration of California's monitoring network (SJVAPCD 2007).

$PM_{2.5}$ Plan

2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards: The most recently adopted plan for $PM_{2.5}$ that applies to the project is the *2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards*. This plan integrates the 1997, 2006, and 2012 NAAQS $PM_{2.5}$ standards and aims to achieve attainment of the $PM_{2.5}$ standards through a strategy that includes regulatory measures, incentive-based measures to accelerate the deployment of cleaner vehicles and technologies in a variety of sectors, and a mobile source strategy that reduces emissions from mobile sources under state and federal jurisdiction.

Air District Regulations

The project is located within the jurisdiction of SJVAPCD. SJVAPCD is the regional agency charged with preparing, adopting, and implementing emission control measures and standards for stationary sources of air pollution pursuant to delegated state and federal authority. Because the project will not involve construction of new stationary sources, there are no permitting regulations relevant to the project.

Under the CCAA, SJVAPCD is required to develop an air quality plan to achieve and maintain compliance with federal and state nonattainment criteria pollutants within the air district. Jurisdictions of nonattainment areas also are required to prepare an Air Quality Management Plan (AQMP) that includes strategies for achieving attainment. SJVAPCD has approved AQMPs demonstrating how the San Joaquin Valley Air Basin (SJVAB) will reach attainment with the federal 1-hour and 8-hour ozone, PM_{10}, $PM_{2.5}$, and California CO standards.

Regulation VIII, Fugitive PM_{10} Prohibition, contains rules developed pursuant to EPA guidance for serious PM_{10} nonattainment areas. Rules included under this regulation aim to reduce ambient concentration of PM_{10} by the following methods: preventing, reducing, or mitigating fugitive dust emissions from construction sites during excavation, demolition, and other earthmoving activities; regulating bulk material handling, storage, and transport; preventing carryout and trackout; and requiring construction crews to drive on paved and unpaved vehicle and equipment traffic areas. A SJVAPCD-approved dust control plan is required for projects in which construction-related activities will disturb 5 or more acres of surface area.

SJVAPCD regulates asbestos-containing materials (ACM) for demolition and renovations of regulated facilities. Regulated facilities are defined by SJVAPCD as all commercial buildings, residential buildings with more than four dwelling units, other structures, and non-portable equipment. SJVAPCD considers demolition to include the removal of any structural load-bearing member from a facility or the separation of a structure from its foundation prior to relocation.

An Asbestos Notification Form is required for the following:

- Any regulated demolition, regardless of whether asbestos is present, or
- Any regulated renovation in which the following will be disturbed:
  - 160 square feet or more of regulated ACM, or
  - 260 linear feet or more of regulated asbestos-containing pipe insulation.

For facilities subject to NESHAP, SJVAPCD will issue a Demolition Permit Release Form when SJVAPCD has been properly notified of the work that is to occur. For all demolitions, including facilities exempt from NESHAP, a Demolition Permit Release Form must be signed by SJVAPCD before obtaining a building department demolition permit. PG&E and LEU will comply with the asbestos survey and notification requirements for its demolition activities should the survey identify the presence of asbestos in the project area.

SJVAPCD CEQA Guidance

SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI) assists lead agencies and project applicants in evaluating the potential air quality impacts of projects in the SJVAB (SJVAPCD 2015). The GAMAQI recommends procedures for evaluating potential air quality impacts for the CEQA environmental review process and provides guidance on evaluating short-term (construction) and long-term (operational) air emissions.

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, the PG&E portion of the project is not subject to local (City and County) discretionary regulations. However, local plans and policies are considered for informational purposes. SJVAPCD's air quality regulations are also applicable.

Because the LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County General Plan

The San Joaquin County General Plan includes the following goals and policies related to air quality that are relevant to the project:

GOAL PHS-5: To protect public health, agricultural crops, scenic resources, and the built and natural environments from air pollution.

- Policy PHS-5.7: TAC Exposure Reduction Measures for New Development. The County shall require new development projects to implement all applicable best management practices that will reduce exposure of sensitive receptors (e.g., hospitals, schools, daycare facilities, elderly housing and convalescent facilities) to toxic air contaminants.
- Policy PHS-5.8: Minimize Motor Vehicle Emissions. The County shall strive to minimize motor vehicle emissions through land use and transportation strategies, as well as by promotion of alternative fuels.
- Policy PHS-5.9: Particulate Emissions from Construction. The County shall support SJVAPCD efforts to reduce PM_{10} and $PM_{2.5}$ emissions from construction, grading, excavation, and demolition to the maximum extent feasible and consistent with State and Federal regulations.
- Policy PHS-5.10: Particulate Emissions from County Roads. The County shall require PM_{10} and $PM_{2.5}$ emission reductions on County-maintained roads to the maximum extent feasible and consistent with State and Federal regulations.

San Joaquin County Code

San Joaquin County's Ordinance Code regulates air quality under Chapter 9-1025.3:

- 9-1025.3: Air Quality. All emissions shall be subject to the rules and regulations of the San Joaquin Valley Air Pollution Control District.

City of Lodi Municipal Code

The City of Lodi's Development Code has General Performance Standards under Regulation 17.14.040:

- Regulation 17.14.040: General Performance Standards. All land uses activities, and processes shall be operated and maintained so as to not be injurious to public health, safety, or welfare, and to comply with the following standards: A. Air Emissions. No visible dust, gases, or smoke shall be emitted, except as necessary for the heating or cooling of structures, and the operation of motor vehicles on the site.

City of Lodi General Plan

Relevant policies from the Lodi General Plan include the following:

- Policy C-G11: Support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.
- Policy C-G12: Minimize the adverse effects of construction-related air quality emissions and Toxic Air Contaminants on human health.

- **Policy C-P48:** Require all construction equipment to be maintained and tuned to meet appropriate EPA and CARB emission requirements and when new emission control devices or operational modifications are found to be effective, such devices or operational modifications are to be required on construction equipment.
- **Policy C-P50:** Require contractors to implement dust suppression measures during excavation, grading, and site preparation activities. Techniques may include site watering or application of dust suppressants; phasing or extension of grading operations; covering of stockpiles; suspension of grading activities during high wind periods (typically winds greater than 25 mph); and revegetation of graded areas.

3.4.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

Impacts related to air quality were analyzed according to Appendix G of the CEQA Guidelines and SJVAPCD's GAMAQI.

Emissions Modeling

Construction-related emissions of ROG, CO, NOx, SO_2, PM_{10}, and $PM_{2.5}$ from the use of heavy equipment, land clearing, grading, excavation, cement pouring, vehicle trips (e.g., hauling and worker commuting), and other construction activities were evaluated. Construction emissions from off-road construction equipment and fugitive dust for the PG&E portion of the project were estimated using the methodologies and emission factors described in California Emission Estimator Model (CalEEMod) User's Guide (CAPCOA 2022). On-road vehicle emission factors were obtained from the Emissions Factor Model 2021 (EMFAC2021) (CARB 2022b). Helicopter emissions were estimated using emissions factors obtained from the Swiss Federal Office of Civil Aviation (FOCA 2009).

Construction of the PG&E portion of the project would start in 2026 and would complete in 2029. Projected construction emissions were estimated for each year based on the anticipated project schedule and activities at each of the project construction sites. While construction activities would occur from 2026 to 2029, equipment and vehicle emission factors from 2016 were used for all construction years to provide a conservative estimate of emissions resulting from the operation of construction equipment. This was done to account for the relatively slow phasing-out of older construction fleets in favor of fleets with more modernized and effective emissions control technology. Criteria pollutant emissions from personnel vehicles and materials transport related to replacement of system protection devices at the remote end facilities were included in the modeling of project emissions. Operations and Maintenance (O&M) emissions from the PG&E portion of the project area were estimated for activities in 2030 and beyond using the same methodology as discussed previously, with 2030 emission factors. Construction and O&M emissions calculations for the PG&E portion of the project are provided in Appendix D1.

Construction and O&M emissions from the LEU portion of the project were modeled using CalEEMod (Version 2020.4.0). Emission data for the construction and O&M of the LEU portion in this study were obtained from LEU as provided in Appendix D2 (City of Lodi 2022). The entire LEU portion of the project area is labeled as "Lodi Substation" in the CalEEMod emission summary. This emission summary label does not refer to any project activity of PG&E at PG&E Lodi Substation.

Screening Health Risk Assessment

A screening health risk assessment (HRA) of the project was performed using methods consistent with the Office of Environmental Health Hazard Assessment (OEHHA) guidance (OEHHA 2015). Accordingly, the HRA was performed for construction activities at locations lasting longer than 2 months in duration and in populated areas with sensitive receptors, per OEHHA guidance (OEHHA 2015). The HRA evaluated the health risks of TAC emissions from use of onsite diesel equipment, and the diesel PM emissions were used as a surrogate for the TACs emissions in the HRA. The HRA analyzed cancer and chronic health risks from diesel PM emissions. Currently, there are no approved acute risk values for diesel PM. Diesel PM was assumed to be best represented by PM_{10} emitted as a result of fuel combustion. Details on the methodology and calculations are included in the HRA technical memorandum provided in Appendix D3.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant-proposed measures (APMs) that are incorporated into PG&E's components of the proposed project. Similarly, LEU has developed best management practices (BMPs) that would apply to the LEU components of the proposed project. The project includes the following APM and BMP related to air quality.

PG&E APM

APM AIR-1: PG&E Dust Control During Construction

PG&E will implement measures to control fugitive dust in compliance with SJVAPCD standards. Dust control measures will include the following at a minimum:

- All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
- The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.
- Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- All vehicle speeds will be limited to 15 mph or less on unpaved areas.
- Implement dust monitoring in compliance with the standards of the local air district.
- Halt construction during any periods when wind speeds are in excess of 50 mph.

APM GHG-1: PG&E Minimize GHG Emissions

PG&E will implement the following actions which, while designed to minimize GHG emissions, have the co-benefit of reducing air pollutant emissions by minimizing diesel exhaust from the operation of construction equipment:

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of five consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
- Maintain construction equipment in proper working conditions in accordance with manufacture specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.

- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

LEU BMP

BMP AIR-1: LEU Dust Control During Construction

LEU will implement measures to control fugitive dust in compliance with SJVAPCD standards. Dust control measures will include the following at a minimum:

- All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
- The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.
- Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- All vehicle speeds will be limited to 15 mph or less on unpaved areas.
- Implement dust monitoring in compliance with the standards of the local air district. Halt construction during any periods when wind speeds are in excess of 50 mph.

BMP GHG-1: LEU Minimize GHG Emissions

LEU will implement the following actions which, while designed to minimize GHG emissions, have the co-benefit of reducing air pollutant emissions by minimizing diesel exhaust from the operation of construction equipment:

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of five consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine

will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

- Maintain construction equipment in proper working conditions in accordance with manufacture specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to air quality under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments.* For reference, Appendix G of the CEQA Guidelines includes the following criteria for assessing air quality impacts:

- Would the project conflict with or obstruct implementation of the applicable air quality plan?
- Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?
- Would the project expose sensitive receptors to substantial pollutant concentrations?
- Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

CEQA-related air quality thresholds of significance are tied to long-term air quality planning, which focuses on achieving or maintaining attainment designations with respect to the NAAQS and CAAQS for criteria air pollutants, which are scientifically substantiated numerical concentrations considered to be protective of human health. SJVAPCD developed quantitative thresholds of significance for project-level CEQA evaluation that may be used to determine the extent to which a project's emissions of criteria air pollutants and precursors would contribute to the regional degradation of ambient air quality within the SJVAB. According to SJVAPCD, projects with emissions below these thresholds of significance would demonstrate consistency with SJVAPCD's air quality plans. In the GAMAQI, SJVAPCD provides evidence to support the development and applicability of its thresholds of significance for project-generated emissions of criteria air pollutants and precursors, which may be used at the discretion of a lead agency overseeing the environmental review of projects located within the SJVAB.

These numerical thresholds for construction- and O&M-related emissions of criteria air pollutants and precursors would determine whether a project's discrete emissions would result in a regional contribution (i.e., significant) to the baseline nonattainment status of SJVAB. In developing thresholds of significance for individual project emissions, SJVAPCD analyzed emissions values against SJVAPCD's offset thresholds to ozone precursors, which, when applied, prevent further deterioration of ambient air quality in the SJVAB. Thresholds for PM_{10} and $PM_{2.5}$ were adopted from SJVAPCD's PM_{10} New Source Review offset thresholds for stationary sources, which represent the greatest component

of SJVAPCD's long-term regional air quality planning (SJVAPCD 2015: 82). Using these parameters, SJVAPCD developed quantitative thresholds of significance for project-level CEQA evaluation that may be used to determine the extent to which a project's emissions of criteria air pollutants and precursors would contribute to the regional degradation of ambient air quality within the SJVAB. According to SJVAPCD, projects with emissions below these thresholds of significance would demonstrate consistency with SJVAPCD's air quality plans. Notably, annual-emissions thresholds of significance are not designed to determine whether a project's contribution of emissions would directly result in a violation of the NAAQS or CAAQS, which are hourly, concentration-based standards.

SJVAPCD has also developed daily emissions screening criteria for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ to determine whether an ambient air quality analysis (AAQA) is needed to provide a refined analysis to determine if project emissions would result in a violation of an ambient air quality standard (AAQS). Unlike SJVAPCD's annual emissions thresholds, which are used to evaluate a project's consistency with long-term regional air quality planning, these daily emissions screening criteria serve to determine the location where an exceedance of an AAQS, and resulting adverse health impacts, could occur. Because the NAAQS and CAAQS are concentration-based standards presented hourly, daily emissions are a more suitable estimate to determine whether a project would contribute to a violation of an AAQS. Projects that emit emissions below these daily screening criteria would likely not generate emissions in levels that would result in a violation of an AAQS, and air dispersion modeling would not be required. Consequently, projects that emit emissions above these criteria are recommended to perform an ambient air quality analysis to evaluate whether an exceedance, and resulting health impact, would occur.

Using federal and state guidance pertaining to TACs, in addition to the findings of several scientific studies, SJVAPCD developed cancer risk and noncancer health hazard thresholds for TAC exposure. Unlike criteria air pollutants, there is no known safe concentration of TACs for cancer risk. Moreover, TAC emissions contribute to the deterioration of localized air quality. Due to the dispersion characteristics of TACs, emissions generally do not cause regional-scale air quality impacts. SJVACPD's thresholds are designed to ensure that a source of TACs does not contribute to a localized, significant impact to existing or new receptors.

Per Appendix G of the CEQA Guidelines and SJVAPCD recommendations, an impact related to air quality would be significant if implementation of the project would:

- conflict with or obstruct implementation of the applicable air quality plan; and/or
- cause construction-generated criteria air pollutant or precursor emissions to exceed the SJVAPCD-recommended thresholds of 10 tons per year (tpy) for ROG, 10 tpy for NO_x, 100 tpy for CO, 27 tpy for SO_X, 15 tpy for PM_{10}, and 15 tpy for $PM_{2.5}$;
- result in a net increase in long-term operational criteria air pollutant or precursor emissions that exceed the SJVAPCD-recommended thresholds of 10 tpy for ROG, 10 tpy for NO_x, 100 tpy for CO, 27 tpy for SO_X, 15 tpy for PM_{10}, and 15 tpy for $PM_{2.5}$;
- result in short-term construction and long-term operational local mobile-source CO emissions that would violate or contribute substantially to concentrations that exceed the 1-hour CAAQS of 20 ppm or the 8-hour CAAQS of 9 ppm;
- expose any off-site sensitive receptor to a substantial incremental increase in TACs emissions that exceed 20 in 1 million for carcinogenic risk (i.e., the risk of contracting cancer) and/or a noncarcinogenic hazard index of 1.0 or greater;
- result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

ISSUES NOT DISCUSSED FURTHER

Localized Emissions of Mobile-Source CO

Localized emissions of mobile-source CO are not included in this analysis. The SJVAB has been in attainment for CO for several years, with the last exceedance of either the state or national standard for CO in the SJVAB occurring in

1991 (SJVAPCD 2015). According to the GAMAQI, because elevated CO concentrations are often localized, heavy traffic volumes and congestion can lead to high levels of CO, or CO "hotspots" (SJVAPCD 2015). Typically, CO hotspots occur when a large number of vehicles pass through a given intersection in a short period of time. In regard to the project, infrequent O&M activities associated with the project would not generate substantial CO emissions because O&M of the project would not result in a substantial increase in on-road traffic (typical O&M activities could require the occasional use of a small number of on-road trucks for activities such as line and substation maintenance, power washing, and worker commutes). Regarding construction-related CO impacts, the project would involve short-term construction activities that would primarily occur along a linear path. Because CO impacts are most often associated with high concentrations of CO for an extended period of time, construction activities related to the project would not result in localized, high concentrations of CO. Therefore, CO emissions are not discussed further in this analysis.

IMPACT ANALYSIS

Impact AIR-1: Conflict with or Obstruct Implementation of an Applicable Air Quality Plan

Air quality plans are developed to identify emissions reduction measures needed to attain and maintain air quality standards. The air quality plans and SJVAPCD rules applicable to the area are listed above in Section 3.4.2, "Regulatory Setting." These air quality plans identify emission-reduction measures that are designed to bring the region into attainment of the CAAQS and NAAQS. The emission inventories used to develop these plans are based primarily on projected population and employment growth and associated VMT for the SJVAB. This growth is estimated for the region, based in part on the planned growth identified in regional and local land use plans, such as general plans or community plans. Therefore, projects that would result in population or employment growth beyond that projected in regional or local plans could result in increases in VMT above that forecasted in the attainment plans, further resulting in mobile-source emissions that could conflict with or obstruct implementation of the air quality plans. The project primarily involves construction and O&M of electrical infrastructure, which would not require a permanent employment pool or develop facilities that would encourage relocation to the area; therefore, the project would not result in population or employment growth.

Construction and O&M of the project would comply with the applicable federal, state, and local regulations described in Section 3.4.2, Because the regional air regulations and rules are developed to ensure the implementation of the regional air quality plans, compliance with these regulations would ensure that project's activities would not obstruct implementation of the air quality plans of the region.

In addition to the air quality regulations and rules, SJVAPCD adopted emission thresholds for CEQA evaluation to ensure that the project emissions would not conflict with or hinder the implementation of the air quality plans. The following analysis presents evaluates whether the project's emissions would exceed SJVAPCD's significance thresholds, which would demonstrate whether the project is consistent with applicable air quality plans and standards.

PG&E Project Components

Construction Activities

Construction-related activities would result in project-generated emissions of ROG, NO_X, PM_{10}, and $PM_{2.5}$. These activities would include the use of off-road equipment (e.g., excavators, a helicopter, and augers), material delivery trips (e.g., gravel for filling, electrical poles, and equipment for substations), and on-road vehicle trips associated with worker commute trips, as well as line trucks and boom trucks. Fugitive dust emissions of PM_{10} and $PM_{2.5}$ are associated primarily with excavation and vary as a function of soil silt content, soil moisture, wind speed, acreage of disturbance, and VMT on and off the site. Both heavy-duty equipment exhaust and on-road mobile exhaust result in emissions of the ozone precursors ROG and NO_X.

A summary of the expected annual and daily construction emissions from the PG&E portion of the project is provided in Table 3.4-4. The emissions include those from the on-site off-road construction equipment; off-site on-road

vehicles, such as worker commute and haul trucks; and fugitive dust emissions associated with earthmoving activities and road dust from paved and unpaved roads.

Table 3.4-4 Maximum Annual and Daily Emissions of Criteria Pollutants and Precursors Associated with Construction of the PG&E Portion of the Project

	Annual Emissions (tpy)					
Construction Year	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
2026	0.2	2.5	2	<0.1	3.7	0.5
2027	0.9	4.7	5.8	0.1	4.6	0.6
2028	0.1	1	1.4	<0.1	0.6	0.1
2029	<0.1	0.3	0.4	<0.1	0.2	<0.1
Daily Emissions (lb/day)						
2026	7	62	65	<1	3	2
2027	26	56	86	2	3	2
2028	2	14	20	<1	1	1
2029	2	14	20	<1	1	1

Notes: tpy = tons per year; lb/day = pounds per day; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

Source: Jacobs Engineering Group 2023.

As shown in Table 3.4-4, annual and daily emissions of ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$ would not exceed SJVAPCD's annual mass emissions thresholds of significance or daily screening criteria.

Operation and Maintenance

O&M of the PG&E portion of the project would occur infrequently (i.e., once or twice a month) and involve the use of offsite construction equipment, on-road vehicles, and helicopters used for activities, such as line inspection, line maintenance, and substation maintenance. O&M of the PG&E portion of the project would not result in emissions of criteria pollutants that would exceed SJVAPCD's thresholds of significance (Table 3.4-7).

Implementation of APMs

Pursuant to APM AIR-1, PG&E will control fugitive dust in compliance with SJVAPCD standards. Dust control measures will include phasing disturbance, covering haul trucks, watering or covering exposed surfaces, cleaning construction vehicles and sweeping paved roadways, implementing dust monitoring, and stopping construction during any periods when wind speeds are in excess of 50 miles per hour. See "Applicant-Proposed Measures and Best Management Practices" above for a full list of all dust control measures included under APM AIR-1. Potential fugitive dust control emissions would be reduced by approximately 55 percent by watering the unpaved roads twice a day in compliance with APM AIR-1. These reductions were included in the estimation of project-generated emissions (see Table 3.4-4). No other quantifiable emissions reductions would be achieved with the implementation of APM AIR-1.

LEU Project Components

Construction Activities

Construction activities and equipment use associated with the LEU portion of the project would be similar to those described above for the PG&E portion of the project. A summary of the annual and daily construction emissions from the LEU portion of construction is provided in Table 3.4-5.

Operation and Maintenance

The potential for conflict with an applicable air quality plan to result from O&M of the LEU components is the same as discussed above for the PG&E project components.

Table 3.4-5 Maximum Annual and Daily Emissions of Criteria Pollutants and Precursors Associated with Construction of the LEU Portion of the Project

	Annual Emissions (tpy)					
Construction Year	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
2027	0.2	1.5	1.2	<0.1	1.3	0.3
2028	<0.1	0.1	0.1	<0.1	<0.1	<0.1
Daily Emissions (lb/day)						
2027	6	44	42	<1	10	6
2028	2	16	12	<1	1	1

Notes: tpy = tons per year; lb/day = pounds per day; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter.

Source: Jacobs Engineering Group 2023.

Implementation of BMPs

Potential fugitive dust emissions related to the construction of the LEU portion of the project would be reduced by approximately 55 percent with the implementation of BMP AIR-1, which requires dust control measures that include watering all surfaces with the potential to generate dust to reduce the potential for airborne dust from leaving the site, phasing construction activities to reduce the amount of disturbed surfaces at any one time, covering all haul trucks entering/leaving the site and trimming their loads as necessary, and limiting all vehicle speeds to 15 mph or less on unpaved areas. See "Applicant-Proposed Measures and Best Management Practices" above for a full list of all dust control measures included under BMP AIR-1. These reductions were included in the estimation of project-generated emissions shown in Table 3.4-5. No other quantifiable potential emissions reductions are expected to be achieved with the implementation of BMP AIR-1.

Pursuant to APM AIR-1, PG&E will control fugitive dust in compliance with SJVAPCD standards. Dust control measures will include phasing disturbance, covering haul trucks, watering or covering exposed surfaces, cleaning construction vehicles and sweeping paved roadways, implementing dust monitoring, and stopping construction during any periods when wind speeds are in excess of 50 miles per hour. Potential fugitive dust control emissions would be reduced by approximately 55 percent by watering the unpaved roads twice a day in compliance with APM AIR-1. These reductions were included in the estimation of project-generated emissions (see Table 3.4-4). No other quantifiable emissions reductions would be achieved with the implementation of APM AIR-1.

Significance before Mitigation

Construction-related annual emissions for the PG&E and LEU portions of the project were combined for each year of construction. Daily emissions from the most intensive construction site for each portion of the project were combined to represent the reasonable worst-case scenario for the proposed project. This scenario is the concurrent construction activities occurring at the PG&E Thurman Switching Station and the LEU Guild Substation, which are located approximately 300 feet from each other. Construction of these stations would occur simultaneously from 2026 to 2029. In addition, installation of a microwave tower and construction activities associated with the PG&E 12 kV service line extension would also occur at the PG&E Thurman Switching Station. Therefore, on-site emissions from construction activities associated with the PG&E Thurman Switching Station and LEU Guild Substation, microwave tower at Thurman Switching Station, and 12 kV service line were combined and compared with SJVAPCD's screening levels. The combined emissions are shown in Table 3.4-6.

As shown in Table 3.4-6, annual and daily emissions associated with construction of the project as a whole would not exceed SJVAPCD daily screening thresholds or annual significance thresholds.

The total emissions from O&M activities at all PG&E and LEU sites proposed under the project are shown in Table 3.4-7.

Table 3.4-6 Maximum Annual and Daily Emissions of Criteria Pollutants and Precursors Associated with Construction of the Total Project

Construction Year	Annual Emissions (tpy)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
2026	0.2	2.5	2	<0.1	3.7	0.5
2027	1.1	6.1	7.16	0.1	5.9	0.8
2028	0.1	1.1	1.46	0.00	0.6	0.1
2029	<0.1	0.31	0.4	0.00	0.2	<0.1
SJVAPCD CEQA Significance Threshold	**10**	**10**	**100**	**27**	**15**	**15**
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Daily Emissions (lb/day)[1]						
2026	3	26	28	<1	1	1
2027	7	54	68	<1	10	6
2028	2	16	12	<1	1	1
2029	0.00	0.00	0.00	0.00	0.00	0.00
SJVAPCD Screening Criteria	**100**	**100**	**100**	**100**	**100**	**100**
Exceeds Screening Criteria?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: tpy = tons per year; lb/day = pounds per day; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District.

[1] Daily emissions from construction of the total project (i.e., all construction activities associated with the project) are represented by combining emissions from the PG&E Thurman Switching Station, LEU Guild Substation, microwave tower at Thurman Switching Station, 12 kV service line, and the LEU Guild Substation.

Source: Jacobs Engineering Group 2023.

As shown in Table 3.4-7, the project would not result in O&M emissions that would exceed SJVAPCD thresholds. Additionally, because the project primarily involves construction activities and O&M of the project would only include occasional activities, the project would not result in population or employment growth and would, thus, not conflict with the emissions reduction goals of the applicable air quality plans tied to projected regional VMT.

Table 3.4-7 Total Project Operation and Maintenance Activities Emissions

Sites	Annual Emissions (tpy)					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
PG&E Facilities	0.02	<0.1	<0.1	<0.1	<0.1	<0.1
LEU Facilities	0.5	<0.1	0.1	<0.1	<0.1	<0.1
Total	**0.5**	**0.1**	**0.1**	<0.1	<0.1	<0.1
SJVAPCD CEQA Thresholds	**10**	**10**	**100**	**27**	**15**	**15**

Notes: tpy = tons per year; ROG = reactive organic gases; NO_X = oxides of nitrogen; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = respirable particulate matter; $PM_{2.5}$ = fine particulate matter; SJVAPCD = San Joaquin Valley Air Pollution Control District.

Source: Jacobs Engineering Group 2023.

Neither construction nor O&M of the PG&E and LEU portions of the project would result in emissions of criteria pollutants in excess of SJVAPCD's annual or daily emissions thresholds, which were developed in consideration of State and regional air quality planning. Additionally, implementation of APM AIR-1 and BMP AIR-1, applied respectively for the PG&E and LEU project components during project construction, would further reduce construction-related PM_{10} and $PM_{2.5}$ emissions related to the project. Because the project primarily involves construction activities and O&M of the project would only include occasional activities, the project would not result in

population or employment growth and would thus not conflict with the emissions reduction goals of the applicable air quality plans tied to projected regional vehicle miles traveled (VMT). Therefore, the project would not conflict with or obstruct implementation of the applicable air quality plan. This impact would be **less than significant** and would not contribute to adverse health effects within the SJVAB.

Mitigation Measures

No mitigation is required for this impact.

Impact AIR-2: Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region Is Non-Attainment under an Applicable Federal or State Ambient Air Quality Standard

PG&E and LEU Project Components

As shown in Table 3.4-1 in Section 3.4.2 "Regulatory Setting," the SJVAB has been designated as nonattainment for ozone and $PM_{2.5}$ in regard to the NAAQS and ozone, PM_{10}, and $PM_{2.5}$ in regard to the CAAQS. According to the GAMAQI, any project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact (SJVAPCD 2015). As shown in Tables 3.4-4, 3.4-5, and 3.4-6 above under Impact AIR-1, emissions related to construction of the project as a whole would not exceed SJVAPCD's daily screening thresholds or annual thresholds of significance. Additionally, the project would be required to implement a dust control plan that identifies the fugitive dust sources at the construction site and the dust control measures to be implemented before, during, and after any dust-generating activity for the duration of the project. Further, as shown in Table 3.4-7, operation of the project would not result in emissions that would exceed SJVAPCD's annual thresholds of significance.

Implementation of APMs and BMPs

Potential fugitive dust emissions related to the construction of both the PG&E and LEU portions of the project would be reduced by approximately 55 percent with the implementation of APM AIR-1, which would apply to the PG&E portion of the project, and BMP AIR-1, which would apply to the LEU portion of the project. Both measures require that unpaved roads within the respective project areas be watered twice per day.

Significance before Mitigation

The SJVAB has been designated as nonattainment for ozone and $PM_{2.5}$ in regard to the NAAQS and ozone, PM_{10}, and $PM_{2.5}$ in regard to the CAAQS. According to the GAMAQI, projects that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Because implementation of the project would not result in an exceedance of SJVAPCD thresholds or screening criteria for nonattainment pollutants, this impact would be **less than significant** and not cumulatively considerable. Additionally, it would not contribute to adverse health effects in the SJVAB.

Mitigation Measures

No mitigation is required for this impact.

Impact AIR-3: Expose Sensitive Receptors to Substantial Pollutant Concentrations

PG&E and LEU Project Components

Sensitive receptors are generally considered to include land uses where exposure to pollutants could result in health-related risks to sensitive individuals, such as children or the older population. Residential dwellings, schools, hospitals, playgrounds, and similar facilities are of primary concern because of the presence of individuals particularly sensitive to pollutants and the potential for increased and prolonged exposure of individuals to pollutants. Construction would occur along the approximately 10.6-mile transmission line alignment and adjacent stations. As stated above in Section 3.4.2, "Regulatory Setting," the majority of the project area along the PG&E transmission line construction sites are open spaces in rural areas with sparsely located residences; however, there are approximately 92 residences located within 1,000 feet of the PG&E transmission line alignment. Regarding the LEU portion of the project, the nearest

sensitive receptor to the LEU Industrial and Guild Substations would be Lodi Memorial Park and Lodi Cemetery located approximately 600 feet northeast from the project site. There are no schools, hospitals, or daycare centers within 1,000 feet from the LEU portion of the project.

O&M activities would be infrequent and short-term, such as visual inspections using light-duty trucks and helicopters, as well as line-maintenance using line trucks. When considering operational TACs, stationary sources are the primary sources of concern because they pose a greater chance of exposing receptors to long-term TAC emissions. Because O&M of the project does not include any stationary sources, operational TACs are not evaluated further. Therefore, construction activities and associated TAC exposure are the focus of this analysis.

Construction-related activities would result in temporary, intermittent emissions of diesel PM from the exhaust of off-road, heavy-duty diesel equipment. For construction activity, diesel PM is the primary TAC of concern. Construction-related activities that would result in temporary, intermittent emissions of diesel PM from the exhaust of off-road heavy-duty diesel equipment include clearing, grading, excavation, on-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment, and other miscellaneous activities. The potential cancer risk from inhaling diesel PM outweighs the potential for all other diesel PM–related health impacts (i.e. noncancer chronic risk, short-term acute risk) and health impacts from other TACs, so diesel PM is the focus of this analysis. Diesel PM is highly dispersive and decreases by approximately 70 percent at a distance of 500 feet from the source (Zhu et al. 2002).

An HRA was prepared and evaluated the health risks from on-site diesel equipment emissions during construction, as these are the primary pollutants of concern regarding TACs (see Appendix D3). The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for any exposed receptor. Thus, the risks estimated for an exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the California Office of Environmental Health Hazard Assessment (OEHHA), HRAs, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70- or 30-year exposure period; however, such assessments should be limited to the period/duration of activities associated with the proposed project (OEHHA 2015: 2-3). PG&E's Lockeford Substation and the parcel at East Thurman Road and South Guild Avenue in Lodi, which includes PG&E Thurman Switching Station and LEU's Industrial and Guild Substations, were used for the HRA because construction activities would be occurring near sensitive receptors at these locations for more than 2 consecutive months. Off-site emissions resulting from material haul truck trips, worker commute trips, short-haul dump truck trips, long-haul dump truck trips, inspector vehicle trips, and mechanics' truck trips were not included in the HRA, as they would not significantly contribute to localized health impacts from the two construction locations being evaluated. The results of the screening HRA for construction activities associated with the two locations described previously are shown in Table 3.4-8.

The maximally exposed individual resident (MEIR) is a theoretical person residing near the project area for approximately 30 years (based on OEHHA HRA modeling guidance) whose exposure to project-generated TACs would represent the maximum level of exposure a resident living near the project site would face. OEHHA's *Technical Support Document for Exposure Assessment and Stochastic Analysis* recommends that an exposure duration (residency time) of 30 years be used for individual cancer risk determination for the MEIR because it provides adequate public health protection against individual risk (OEHHA 2012). Accordingly, this analysis uses the cancer risk for the MEIR as the basis for comparison against the SJVAPCD thresholds. The MEIR for both the cancer risk and chronic hazard index for activities at the PG&E Thurman Switching Station and LEU Guild Substation is located approximately 1,145 feet west of the northwest corner fence line of PG&E Thurman Switching station project site. The MEIR for both the cancer risk and chronic hazard index for PG&E Lockeford Substation is located approximately 100 feet south of PG&E Lockeford Substation project area. This MEIR was chosen as it represents the receptor with the greatest cancer risk. As shown in Table 3.4-8, the cancer risks are less than the significance threshold of 20 in 1 million and the chronic hazard indices are less than the significance threshold of 1.0. Detailed HRA methodologies and descriptions of the results are in Appendix D3.

Table 3.4-8 Health Risk Assessment Results

Construction Location	Risk Thresholds	Risk to MEIR
PG&E Thurman Switching Station	Cancer risk (in a million) Significance threshold = 20 in 1 million	1.23
	Chronic hazard index Significance threshold = 1.0	0.0018
LEU Guild Substation	Cancer risk (in a million) Significance threshold = 20 in 1 million	1.23
	Chronic hazard index Significance threshold = 1.0	0.0018
PG&E Thurman Switching Station and LEU Guild Substation Combined	Cancer risk (in a million) Significance threshold = 20 in 1 million	2.46
	Chronic hazard index Significance threshold = 1.0	0.035
PG&E Lockeford Substation	Cancer risk (in a million) Significance threshold = 20 in 1 million	7.43
	Chronic hazard index Significance threshold = 1.0	0.0047

Notes: MEIR = Maximally exposed individual resident.

Source: Jacobs Engineering Group 2023.

Implementation of APMs and BMPs

No APMs or BMPs specifically related to TAC emissions or cancer-risk reductions are proposed as part of the project. However, in addition to reducing construction-related greenhouse gas (GHG) emissions, implementation of APM GHG-1 and BMP GHG-1 would also reduce project-generated TAC emissions by minimizing diesel exhaust from the operation of construction equipment through actions such as reducing vehicle idle time and utilizing low-emission or electric equipment where feasible. While these reductions were not quantified in relation in TAC emissions, the implementation of these measures would further reduce TAC emissions and related cancer risk, which itself is already below SJVAPCD thresholds without the inclusion of these reductions.

Significance before Mitigation

The construction HRA prepared for the project demonstrates that excess cancer risks are less than the significance threshold of 20 in 1 million, while the chronic hazard indices are less than the significance threshold of 1.0. Regarding operations, there are no stationary sources proposed as part of the project, and O&M activities would be relatively short term and infrequent. Construction and O&M of the project would not result in the prolonged exposure of sensitive receptors to substantial concentrations of TACs. This impact would be **less than significant** and would not expose receptors to substantial pollution resulting in adverse health effects in the SJVAB.

Mitigation Measures

No mitigation is required for this impact.

Impact AIR-4: Result in Other Emissions (Such as Those Leading to Odors) Adversely Affecting a Substantial Number of People

PG&E and LEU Project Components

Construction activities related to the PG&E portion of the project and the LEU portion of the project would result in similar activities and, therefore, similar odor sources. Specifically, minor odors from the use of heavy-duty diesel equipment and the pouring of concrete during construction activities would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. While the project would be constructed over a 4-year period, these types of odor-generating activities would not occur at any single location or for an extended

period of time. While short-term odor emissions from construction equipment may occur, project construction would not result in substantial odor emissions that would result in the physical effects described under the "Odors" heading in Section 3.4.2, "Environmental Setting." Furthermore, these emissions would be localized and would not affect a substantial number of people. Activities associated with project O&M would be limited to activities involving a small number of on-road and offroad vehicles (e.g., trucks and a helicopter) that would occur infrequently and for relatively short durations.

SJVAPCD identifies odor sources of concern to be land uses that include wastewater treatment plants, sanitary landfills, composting facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting operations, rendering plants, and food packaging plants (SJVAPCD 2015). The proposed project does not include any of these land uses. Therefore, the proposed project would not result in exposure of a substantial number of people to objectionable odors.

Implementation of APMs and BMPs

No applicable APMs or BMPs are proposed as part of the project.

Significance before Mitigation

The project is not a type of development that is known to result in odors. Minor odors from the use of heavy-duty diesel equipment and the pouring of concrete during construction activities associated with the project would be intermittent and temporary and would dissipate rapidly from the source with an increase in distance. While the project would be constructed over a 4-year period, these types of odor-generating activities would not occur at any single location or for an extended period of time. Construction and operation of the project would not result in odors that would affect a substantial number of people. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.5 ARCHAEOLOGICAL, HISTORICAL, AND TRIBAL CULTURAL RESOURCES

This section describes the existing conditions for archaeological, historical, and tribal cultural resources in the project area; describes the applicable federal, state, and local regulations; and analyzes the potential impacts of the project on known and unknown cultural resources. Cultural resources include districts, sites, buildings, structures, or objects generally older than 50 years and considered to be important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. They include archaeological resources, historical resources, and "tribal cultural resources" (the latter as defined by Assembly Bill (AB) 52, Statutes of 2014, in Public Resources Code [PRC] Section 21074).

Archaeological resources are locations where human activity has measurably altered the earth or left deposits of prehistoric (e.g., precontact) or historic-era physical remains (e.g., stone tools, bottles, former roads, house foundations). Historical (or built-environment) resources include standing buildings (e.g., houses, barns, outbuildings, cabins) and intact structures (e.g., dams, bridges, roads, districts), or landscapes. A cultural landscape is defined as a geographic area (including both cultural and natural resources and the wildlife therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. Tribal cultural resources are sites, features, places, cultural landscapes, or sacred places and objects with cultural value to a tribe.

One comment letter regarding cultural resources was received in response to the notice of preparation (NOP). The Native American Heritage Commission (NAHC) requested AB 52 and Senate Bill (SB 18) (Statutes of 2003) compliance information. SB 18 does not apply to the project because there is not a General Plan amendment associated with the project (which is the trigger for SB 18 compliance); in addition, SB 18 is not a CEQA requirement and, therefore, is not discussed in this section. Compliance with PRC Section 21080.3 (as enacted by AB 52) is described below. See Appendix A for all NOP comments received during the public scoping period.

3.5.1 Environmental Setting

The environmental setting comprises the regional precontact history, ethnographic history, historic-era setting, and archaeological sensitivity. The following setting information is based on the *Cultural Resources Inventory Report for the PG&E Northern San Joaquin 230kV Transmission Project, San Joaquin County, California*, prepared by Far Western (Far Western 2021).

REGIONAL PRECONTACT HISTORY

There is limited evidence of late Pleistocene-era occupation of the northern San Joaquin Valley, which encompasses the proposed project area. This comes primarily in the form of artifact types associated with that period—specifically, eccentric crescents and Clovis points. These finds, however, generally occur in isolated contexts that provide little information regarding the lifeways of these late Pleistocene peoples. An exception is the Witt site on the southwestern shore of Tulare Lake at the far southern end of the San Joaquin Valley. This locality has produced the largest collection of basally thinned concave-base points in California, with as many as 200 specimens reported. Many of the ancient concave-base points at Tulare Lake are quite small, however, and are unlike classic Clovis points found elsewhere in North America.

Lower Archaic Period (11500–7000 cal Before Present [BP])

The Lower Archaic Period is poorly represented in the Central Valley, with few well-preserved archaeological deposits dating to this period. Exclusive use of handstones and milling slabs along with a number of other cobble-based pounding, chopping, and scraping tools are characteristic of assemblages from this time period. Lower Archaic assemblages from central California often are found to contain large broad-stemmed projectile or spear points.

Settlement from this time appears to be a mobile, yet seasonally structured, settlement system with frequent reuse of encampments.

Middle Archaic (7000–2500 cal BP)

The Middle Archaic can be characterized by increasing sedentism and artifact diversity, including the introduction of mortars and pestles in the Valley lowlands by 5000 cal BP. There is also evidence for increasing trade, which included exotic items such as obsidian, shell beads, and ornaments, and potentially other perishable items. Various lines of evidence suggest that the shift to mortars and pestles accompanied more intensive subsistence practices and increased residential stability. Extended residential occupation is reflected in the strict burial posture, refined and specialized tool assemblages, abundant trade objects, and a wide range of nonutilitarian artifacts.

Upper Archaic (2500–930 cal BP)

The Upper Archaic is much better understood than the preceding periods because of a more extensive archaeological record and better temporal resolution. Cultural diversity first apparent in the Middle Archaic becomes much more pronounced in the Upper Archaic, as evidenced by a complex mosaic of distinct sociopolitical entities marked by contrasting burial postures, artifact styles, and other material culture elements. Throughout Central California, the Upper Archaic witnessed the development and proliferation of many specialized technologies, including new types of bone tools, such as harpoons, shaft wrenches, and awls. Widespread exchange of obsidian and shell ornaments continued through this period.

Emergent Period (930–150 cal BP)

The Emergent Period is composed of two phases, the latter of which represents the onset of cultural traditions most resembling those encountered by Europeans at contact. This period saw the introduction of the Stockton serrated arrow point, as well as highly decorative items, including big-head effigy ornaments, collared stone pipes, ear spools, and incised bone whistles. Fishing is a significant component of the Native economy at this time as evidenced by the prevalence of fishing equipment at sites, as well as the establishment of large mound villages every few miles along the San Joaquin River and major tributaries. Mortars and pestles are used almost exclusively during this period.

ETHNOGRAPHIC HISTORY

Historically, the Central Valley was home to no fewer than seven Native California ethnic groups, all related to a single linguistic superfamily—Penutian. It has been estimated that slightly more than 100,000 people lived in the Central Valley when Europeans first ventured into the basin about AD 1772. If this projection is correct, the Central Valley alone was home to almost one third of the entire state's estimated Native population.

At the time of European contact, almost the entire San Joaquin Valley, including the current project area, was held by the Yokuts; only the region immediately east and south of the Delta was outside Yokuts territory, controlled instead by the Plains Miwok. At least 50 separate Yokuts groups lived in the San Joaquin Valley and adjacent Sierra Nevada foothills, each having a distinct name, dialect, and territory. The Yokuts may have been the largest ethnic group in California with an estimated precontact population approaching 41,000 people. The precontact archaeological sites east of the project area fall within the territory of the *Coybos*, a Northern Valley Yokuts group who lived along the San Joaquin River near the modern town of Lathrop. A postcontact population density for the *Coybos* of almost five persons per square mile was estimated, which is among the highest population in the northern part of the San Joaquin Valley.

Like elsewhere in western California, the Yokuts were organized into small, independent political groups, referred to as tribelets. Houses typically were simple frame structures covered by tule mats. In the south, large communal houses were built in this manner, providing shelter to as many as 10 families; however, single-family dwellings appear to have been the norm among the Northern Valley groups. The Yokuts were hunter-gatherers, with fishing playing an important addition to their diet. Other important dietary resources include waterfowl, deer, elk, pronghorns, acorns, and other nut crops, as well as small seeds, bulbs, roots, and greens.

As is the case throughout California, the traditional lifeways of the Yokuts were radically disrupted by missionization. In the San Joaquin Valley, this process began as early as 1776 with the expedition of Lieutenant-Colonel Juan Bautista de Anza. As recorded in baptismal records, the *Coybos* moved to Mission San Jose between 1809 and 1813.

The modern Northern Valley Yokut tribe is active in advocating for their cultural resources and tribal heritage. They frequently participate in archaeological and cultural resources reviews, surveys, and important collaborative efforts to document Native American resources and remain an important part of California tribal history and modern community.

HISTORIC-ERA SETTING

Historic-Era Period

The project area is situated between Lodi and Lockeford, two agricultural communities located in San Joaquin County, California. Lodi, originally named Mokelumne, was founded in 1869 when the Central Pacific Railroad chose the location for a station. In 1906, Lodi had six fruit packing sheds and two lumber mills, and the agricultural area surrounding the town was known for growing wine grapes. Lodi was located on a railroad line between Stockton and Sacramento that connected the town to the rest of the state.

Lockeford is an unincorporated community built on the ranch of Dr. D. J. Locke and was named Lockeford because it was located near a ford on the Mokelumne River. Dr. Locke came to the area in 1850, and Lockeford opened its first post office in 1861. Lockeford was situated on a road to the mines in Amador County.

The largest city close to Lodi and Lockeford is Stockton. Stockton was founded in 1849 during the California Gold Rush, and the town grew from a small settlement on the edge of the San Joaquin River in the mid-nineteenth century to one of the Central Valley's largest cities and an important transportation hub for the surrounding Delta region by the mid- and late twentieth century. The project area is located approximately 16.8 miles northeast of Stockton and formed part of the larger agricultural landscape that developed in conjunction with the changes in industry and transportation in the City of Stockton. Stockton's growth was spurred by the city's burgeoning populations of immigrants and ethnic minorities, industrial development along the Stockton Channel and transportation corridors, including the deep-water channel from Stockton to the San Francisco Bay, construction of three transcontinental railroads through the city, and ultimately the development of two major highways connecting the city to other urban areas throughout the state.

As Stockton's population and prominence rose during the second half of the nineteenth century, it became an important location for a variety of industrial endeavors. This was especially true as the Stockton Channel, which terminated in what would become downtown Stockton, developed initially as the primary transportation route to San Francisco. The south side of the Stockton Channel and the area along Mormon Slough, a tributary that fed the channel west of downtown Stockton, became an important industrial zone for Stockton.

Stockton's location within the Central Valley made it a natural hub for shipping and transportation. While early industrial growth was primarily tied to agricultural expansion in and around San Joaquin County, it soon included large manufacturing factories, as well as light-industrial properties focused on serving the daily needs of local residents. Local and national rail companies all sought to take advantage of the commerce and industry flowing through Stockton, and by 1906, Stockton became the only city on the West Coast with three transcontinental rail depots. Segments of the Central California Traction Company Railroad (P-39-004457) and the Southern Pacific Railroad (P-39-000002) are located within the project area (discussed in detail below). These railroads formed part of a larger landscape that moved people and goods from Stockton to the rest of California and the United States. Agriculture in California developed alongside the railroads because the railroads enabled goods to be transported to cities in order to be packaged and sold. Farmers in California, such as those carrying out agricultural activities within the project area between the towns of Lodi and Lockeford, were implicitly dependent upon modes of transportation such as railroads and highways to succeed economically. The historical San Joaquin and Sierra Nevada Railroad ran through Lodi and Lockeford connecting them to Stockton and the Sierra Nevada mountains but is not located in the project area.

In the 1880s, Lockeford was located on a road connecting Stockton with mines in Amador County. Although the location of this road is unknown, SR 12 and SR 88 run along older roads and the San Joaquin and Sierra Nevada Railroads. SR 88 intersects with the project area. Parts of SR 88 form part of the Old Emigrant Road, which was used from 1848 to 1863. Roads were an important means of transportation for agriculture and other industries in the area, and a real estate pamphlet from 1906 boasted that Lodi had a greater proportion of automobiles to people than other locations: "The good roads in The Delta Lands have been an inducement to farmers and business men to discard horses and buggies and avail themselves of the more modern and speedy automobile, which is run all the year around. Lodi has a large and modern equipped garage, and claims more automobiles, in proportion to its population, than any town in the State." Roads in the Lodi and Lockeford area were seen as a desirable asset for farmers and people living in the Lodi and Lockeford area (Far Western 2021: 19).

ARCHAEOLOGICAL SENSITIVITY

Archaeological sensitivity is used to determine the likelihood of encountering archaeological resources. Identifying specifically where archaeological buried deposits will occur is a more difficult task, as the precise location of prehistoric settlements is typically thought to be dependent on a variety of environmental characteristics, such as the past distribution of important plant and animal foods, proximity to freshwater, and general topography. If landform age alone is used to model buried site sensitivity, without consideration of past human settlement decisions, it will certainly over-estimate the potential for these resources in some areas, and likely underestimate the potential in others. Accordingly, both landform age, proximity to freshwater, topography, food sources, and human settlement decisions are considered in this assessment of archeological sensitivity in the project area.

Precontact Archaeological Sensitivity

Approximately 85 percent of the project area has a very low or low sensitivity rating, while 15 percent has a high sensitivity for precontact archaeological sites. Many Holocene-age depositional landforms (for example, alluvial fans and floodplains) have a general "geologic potential" to contain buried sites because they were formed after the arrival and occupation of the region by precontact people. Conversely, landforms that predate the Holocene have little or no potential to contain buried sites because there were few, if any, people yet present in the region. Previous studies have shown that known precontact sites tend to be located within 200 meters (656 feet) or less of a known stream or other water source. Thus, Holocene-age terrestrial deposits located within 200 meters of a historic-era bay or stream are considered to have an elevated potential to contain buried sites. Because of the age and distribution of surface deposits combined with the proximity to historic-era streams (distance to water), there is a high potential for buried archaeological resources in the project area (within the PG&E component), near SR 88 and Bear Creek, based on the close proximity of this portion of the project to freshwater and the relatively recent age of the sediments. All of the LEU project components would be located in an area that has a very low or low sensitivity rating. Overall, the project area has a low sensitivity for buried precontact resources.

Historic-Era Archaeological Sensitivity

There are historic railroad alignments in the project area (see P-39-004457 and P-39-000002 below), and there is the possibility of subsurface deposits in those areas. These could include spur lines or refuse deposits. Additionally, the project area is in a region that has been used for agricultural purposes continuously since the 19th century, so it is possible that buried refuse deposits or other archaeological material related to homesteading and agricultural activities could be discovered during excavation. Prior to modern refuse disposal systems, people in the 19th and early- to mid-20th centuries frequently deposited household refuse in ditches, creeks, or privies; fed it to livestock; or spread it over agricultural fields to enrich the soil. These activities could have resulted in the creation of historic-era archaeological deposits or isolated artifacts.

RECORDS SEARCHES, SURVEYS, AND CONSULTATION

Archaeological Investigations

Archaeological investigations of the project area were conducted by Far Western in 2021 and 2023. Although the investigations focused mostly on archaeological resources, a few built-environment resources were reviewed and revisited as part of this effort.

PG&E's cultural resources database, which includes all the current Central California Information Center's (CCaIC) files (subscription updated October 30, 2018; CCaIC File No: 10889 Five Counties), was reviewed in June 2021. A secondary records search was conducted in November 2022, which encompassed changes to the project area. Both record searches included a 0.25-mile radius of the project area. In addition to the CCaIC records search, the following files were reviewed:

- National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR),
- California Office of Historic Preservation Historic Property Directory,
- California Inventory of Historic Resources,
- California State Historic Landmarks,
- California Points of Historical Interest, and
- Historic properties reference map.

The records search resulted in the identification of 20 previously conducted cultural resources studies within 0.25 miles of the project area, three of which overlap the project area. The intersecting studies are primarily archaeological surveys that occurred between 1971 and 2016; however, a majority of the project area was not previously surveyed by these efforts (Far Western 2021; Far Western 2023).

The records search resulted in the identification of seven previously recorded historic-era archaeological resources. Five of the resources intersect the project area. These resources include the two historic-era railroad segments (P-39-004457 and P-39-000002), a row of oak trees (P-39-004471), a segment of SR 12 (P-39-004901), and four telegraph poles (P-39-004279). The two previously recorded resources within the 0.25-mile radius of the project are a bridge (29C-341) and single home foundations (P-39-004594). These two resources lie outside of the project area and, therefore, will not be discussed further.

The records search result also included a review of the NRHP, the CRHR, the California Historic Landmarks, and California Points of Historical Interest, which did not indicate that there are additional cultural resources within the project area or within a 0.25-mile radius.

Far Western conducted an archaeological pedestrian survey of the project area between May 5 and 9, 2021, and November 21, 2022. The survey consisted of a pedestrian inspection, with the surveyors walking 15-meter-wide intervals to ensure maximum ground coverage. Ground visibility across the project area averaged an estimated 70 percent, on account of the vineyards having been well maintained and recently tilled. Visibility in the orchards, pastures, and developed areas was drastically lower at roughly 20 percent, due to ground-obscuring grasses.

Archaeological pedestrian survey for the project area identified three new historic-era archaeological resources (BD-01, BD-02, and BD-ISO-01). The five previously recorded resources were also revisited.

P-39-004279

This historic-era site, which was recorded as four dilapidated flat-top telegraph poles (URS Corp. 2001), was relocated within the project area and found to be mis-plotted on CCaIC maps.

P-39-004471

This historic-era site was originally recorded as a row of oak trees along SR 12 (Far Western 2004). Far Western relocated this site as part of the 2022 pedestrian survey.

P-39-004901
This historic-era linear resource is a 61-meter segment of SR 12, located near the intersection of the Central California Traction Railroad and E. Victor Street, and was found to be as previously recorded, with modern maintenance apparent (Far Western 2023). This linear resource was recommended not eligible for the CRHR and NRHP. In addition, this resource is adjacent to a project access road with no proposed ground disturbance and will be avoided.

BD-01
This site consists of five features: two historic-era portable hydrants; one water catchment feature; an abandoned vineyard with rows of old grape vines; and a row of three old oak stumps.

BD-02
This site consists of an old agricultural and railroad equipment debris scatter. Most of the equipment is agricultural, sans one old railroad sign and a railway lever. The agricultural equipment includes historic-era disc plows, disc harrows, pedestrian tractor parts, and various other metal hardware. These materials do not have potential archaeological significance and are not potentially eligible for listing in the CRHR or NRHP (Far Western 2023).

BD-ISO-01
This isolate is a historic-era metal hitch drag that is thoroughly rusted. The hitch drag is a frame with five rows of drag nails. Isolates are defined as one or two artifacts occurring by themselves and not associated with an archaeological site (Far Western 2023). Because they have no historical context, isolates are generally not eligible for listing in CRHR or NRHP and, therefore, were not evaluated for significance and not discussed further in this EIR.

Built-Environment Investigation

A built-environment investigation was conducted by Jacobs Engineering Group in 2023. The records search conducted by Far Western for its 2021 and 2022 archaeological investigations (see above for records search results) was also used for the built-environment assessment.

An architectural field survey of the project area was conducted between December 15 and 22, 2022. The survey was conducted from public vantage points and public rights-of-way. If surveyed resources were not visible or accessible from public areas, investigators completed supplemental research to record and evaluate the resources, such as review of current mapping software, historic maps, aerials, historic newspaper databases, city directories, and other sources.

The architectural field survey and background research for the project area resulted in the identification of 68 built-environment resources that met the 45-year survey cutoff date at the time of this investigation. Of these, 67 resources are newly identified, and one is an unrecorded railroad segment of P-39-004457.

NRHP and CRHR criteria were used to evaluate the significance of the historic features and archaeological sites. The NRHP criteria for eligibility are codified in 36 CFR Part 60 and explained in guidelines published by the Keeper of the NRHP. The NRHP and CRHR are discussed in more detail below in Section 3.5.2, "Regulatory Setting." Eligibility for listing on the NRHP and the CRHR rests on twin factors of significance and integrity. A resource must have both significance and integrity to be considered eligible. Loss of integrity, if sufficiently great, will become more important than the historical significance a resource may possess and render it ineligible. Likewise, a resource can have complete integrity, but if it lacks significance, it must also be considered ineligible.

P-39-000002
As documented in the Far Western archaeological investigation, this resource was originally recorded as a 40-foot-wide railroad grade (Historic Preservation 2001). No railroad infrastructure was observed during the 2022 Far Western survey or during the original Far Western survey of 2021 because the current area is a paved sidewalk. The resource segment within the project area no longer exists (Far Western 2021; Far Western 2023). Therefore, P-39-000002 will not be discussed further.

P-39-004457
As recorded by Jacobs Engineering Group, two railroad segments (Segment 1 and Segment 2) were identified within the project area and evaluated for listing in the CRHR. These segments do not have a direct association with

important events or trends and are not a design or engineering achievement (Criteria 1, 2, and 3), and these segments are not significant for their research potential (Criterion 4). Therefore, Segment 1 and Segment 2 of P-39-004457 were recommended not eligible for the CRHR (Reese 2023), and P-39-004457 is not considered a resource under CEQA. As a result, this built-environment resource is not discussed further.

Other Recorded Built-Environment Resources

The 67 newly recorded built-environment resources are comprised of 41 rural residential properties, seven industrial properties, six suburban residences, five farm buildings on agricultural land, four water conveyance features, three electrical infrastructure features, and a cemetery. These properties have the following characteristics:

- Rural residential properties consist of mainly Ranch, Minimal Traditional, Queen Anne, and eclectic styles. Most contain outbuildings, including garages, barns, shops, sheds, and carports.
- Industrial properties are mainly utilitarian warehouses, shops, garages, or manufacturing plants.
- Suburban residences are located on small 0.25-acre lots within the City of Lodi.
- Farm buildings include sheds, shops, barns, or warehouses related to agricultural production and are located on a parcel with no residence.
- Water conveyance and control features within the project area consist of two earthen levees and two underground pipelines.
- Electrical infrastructure consists of one PG&E substation and two PG&E 230 kV transmission lines.
- The one cemetery is the Lodi Memorial Park and Cemetery.

Of the 67 newly identified resources, seven were evaluated and recommended as eligible for listing in the CRHR (see below) and, therefore, are considered historical resources for the purposes of CEQA for this project. See Appendix E for the evaluations of the remaining 60 built-environment resources that are not considered historical resources under CEQA.

15661 North Curry Avenue

This built-environment resource is recommended eligible for listing in the CRHR under Criteria 1 and 3 for illustrating early-20th century agricultural settlement in Lodi and as a good, intact representation of a 1920s rural residential property with a Craftsman-style residence, tank house, and garage. The property retains integrity and communicates its character and appearance from its construction.

15277 North Curry Avenue

This built-environment resource is recommended eligible for listing in the CRHR under Criterion 3 as a representative example of a Queen Anne–style rural residence within San Joaquin County. The property reflects character-defining features of the style through its high-pitched roof with prominent gable, patterned shingles, asymmetrical massing, and partial-width porch and retains a high degree of integrity.

7106 East Kettleman Lane

This built-environment resource is recommended eligible for listing in the CRHR under Criterion 3 because it embodies a Folk Victorian–style residence through its high-pitched roof with prominent gable, full-width front porch, spindle work porch detailing, clapboard exterior, and original windows. Other than a replacement front door, the resource appears to be unchanged.

7150 East Kettleman Lane

This built-environment resource is recommended eligible for listing in the CRHR under Criteria 1 and 3 for illustrating early-20th century agricultural settlement in Lodi and as a good, intact representation of a 1930s rural residential property with a Craftsman-style residence, tank house, and garage. The property retains integrity and communicates its character and appearance from its construction in 1936.

7280 East Kettleman Lane

This built-environment resource is recommended eligible for listing in the CRHR under Criterion 3 as an excellent example of a Craftsman-style residence in rural San Joaquin County. The property possesses intact elements of the style, including a partial-width front porch with its roof supported by battered wood columns, exposed rafter tails, a low-pitched roof with wide unenclosed eaves, triangular knee braces, and its original front door. It would be recognizable to people from the past and retains integrity.

13915 North Locust Tree Road

This built-environment resource is recommended eligible for listing in the CRHR under Criterion 3 for embodying a Mediterranean-style residence in a rural context. It displays character-defining features of the style, such as stucco walls, a low-pitched tile roof, and a simple massing that emphasizes horizontal lines.

Mokelumne Aqueduct (Segment)

This built-environment resource is recommended eligible for listing in the CRHR under Criterion 1 for its associations with interbasin water transfer to supply domestic and municipal water to growing urban areas and its role in the development of the East Bay area.

Tribal Cultural Resources

Sacred Lands File

Far Western contacted the NAHC with the first request for a search of the Sacred Lands File (SLF) on April 13, 2021. The NAHC's response, dated May 10, 2021, stated that no Native American cultural sites are documented within the project area. Far Western also sent a second request for a search of the SLF on January 26, 2023, to encompass changes in the project area. The NAHC's response, dated March 1, 2023, stated that no Native American cultural sites are documented within the changed project area.

Native American Consultation

Pursuant to PRC Section 21080.3 (AB 52, Statutes of 2017), the CPUC mailed notification letters to three tribal representatives on January 26, 2024. CPUC's list of tribes requesting notification for the geographic area was expanded to also include those that replied to tribal notification conducted by PG&E as part of the Proponent's Environmental Assessment. The notification letters included a description of the project, maps of the proposed project, and invitation to consult under AB 52. The tribal representatives to whom the letters were mailed are:

- Buena Vista Rancheria of Me-Wuk Indians; Rhonda Morningstar Pope, Chairperson
- United Auburn Indian Community of the Auburn Rancheria; G. Whitehouse, Chairperson
- Wilton Rancheria; Herbert Griffin, Director of Cultural Preservation

None of these three tribes requested consultation or otherwise responded to the notification letters.

3.5.2 Regulatory Setting

FEDERAL

National Register of Historic Places

The NRHP is the nation's master inventory of known historic properties. It is administered by the National Park Service and includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level.

The formal criteria (36 CFR 60.4) for determining NRHP eligibility are as follows:

1. The property is at least 50 years old (however, properties under 50 years of age that are of exceptional importance or are contributors to a district can also be included in the NRHP);

2. It retains integrity of location, design, setting, materials, workmanship, feeling, and associations; and
3. It possesses at least one of the following characteristics:

   Criterion A Is associated with events that have made a significant contribution to the broad patterns of history (events).

   Criterion B Is associated with the lives of persons significant in the past (persons).

   Criterion C Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant, distinguishable entity whose components may lack individual distinction (architecture).

   Criterion D Has yielded, or may be likely to yield, information important in prehistory or history (information potential).

For a property to retain and convey historic integrity, it must possess most of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Location is the place where the historic property was constructed or the place where a historic event occurred. Integrity of location refers to whether the property has been moved since its construction. Design is the combination of elements that create the form, plan, space, structure, and style of a property. Setting is the physical environment of a historic property that illustrates the character of the place. Materials are the physical elements that were combined or deposited during a particular period and in a particular pattern or configuration to form a historic property. Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. Feeling is a property's expression of the aesthetic or historic sense of a particular period. This intangible quality is evoked by physical features that reflect a sense of a past time and place. Association is the direct link between the important historic event or person and a historic property. Continuation of historic use and occupation help maintain integrity of association.

Listing in the NRHP does not entail specific protection or assistance for a property, but it does guarantee consideration in planning for federal or federally assisted projects, eligibility for federal tax benefits, and qualification for federal historic preservation assistance. In addition, project effects on properties listed in the NRHP must be evaluated under CEQA.

The National Register Bulletin series was developed to assist evaluators in the application of NRHP criteria. For example, National Register Bulletin #36 provides guidance in the evaluation of archaeological site significance. If a property cannot be placed within a particular theme or time period, and thereby lacks "focus," it will be unlikely to possess characteristics that would make it eligible for listing in the NRHP. Evaluation standards for linear features (such as roads, trails, fence lines, railroads, ditches, and flumes) are considered in terms of four related criteria that account for specific elements that define engineering and construction methods of linear features: (1) size and length, (2) presence of distinctive engineering features and associated properties, (3) structural integrity, and (4) setting. The highest probability for NRHP eligibility exists in the intact, longer segments, where multiple criteria coincide.

Secretary of the Interior's Standards

The *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Secretary's Standards) provide guidance for working with historic properties. The Secretary's Standards are used by lead agencies to evaluate proposed rehabilitative work on historic properties. The Secretary's Standards are a useful analytic tool for understanding and describing the potential impacts of proposed changes to historic resources. Projects that comply with the Secretary's Standards benefit from a regulatory presumption that they would not result in a significant impact to a historic resource.

In 1992, the Secretary's Standards were revised so that they could be applied to all types of historic resources, including landscapes. They were reduced to four sets of treatments to guide work on historic properties: preservation, rehabilitation, restoration, and reconstruction. The four distinct treatments are defined as follows:

- **Preservation** focuses on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time.

- **Rehabilitation** acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character.
- **Restoration** depicts a property at a particular period of time in its history, while removing evidence of other periods.
- **Reconstruction** re-creates vanished or non-surviving portions of a property for interpretive purposes.

STATE

California Register of Historical Resources

All properties in California that are listed in or formally determined eligible for listing in the NRHP are also listed in the CRHR. The CRHR is a listing of State of California resources that are significant in the context of California's history. It is a statewide program with a scope and with criteria for inclusion that are similar to those used for the NRHP. In addition, properties designated under municipal or County ordinances are also eligible for listing in the CRHR. California Historical Landmarks—buildings, structures, sites, or places that have been determined to have statewide historical significance—are also automatically listed in the CRHR. Points of Historical Interest designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. California Points of Historical Interest are sites, buildings, features, or events that are of local (City or County) significance.

A historical resource must be significant at the local, state, or national level under one or more of the criteria defined in California Code of Regulations Title 15, Chapter 11.5, Section 4850 to be included in the CRHR. The CRHR criteria are tied to CEQA because any resource that meets the criteria listed below is considered a significant historical resource under CEQA. As noted above, all resources listed in or formally determined eligible for listing in the NRHP are automatically listed in the CRHR.

The CRHR uses four evaluation criteria:

Criterion 1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history, or to the cultural heritage of California or the United States.

Criterion 2. Is associated with the lives of persons important to local, California, or national history.

Criterion 3. Embodies the distinctive characteristics of a type, period, region, or method of construction; represents the work of a master; or possesses high artistic values.

Criterion 4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Similar to the NRHP, a historical resource must meet one of the above criteria and retain integrity to be listed in the CRHR. The CRHR uses the same seven aspects of integrity used by the NRHP.

California Environmental Quality Act

CEQA requires public agencies to consider the effects of their actions on "historical resources," "unique archaeological resources," and "tribal cultural resources." Pursuant to PRC Section 21084.1, a "project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." Section 21083.2 requires agencies to determine whether projects would have effects on unique archaeological resources. PRC Section 21084.2 establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment."

Historical Resources

"Historical resource" is a term with a defined statutory meaning (PRC Section 21084.1; CEQA Guidelines Sections 15064.5[a] and [b]). Under CEQA Guidelines Section 15064.5(a), historical resources include the following:

1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the CRHR is considered a historical resource (PRC Section 5024.1).

2) A resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g). (Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.)

3) Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record. (Generally, a resource will be considered by the lead agency to be historically significant if the resource meets the criteria for listing in the CRHR [PRC Section 5024.1].)

The fact that a resource is not listed in or determined to be eligible for listing in the CRHR, not included in a local register of historical resources (pursuant to PRC Section 5020.1[k]), or not identified in a historical resources survey (meeting the criteria in PRC Section 5024.1[g]) does not preclude a lead agency from determining that the resource may be a historical resource as defined in PRC Sections 5020.1(j) and 5024.1.

Unique Archaeological Resources

CEQA also requires lead agencies to consider whether projects would affect unique archaeological resources. PRC Section 21083.2(g) states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets one or more of the following criteria:

1) Contains information needed to answer important scientific research questions, and there is a demonstrable public interest in that information.

2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Tribal Cultural Resources

CEQA also requires lead agencies to consider whether projects would affect tribal cultural resources. PRC Section 21074 states:

a) "Tribal cultural resources" are either of the following:

   1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

      A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

      B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.

   2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

Public Resources Code Section 21080.3

Pursuant to PRC Sections 21080.3.1, 21080.3.2, and 21082.3, lead agencies undertaking CEQA review must, upon written request of a California Native American Tribe, begin consultation before the release of an EIR, negative declaration, or mitigated negative declaration. CEQA Sections 21080.3.1 and 21080.3.2 state that within 14 days of determining that a project application is complete, or to undertake a project, the lead agency must provide formal notification, in writing, to the tribes that have requested notification of proposed projects in the lead agency's jurisdiction. If it wishes to engage in consultation on the project, the tribe must respond to the lead agency within 30 days of receipt of the formal notification. The lead agency must begin the consultation process with the tribes that have requested consultation within 30 days of receiving the request for consultation. Consultation concludes when either (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource, or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached.

If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process, provisions under PRC Section 21084.3(b) describe mitigation measures that may avoid or minimize the significant adverse impacts. Examples include:

(1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

(2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

(A) Protecting the cultural character and integrity of the resource

(B) Protecting the traditional use of the resource

(C) Protecting the confidentiality of the resource.

(3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

(4) Protecting the resource.

CEQA Guidelines Section 15126.4(b)(1)

CEQA Guidelines Section 15126.4(b)(1) provides guidance on considerations and discussion of mitigation measures proposed to minimize significant effects on historical resources. CEQA Guidelines Section 15126.4(b)(1) states:

> Where maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of the historical resource will be conducted in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (1995), Weeks and Grimmer, the project's impact on the historical resource shall generally be considered mitigated below a level of significance and thus is not significant.

Public Resources Code Section 21083.2

Treatment options under PRC Section 21083.2(b) to mitigate impacts to archaeological resources include activities that preserve such resources in place in an undisturbed state. PRC Section 21083.2 states:

(a) As part of the determination made pursuant to Section 21080.1, the lead agency shall determine whether the project may have a significant effect on archaeological resources. If the lead agency determines that the project may have a significant effect on unique archaeological resources, the environmental impact report shall address the issue of those resources. An environmental impact report, if otherwise necessary, shall not address the issue

of nonunique archaeological resources. A negative declaration shall be issued with respect to a project if, but for the issue of nonunique archaeological resources, the negative declaration would be otherwise issued.

(b) If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. Examples of that treatment, in no order of preference, may include, but are not limited to, any of the following:

(1) Planning construction to avoid archaeological sites.

(2) Deeding archaeological sites into permanent conservation easements.

(3) Capping or covering archaeological sites with a layer of soil before building on the sites.

(4) Planning parks, greenspace, or other open space to incorporate archaeological sites.

(c) To the extent that unique archaeological resources are not preserved in place or not left in an undisturbed state, mitigation measures shall be required as provided in this subdivision. The project applicant shall provide a guarantee to the lead agency to pay one-half the estimated cost of mitigating the significant effects of the project on unique archaeological resources. In determining payment, the lead agency shall give due consideration to the in-kind value of project design or expenditures that are intended to permit any or all archaeological resources or California Native American culturally significant sites to be preserved in place or left in an undisturbed state. When a final decision is made to carry out or approve the project, the lead agency shall, if necessary, reduce the specified mitigation measures to those which can be funded with the money guaranteed by the project applicant plus the money voluntarily guaranteed by any other person or persons for those mitigation purposes. In order to allow time for interested persons to provide the funding guarantee referred to in this subdivision, a final decision to carry out or approve a project shall not occur sooner than 60 days after completion of the recommended special environmental impact report required by this section.

(d) Excavation as mitigation shall be restricted to those parts of the unique archaeological resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a unique archaeological resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource, if this determination is documented in the environmental impact report.

(e) In no event shall the amount paid by a project applicant for mitigation measures required pursuant to subdivision (c) exceed the following amounts:

(1) An amount equal to one-half of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of a commercial or industrial project.

(2) An amount equal to three-fourths of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of a housing project consisting of a single unit.

(3) If a housing project consists of more than a single unit, an amount equal to three-fourths of 1 percent of the projected cost of the project for mitigation measures undertaken within the site boundaries of the project for the first unit plus the sum of the following:

(A) Two hundred dollars ($200) per unit for any of the next 99 units.

(B) One hundred fifty dollars ($150) per unit for any of the next 400 units.

(C) One hundred dollars ($100) per unit in excess of 500 units.

(f) Unless special or unusual circumstances warrant an exception, the field excavation phase of an approved mitigation plan shall be completed within 90 days after final approval necessary to implement the physical development of the project or, if a phased project, in connection with the phased portion to which the specific mitigation measures are applicable. However, the project applicant may extend that period if he or she so elects. Nothing in this section shall nullify protections for Indian cemeteries under any other provision of law.

California Native American Historical, Cultural, and Sacred Sites Act

The California Native American Historical, Cultural, and Sacred Sites Act (PRC Section 5097.9) applies to both state and private lands. The act requires, upon discovery of human remains, that construction or excavation activity cease and that the County coroner be notified. If the remains are those of a Native American, the coroner must notify the NAHC, which notifies and has the authority to designate the most likely descendant (MLD) of the deceased. The act stipulates the procedures the descendants may follow for treating or disposing of the remains and associated grave goods.

Health and Safety Code Sections 7050.5

Section 7050.5 of the Health and Safety Code requires that construction or excavation be stopped in the vicinity of discovered human remains until the coroner can determine whether the remains are those of a Native American. If they are determined to be those of a Native American, the coroner must contact NAHC.

Public Resources Code Section 5097

PRC Section 5097 specifies the procedures to be followed if cultural resources are unexpectedly discovered on nonfederal public land, and in particular, human remains. Section 5097.5 of the code states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local discretionary regulations. However, local plans and policies are considered for informational purposes.

Because LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County General Plan

The following policies from the 2035 General Plan are relevant to the project:

- NCR-6.1 Protect Historical and Cultural Resources: The County shall protect historical and cultural resources and promote expanded cultural opportunities for residents to enhance the region's quality of life and economy.
- NCR-6.2 No Destruction of Resources: The County shall ensure that no significant architectural, historical, archeological, or cultural resources are knowingly destroyed through County action.
- NCR-6.3 Encourage Public and Private Preservation Efforts: The County shall continue to encourage efforts, both public and private, to preserve the historical and cultural heritage of San Joaquin County and its communities and residents.
- NCR-6.5 Protect Archaeological and Historical Resources: The County shall protect significant archeological and historical resources by requiring an archeological report be prepared by a qualified cultural resource specialist prior to the issuance of any discretionary permit or approval in areas determined to contain significant historic or prehistoric archeological artifacts that could be disturbed by project construction.
- NCR-6.6 Tribal Consultation: The County shall consult with Native American tribes regarding proposed development projects and land use policy changes consistent with the State's Local and Tribal Intergovernmental Consultation requirements.

- NCR-6.7 Adaptive Reuse of Historic Structures: The County shall encourage the adaptive reuse of architecturally significant or historic buildings if the original use of the structure is no longer feasible and the new use is allowed by the underlying land use designation and zoning district.
- NCR-6.8 Land Use and Development: The County shall encourage land uses and development that retain and enhance significant historic properties and sustain historical community character.
- NCR-6.9 Educational Programs: The County shall support educational and outreach programs that promote public awareness of and support preservation of historical and cultural resources.

City of Lodi General Plan

The following policies from the City of Lodi General Plan are relevant to the project:

- Policy C-P17: For future development projects on previously un-surveyed lands, require a project applicant to have a qualified archeologist conduct the following activities: (1) conduct a record search at the Central California Information Center at the California State University, Stanislaus, and other appropriate historical repositories, (2) conduct field surveys where appropriate and required by law, and (3) prepare technical reports, where appropriate, meeting California Office of Historic Preservation Standards (Archeological Resource Management Reports).
- Policy C-P18: In the event that archaeological/paleontological resources are discovered during site excavation, the City shall require that grading and construction work on the project site be suspended until the significance of the features can be determined by a qualified archaeologist/paleontologist. The City will require that a qualified archeologist/paleontologist make recommendations for measures necessary to protect any site determined to contain or constitute an historical resource, a unique archaeological resource, or a unique paleontological resource or to undertake data recovery, excavation, analysis, and curation of archaeological/paleontologist materials. City staff shall consider such recommendations and implement them where they are feasible in light of project design as previously approved by the City.
- Policy C-P19: If any human remains are discovered or recognized in any location on the project site, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
  - The San Joaquin County Coroner/Sheriff has been informed and has determined that no investigation of the cause of death is required; and
  - If the remains are of Native American origin: (1) the descendants of the deceased Native Americans have made a timely 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 Public Resources Code Section 5097.98, or (2) The Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.
- Policy C-P20: Encourage the preservation, maintenance, and adaptive reuse of existing historic buildings by developing incentives for owners of historically-significant buildings to improve their properties.
- Policy C-P21: Require that, prior to the demolition of a historic structure, developers offer the structure for relocation by interested parties.
- Policy C-P22: Require that environmental review consistent with the California Environmental Quality Act be conducted on demolition permit applications for buildings designated as, or potentially eligible for designation as, historic structures.
- Policy C-P23: Conduct a comprehensive survey of historic resources in Lodi, including consideration of potentially eligible historic resources. Update Figure 7-3 upon completion of the survey.

Designate a structure as historic if it:

- Exemplifies or reflects special elements of the city's cultural, architectural, aesthetic, social, economic, political, artistic, and/or engineering heritage;
- Is identified with persons, businesses, or events significant to local, State, or National history;
- Embodies distinctive characteristics of style, type, period, or method of construction or is a valuable example of the use of indigenous materials or craftsmanship;
- Represents the notable work of a builder, designer, engineer, or architect; and/or
- Is unique in location or has a singular physical characteristic that represents a familiar visual feature of a neighborhood, community, or the city.

Designate a district as historic if it:

- Is a geographically definable area possessing a concentration or continuity of sites, buildings, structures, or objects as unified by past events or aesthetically by plan or physical development; or
- Identifies relevant key neighborhoods either as historic districts or merit districts. Designate accordingly if 50% of property owners in the proposed district agree to the designation.
- An "Historic District" means any area containing a concentration of improvements that has a special character, architectural importance, historical interest, or aesthetic value, which possesses integrity of location, design, setting, materials, workmanship, feeling, and association or which represents one or more architectural periods or styles typical to the history of Lodi.
- A "Merit District" recognizes a district's history but does not provide for a regulatory structure at this time. The structures of these districts may not be architecturally significant, but the role that these neighborhoods have played in the city's development, the cultural and economic conditions that resulted in the construction of these neighborhoods and the stories surrounding them make them an important part of the city's history for which they should be acknowledged and celebrated.

- Policy C-P24: Follow preservation standards outlined in the current Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings, for structures listed on the National Register of Historic Places or California Register of Historical Resources.
- Policy C-P25: Coordinate historic preservation efforts with other agencies and organizations, including the Lodi Historical Society, San Joaquin County Historical Society and other historical organizations.

3.5.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

The impact analysis for archaeological and historical resources is based on the findings and recommendations of the following studies: *Cultural Resources Inventory Report for the PG&E Northern San Joaquin 230 kV Transmission Project, San Joaquin, California* (Far Western 2021); *Addendum to the Cultural Resources Inventory Report for the PG&E Northern San Joaquin 230 kV Transmission Project, San Joaquin, California* (Far Western 2023); and *Northern San Joaquin 230 kV Transmission Project, San Joaquin County, California, Architectural Identification and Evaluation Report* (Jacobs Engineering Group 2023). The analysis of tribal cultural resources is based on the outcome of the consultation conducted pursuant to PRC Section 21080.3. The analysis is also informed by the provisions and requirements of federal and state laws and regulations that apply to cultural resources.

The PRC provides definitions of archaeological and tribal cultural resources (see Section 3.5.2, "Regulatory Setting").

In addition, according to CEQA Guidelines Section 15126.4(b)(1), if a project adheres to the Secretary of the Interior's Standards for the Treatment of Historic Properties, the project's impact "will generally be considered mitigated below the level of a significance and thus is not significant."

For the purposes of the impact discussion, "historical resource" is used to describe built-environment historic-era resources. Archaeological resources (both precontact and historic-era), which may qualify as "historical resources" pursuant to CEQA, are analyzed separately from built-environment historical resources.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant-proposed measures (APMs) that are incorporated into PG&E's components of the project. Similarly, LEU has developed best management practices (BMPs) that would apply to the LEU components of the project. The project includes the following APMs and BMPs related to cultural resources:

PG&E APMs

APM CUL-1: Develop and Implement Worker Environmental Awareness Program Prior to Construction.
PG&E will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource professional either as a stand-alone training or as part of the overall environmental awareness training required by the project, and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum:

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

A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.

APM CUL-2: Archaeological Construction Monitoring in High-Sensitivity Areas.
In high-sensitivity areas where survey did not identify archaeological resources (PG&E structures W12, W13 and W14), once per day during ground-disturbing activities a qualified archaeological monitor will observe the ground-disturbing activities and have the authority to halt ground-disturbing work temporarily within 100 feet of a find when safe to do so to assess the find. The assessment, and any subsequent evaluation, will follow the processes described in APM CUL-3. Monitoring at these locations can be reduced if, after initial monitoring, the qualified archaeological monitor has determined there is a low likelihood of identifying cultural resources.

APM CUL-3: Inadvertent Cultural Resource Discoveries.
While the pedestrian survey had good ground visibility and did not identify any new cultural resources, it is not uncommon to have unanticipated cultural discoveries during construction. The precontact buried site sensitivity analysis identified a high potential for buried resources near SR 88 and Bear Creek. Additionally, the area has historically been occupied and used for agricultural purposes since the late 1900s. For these reasons, precontact and

historic-era inadvertent discoveries are possible during construction. If such discoveries take place, the following procedures will be initiated:

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

APM CUL-4: Unanticipated Discovery of Human Remains.

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

- If the remains are Native American, the Coroner must notify the NAHC of the discovery within 24 hours. The NAHC then will identify and contact a MLD. The MLD may make recommendations to the landowner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. When proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented.
- If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner or representative for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between the landowner and the MLD.

APM TCR-1: Undiscovered Potential Tribal Cultural Resources.

The following procedure will be employed (after stopping work and following the procedure for determining eligibility in APM CUL-4) if a resource is encountered and determined by the geographically affiliated tribe in collaboration with the project's qualified archaeologist (if applicable) to be potentially eligible for the California Register of Historical Resources (CRHR) or a local register of historic resources and is associated with a California Native American Tribe with a traditional and cultural affiliation with the geographic area of the proposed project:

- The PG&E cultural resources specialist will notify the CPUC for appropriate action. PG&E will assist the CPUC if needed to identify the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC will communicate with the lead contact person to set up a meeting with PG&E and the CPUC.

- The PG&E cultural resources specialist will participate with the CPUC in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC Section 21074 and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR.
- If no agreement can be reached for mitigation after discussions with the California Native American Tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, PG&E will implement one of the example mitigation measures listed in PRC Section 21084.3(b), or other feasible mitigation.

LEU BMPs

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

LEU will design and implement a worker environmental awareness program that will be provided to all project personnel involved in earth-moving activities. This training will be administered by a qualified cultural resource professional either as a stand-alone training or as part of the overall environmental awareness training required by the project, and may be recorded for use in subsequent training sessions. No construction worker will be involved in field operations without having participated in the worker environmental awareness program, which will include, at a minimum:

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

A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to the City of Lodi.

BMP CUL-3: Inadvertent Cultural Resource Discoveries.

While the pedestrian survey had good ground visibility and did not identify any new cultural resources, it is not uncommon to have unanticipated cultural discoveries during construction. The precontact buried site sensitivity analysis identified a low potential for buried resources in the LEU portion of the project. Additionally, the area has historically been occupied and used for agricultural purposes since the late 1900s. For these reasons, precontact and historic-era inadvertent discoveries are possible during construction. If such discoveries take place, the following procedures will be initiated:

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

archaeology. Evaluations may include archival research, oral interviews, and/or field excavations to determine the full depth, extent, nature, and integrity of the deposit.

BMP CUL-4: Unanticipated Discovery of Human Remains.
If human remains or suspected human remains are discovered during LEU construction, work within 100 feet of the find will stop immediately and the construction supervisor will contact the LEU cultural resources specialist, who meets the Secretary of Interior's Standards for archaeology. Upon discovery, the Coroner Division of the San Joaquin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified.

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

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

BMP TCR-1: Undiscovered Potential Tribal Cultural Resources.
The following procedure will be employed (after stopping work and following the procedure for determining eligibility in BMP CUL-4) if a resource is encountered and determined by the geographically affiliated tribe in collaboration with the project's qualified archaeologist (if applicable) to be potentially eligible for the CRHR or a local register of historic resources and is associated with a California Native American Tribe with a traditional and cultural affiliation with the geographic area of the proposed project:

- The LEU cultural resource lead will notify the CPUC for appropriate action. LEU will assist the CPUC if needed to identify the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC will communicate with the lead contact person to set up a meeting with LEU and the CPUC.
- The LEU cultural resource lead will participate with the CPUC in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC Section 21074 and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR.
- If no agreement can be reached for mitigation after discussions with the California Native American Tribe(s) or it is determined that the tribe(s)' preferred mitigation is not feasible, LEU will implement one of the example mitigation measures listed in PRC Section 21084.3(b), or other feasible mitigation.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to archaeological, historical, and tribal cultural resources under CEQA are based on Appendix G of the CEQA Guidelines and *CPUC's Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments.* An archaeological, historical, or tribal cultural resource impact would be significant if it would:

- cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 of the CEQA Guidelines;

- cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines;
- cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
  - listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k), or
  - a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1; in applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe; or
- disturb any human remains, including those interred outside of formal cemeteries.

ISSUES NOT DISCUSSED FURTHER

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project components would not result in physical environmental changes that could result in a substantial adverse change in the significance of a historical, archaeological, or tribal cultural resource or disturb any human remains, including those interred outside of formal cemeteries. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACTS ANALYSIS

Impact ARC-1: Cause a Substantial Adverse Change in the Significance of a Historical Resource

PG&E and LEU Project Components

The architectural investigation resulted in seven historical, built-environment resources evaluated and recommended as eligible for listing in the CRHR. These seven resources are residential properties, all of which are located within the area encompassed by the PG&E project components (no resources are present in the area encompassed by the LEU project components). There would be no physical alteration or demolition of these resources. Proposed project facilities are located approximately 352 feet to approximately 1,100 feet from the character-defining features of these resources. The historical and current uses of these resources would remain intact. For example, the rural residential properties engaged in small-scale agriculture on medium-sized parcels would continue operations. The character-defining features associated with each resource, such as their massing, materials, orientation, and landscape features, would remain intact and not be diminished by the project components (e.g., transmission lines, poles, towers, substations). In addition, while these project improvements may be visible from certain public vantage points, existing modern-era development has already diminished the integrity of the historic setting of these resources, and the project components would be a minor change in the integrity of the setting or character-defining features of the historical resources that would not diminish those elements that make the resource significant. Therefore, the built-environment resources would retain the aspects of integrity that convey their historic significance.

Implementation of APMs and BMPs

No applicable APMs or BMPs are proposed as part of the project.

Significance before Mitigation

The results of the architectural investigation identified seven built-environment resources that were evaluated and recommended as eligible for listing in the CRHR. The proposed project would not directly alter any resource or substantially change any of the character-defining features (i.e., massing, materials, orientation, and landscape features) that contribute to their historic significance. All built environment features that are historical resources pursuant to Section 15064.5 of the CEQA Guidelines would be avoided by project activities, and the project improvements would not diminish the integrity of the resources such that they would no longer be eligible for listing in the CRHR. For these reasons, there would be no substantial adverse change in the significance of any historic resource. Therefore, the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact ARC-2: Cause a Substantial Adverse Change in the Significance of Unique Archaeological Resources or Archaeological Resources as Defined in CEQA Guidelines Section 15064.5

Approximately 85 percent of the project area has a very low or low sensitivity rating, while 15 percent has a high sensitivity for precontact archaeological sites. There is a high potential for buried precontact resources in the central portion of the project area, near SR 88 and Bear Creek, based on the close proximity of this portion of the project to freshwater and the relatively recent age of the sediments. Therefore, this portion has a high potential for previously unidentified archaeological remains to be encountered during blading of the existing road and excavation of tower footings. However, aside from this small portion of the project area, no subsurface precontact archaeological remains are expected because of the relatively low sensitivity in the project area overall.

The depth of ground disturbance would not exceed approximately 30 feet for the majority of the project. Up to approximately four grounding wells would be installed to approximately 100 feet in depth within PG&E Thurman Switching Station. Exact structure type, configuration, and dimensions will be determined by CPUC or City of Lodi requirements. Final engineering and other factors and are likely to change (expanding or reducing areas of ground disturbance) but would not exceed the depths identified above or the disturbance parameters identified in Chapter 2, "Project Description." Although new roads are not being constructed, some existing roads in the project area may be bladed.

The records search identified three archaeological sites within the project area (P-39-004279, P-39-004471, and P-39-004901). P-39-004279 consists of four dilapidated flat-top telegraph poles, P-39-004471 consists of a row of oak trees along SR 12, and P-39-004901 is a 61-meter segment of SR 12. All three sites were revisited as part of the pedestrian survey and updated accordingly. P-39-004279, P-39-004471, and P-39-004901 were not evaluated for the CRHR because there is no proposed ground disturbance within the boundaries of these three archaeological sites. Two new archaeological sites were identified by the pedestrian survey. BD-01 consists of two historic-era portable hydrants; one water catchment feature; an abandoned vineyard with rows of old grape vines; and a row of three old oak stumps. BD-02 consists of an old agricultural and railroad equipment debris scatter. These two resources were not evaluated for the CRHR because there is no proposed ground disturbance within the boundaries of BD-01 and BD-02.

PG&E Project Components

The pedestrian survey and the records search results did not identify any archaeological sites near PG&E's proposed project components. Components of the project that would involve earth-moving and excavation may result in the discovery of previously undiscovered archaeological resources, both precontact and historic-era. Project-related ground disturbance could result in the damage or destruction of these as yet undiscovered archaeological resources.

Implementation of APMs

Components of the project that require earth-moving and excavation may result in impacts to previously undisturbed and unrecorded archaeological deposits, the risks of which would be reduced through compliance with implementation of APM CUL-1 through APM CUL-3. Implementation of APM CUL-1 would require the development of a worker environmental awareness program prior to construction. PG&E would design and implement a worker environmental awareness program that would be provided to all project personnel involved in earth-moving activities. Implementation of APM CUL-2 would require archaeological construction monitoring in high-sensitive areas where surveys did not identify archaeological resources (PG&E structures W12, W13, and W14). Implementation of APM CUL-3 would require ground-disturbing activities to stop if archaeological resources are inadvertently discovered and provides the necessary procedures to be followed. However, APM CUL-3 would only be implemented to the extent feasible and does not recommend preservation in place as the primary form of mitigation to avoid direct and indirect effects during construction or O&M.

LEU Project Components

The pedestrian survey and the records search results identified five archaeological sites within the LEU project components (P-39-004279, P-39-004471, P-39-004901, BD-01, and BD-02). None of these resources were evaluated for CRHR because it is anticipated that the proposed project would not result in ground disturbance within any of the five site boundaries. However, exact structure type, configuration, and dimensions of the infrastructure would be determined by City of Lodi requirements. Final engineering and other factors are likely to change, which could result in impacts to these unevaluated resources. An analysis of sensitivity for buried precontact sites determined that the LEU portion of the project has a low potential. However, archival research found moderate potential for historic-era surface and subsurface deposits. Components of the project that would involve earth-moving and excavation may potentially damage known archaeological resources or result in the discovery and damage or destruction of previously undiscovered archaeological resources.

Implementation of BMPs

Implementation of BMP CUL-1 would require the development of a worker environmental awareness program prior to construction. LEU would design and implement a worker environmental awareness program that would be provided to all project personnel involved in earth-moving activities. Implementation of BMP CUL-3 would require ground-disturbing activities to stop if cultural resources are inadvertently discovered and provides the necessary procedures to be followed.

Components of the project that require earth-moving and excavation could impact known archaeological resources or undiscovered archaeological deposits. The potential for impacts to undiscovered archeological deposits would be minimized through implementation of BMP CUL-1 and BMP CUL-3. However, BPM CUL-3 would only be implemented to the extent feasible and does not recommend preservation in place as the primary form of mitigation, to avoid direct and indirect effects during construction or O&M. In addition, the potential exists for construction activities to damage or destroy identified, but unevaluated resources.

Significance before Mitigation

There are five archaeological sites within the project area. Components of the project that require earth-moving and excavation could impact unevaluated resources (P-39-004279, P-39-004471, P-39-004901, BD-01, and BD-02), although ground disturbance is not proposed within their boundaries. In addition, project-related ground-disturbance could result in discovery and damage of yet undiscovered archaeological resources as defined in CEQA Guidelines Section 15064.5. This would be a **significant** impact.

Mitigation Measures

Mitigation Measure 3.5-2a [PG&E and LEU]: Inadvertent Archaeological Resource Discoveries

The following mitigation measure shall supersede and replace AMP CUL-3 and BMP CUL-3 for inadvertent discoveries:

- If any precontact or historic-era subsurface archaeological features or deposits (e.g., ceramic shard, trash scatters), including locally darkened soil ("midden"), which may conceal cultural deposits, are discovered during

construction, all ground-disturbing activity within 100 feet of the resources shall be halted, and a qualified professional archaeologist (one who meets the Secretary of the Interior's Professional Qualification Standards for archaeology) shall be retained to assess the significance of the find.

- The construction crew would protect the discovery from further disturbance until it has been assessed by a qualified archaeologist.
- The construction supervisor would immediately contact the project construction inspector and LEU or CPUC (as appropriate).
- LEU or CPUC would coordinate with the state lead officials to determine appropriate procedures to reduce effects on the resource.
  - If the discovery can be preserved in place (which shall be the preferred manner of mitigating impacts on archaeological and tribal sites) and no further impacts would occur, then the resource would be documented on DPR 523 forms, and no further effort would be required.
  - If the resource cannot be avoided and may be subjected to further impacts, qualified archaeologist in coordination with LEU or CPUC (as appropriate) would evaluate the significance of the discovery in accordance with the state laws outlined previously; personnel would implement data recovery or other appropriate treatment measures, if warranted. A qualified historical archaeologist would complete an evaluation of historic-period resources, while evaluation of precontact resources would be completed by a qualified archaeologist specializing in California prehistoric archaeology.
- If it is determined that by the qualified archaeologist in coordination with LEU or CPUC (as appropriate) that the discovery has the potential to be a tribal cultural resource, then Mitigation Measure 3.5-3 shall be followed.
- Ground disturbance within the discovery shall resume only when LEU or CPUC (as appropriate) have determined that all necessary investigation and evaluation of the resource has been completed.

Mitigation Measure 3.5-2b [LEU]: Establish a No-Disturbance Buffer for Unevaluated Archeological Resources

To ensure that unevaluated archeological resources are properly protected, fencing or stake markers (as appropriate) will be established around P-39-004279, P-39-004471, P-39-004901, BD-01, and BD-02. Before any ground-disturbing activities are conducted in the vicinity of the resources, a qualified archaeologist shall establish a 5-foot buffer of construction fencing around each of the five archaeological resources. After it is established, the fencing or stake markers shall be checked periodically by the archaeologist to make sure it stays in place and no damage has occurred. This will ensure that the five archaeological resources continue to be avoided during project-related work. The fences shall remain in place until project work in the vicinity of the resources is complete; fence removal shall be overseen by the archaeologist.

Significance after Mitigation

Mitigation Measures 3.5-2a and 3.5-b would supersede and replace AMP CUL-3 and BMP CUL-3 to require implementation and preservation in place as the primary form of mitigation. Implementation of Mitigation Measures 3.5-2a and 3.5-2b would reduce impacts to archaeological resources by establishing protective fencing around unevaluated archaeological resources within which ground disturbance would not occur; and would provide the necessary procedures to be followed for inadvertent discoveries. With implementation of these measures, the proposed project would not cause a substantial adverse change in the significance of any archeological resource. This impact would be **less than significant**.

Impact ARC-3: Cause a Substantial Adverse Change in the Significance of a Tribal Cultural Resource

As discussed above, CPUC notified the Buena Vista Rancheria of Me-Wuk Indians, United Auburn Indian Community of the Auburn Rancheria, and Wilton Rancheria on January 26, 2024, of the opportunity to consult on the proposed project pursuant to AB 52. None of these tribes requested consultation or responded to the letters. Additionally, both of the NAHC SLF searches returned a negative result, indicating that there are no known Native

American cultural sites present in the project area. Similarly, the results of the CCaIC records search and archaeological pedestrian survey, discussed above, did not result in the discovery of any precontact archaeological sites that could potentially be tribal cultural resources.

PG&E Project Components

In addition to no tribal cultural resources being identified through AB 52 notification, the SLF search, the CCaIC search, and the pedestrian survey did not result in the discovery of any precontact sites that could potentially be a tribal cultural resource. Nevertheless, project-related ground-disturbing activities could result in the damage or destruction of yet-undiscovered tribal cultural resources as defined in PCR section 21074.

Implementation of APMs

Components of the project that require earth-moving and excavation may result in the discovery of previously undisturbed tribal cultural resources, the risks of which would be reduced with implementation of APM TCR-1. Implementation of APM TCR-1 would require ground-disturbing activities to stop if cultural resources that could potentially be tribal cultural resources, are inadvertently discovered and provides procedures to be followed. However, APM TCR-1 would only be implemented to the extent feasible, does not recommend preservation in place as the primary form of mitigation, and does not provide guidance on when work can resume. In addition, the potential still exists for construction activities to damage or destroy previously undiscovered tribal cultural resources.

LEU Project Components

The potential for construction of the LEU project components to result in adverse effects related to tribal cultural resources would be the same as discussed above for the PG&E project components.

Implementation of BMPs

Components of the project that require earth-moving and excavation may result in the discovery of previously undisturbed tribal cultural resources, the risks of which would be reduced through compliance with implementation of BMP TCR-1. Implementation of BMP TCR-1 would require ground-disturbing activities to stop if cultural resources, that could potentially be a tribal cultural resource, are inadvertently discovered and provides procedures to be followed. However, BPM TCR-1 would only be implemented to the extent feasible, does not recommend preservation in place as the primary form of mitigation, and does not provide guidance on when work can resume. In addition, the potential still exists for construction activities to damage or destroy previously undiscovered tribal cultural resources.

Significance before Mitigation

Pursuant to PRC Section 21080.3, CPUC sent letters inviting tribal consultation to three tribes; no responses were received. No tribal cultural resources, as defined by CEQA Section 21074, have been identified. However, it is possible that tribal cultural resources could be identified and damaged during ground-disturbing activities. This would be a **significant** impact.

Mitigation Measure 3.5-3: Inadvertent Discoveries of Tribal Cultural Resources

The following mitigation measure would be employed (after stopping work and following the procedure for determining eligibility in Mitigation Measure 3.5-1), and shall supersede and replace APM TCR-1 and BMP TCR-1 for inadvertent discoveries:

- As noted on mitigation 3.5-1, construction work shall stop within 100 feet of a resource inadvertently discovered that could potentially be a tribal cultural resource.
- The LEU or CPUC (as appropriate) would identify and contact the lead contact person for the California Native American Tribe(s) potentially associated with the cultural resource and with a traditional and cultural affiliation with the geographic area of the proposed project. The CPUC would communicate with the lead contact person to set up a meeting with LEU (if within LEU jurisdiction) or the CPUC.
- LEU or CPUC would participate in discussions with the California Native American Tribe(s) to determine whether the resource is a "tribal cultural resource" as defined by PRC Section 21074 and the tribe(s)' preferred method of mitigation, if the resource is determined to be a TCR.

- Procedures may include preservation in place (which shall be the preferred manner of mitigating impacts on tribal sites).
- If the tribal cultural resource cannot be avoided and may be subjected to further impacts, the California Native American Tribe(s) in coordination with LEU (if applicable) or CPUC would evaluate the significance of the discovery in accordance with the state laws outlined previously and shall develop the appropriate method of treatment.
- Ground disturbance within the area of discovery shall resume only when LEU or CPUC (as appropriate), in coordination with the California Native American Tribe(s), have deemed appropriate to do so for tribal cultural resources.

Significance after Mitigation

Mitigation Measure 3.5-3 would supersede and replace APM TCR-1 and BMP TCR-1. Implementation of Mitigation Measure 3.5-3 would reduce impacts associated with tribal cultural resources by requiring appropriate treatment and proper care of significant tribal cultural resources, in accordance with the wishes of the geographically and culturally affiliated tribe, in the case of a discovery. With implementation of mitigation, this impact would be **less than significant**.

Impact ARC-4: Disturb Human Remains

The archaeological pedestrian survey and records search results did not return evidence suggesting that any precontact or historic-era marked or unmarked human interments are present within the project area. However, the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project area and could be uncovered by project-related construction activities.

California law recognizes the need to protect Native American human burials, skeletal remains, and items associated with Native American burials from vandalism and inadvertent destruction. The procedures for the treatment of Native American human remains are contained in California Health and Safety Code Section 7050.5 and California PRC Section 5097.

These statutes require that, if human remains are discovered, potentially damaging ground-disturbing activities in the area of the remains shall be halted immediately, and the appropriate County coroner shall be notified immediately. If the remains are determined by the coroner to be Native American, NAHC shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. Following the coroner's findings, the NAHC-designated most likely descendant and the landowner shall determine the ultimate treatment and disposition of the remains and take appropriate steps to ensure that additional human interments, if present, are not disturbed. The responsibilities for acting upon notification of a discovery of Native American human remains are identified in PRC Section 5097.94.

PG&E Project Components

The archaeological pedestrian survey and records search results did not return evidence suggesting that any precontact or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the PG&E portion. However, the location of grave sites and Native American remains can occur outside of identified cemeteries or burial sites. Therefore, there is a possibility that unmarked, previously unknown Native American or other graves could be present within the project area and could be uncovered by project-related construction activities.

Implementation of APMs

The records search results and pedestrian survey did not return evidence suggesting that human remains are present in the PG&E portion of the project. The PG&E portion of the project would not impact any known graves during construction, operation, or maintenance. Project impacts on human remains are not anticipated. If human remains are discovered, PG&E would implement AMP CUL-4, which satisfies PRC requirements. APM CUL-4 requires work to

stop immediately, within 100 feet of the find, if human remains or suspected human remains are discovered, and provides the necessary procedures to be followed.

LEU Project Components

The potential for implementation of the LEU project components to disturb human remains would be the same as discussed above for the PG&E project components.

Implementation of BMPs

The records search results and pedestrian survey did not return evidence suggesting that human remains are present on the LEU portion of the project. The LEU portion of the project will not impact any known graves during construction, operation, or maintenance. Project impacts on human remains are not anticipated. If human remains are discovered, LEU would implement BMP CUL-4, which satisfies PRC requirements. BMP CUL-4 requires work to stop immediately, within 100 feet of the find, if human remains or suspected human remains are discovered, and provides the necessary procedures to be followed.

Significance before Mitigation

The records search results and archaeological pedestrian survey did not return evidence indicating that any precontact or historic-era marked or unmarked human interments are present within or in the immediate vicinity of the project area. However, ground-disturbing construction activities could uncover previously unknown human remains.

Implementation of APM CUL-4 and BMP CUL-4, compliance with California Health and Safety Code Section 7050.5, and compliance with California PRC 5097 would provide an opportunity to avoid or minimize the disturbance of human remains, and to appropriately treat any remains that are discovered. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.6 BIOLOGICAL RESOURCES

This section describes the existing conditions for biological resources in the project area; describes the applicable federal, state, and local regulations; and analyzes potential biological resource impacts associated with implementation of the project.

The following databases were reviewed for information regarding special-status species and sensitive biological resources:

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) records search of the following US Geological Survey (USGS) 7.5-minute quadrangles that include and surround the project area: Galt, Clay, Goose Creek, Lodi North, Lodi South, Lockeford, Clements, Waterloo, Valley Springs, Linden, Wallace, Ione, Terminous, Thornton, and Bruceville (CNDDB 2024);
- California Native Plant Society Rare Plant Program online database records search of the 15 quadrangles that include and surround the project area listed above (CNPS 2024); and
- US Fish and Wildlife Service (USFWS) Information for Planning and Consultation tool (USFWS 2024a).

Results from the following surveys conducted by Jacobs Engineering Group were reviewed for information regarding biological resources in the project area:

- reconnaissance-level surveys of the project area conducted on December 11, 2019, and August 11, 2022 (Jacobs Engineering Group 2023);
- botanical surveys of the project area conducted on April 27, April 28, May 11, June 15, and August 6, 2021 (Jacobs Engineering Group 2022a); and
- aquatic resource delineation of the project area conducted on April 27, April 28, and May 11, 2021 (Jacobs Engineering Group 2022b).

In response to the notice of preparation (NOP) for the EIR, comment letters pertaining to biological resources were received from several members of the public. Commenters raised concerns regarding impacts on listed endangered, threatened, or proposed species; native plant communities; riparian habitat; and state and federally protected wetlands. These impacts are addressed in the impact analysis below. See Appendix A for all NOP comments received during the public scoping period.

3.6.1 Environmental Setting

The following environmental setting describes landcover within the biological study area (BSA), as well as special-status species known to occur in the vicinity of the BSA and their potential for occurrence in the BSA. The BSA encompasses the project area, plus a 50-foot buffer for proposed access roads and a 250-foot buffer for all other proposed project elements. The BSA is intended to incorporate the area of direct and indirect physical impacts that could occur as a result of project implementation. Impacts on some biological resources (e.g., special-status birds) may occur at greater distances and are not limited to the BSA; a larger area is considered in the evaluation of these resources, and this area is described, where applicable, in the impact analysis below.

LAND COVER

The BSA is largely composed of agricultural development, as well as nonnative grasslands and urban areas. Ruderal habitat and areas with tree cover are sparse and scattered throughout the BSA. Portions of the BSA include aquatic land cover in the form of seasonal wetlands, natural and constructed watercourses, drainage ditches, and irrigation ditches. Riparian habitat is present along some of the natural and constructed watercourses within the BSA. The

acreage of each land cover type is included in Table 3.6-1, and the characteristics of the land cover types are discussed further below. Mapping of landcover types is provided in Appendix F (Jacobs Engineering Group 2023).

Table 3.6-1 Land Cover in the Biological Study Area

Upland Land Cover	Acres
Agriculture	264.5
Grassland	59.4
Urban	56.3
Ruderal	2.4
Tree cover	2.0
Riparian	0.9
Aquatic Land Cover	**Acres**
Other waters	1.4
Wetland	0.2
Total	**387.1**

Sources: Jacobs Engineering Group 2023; CDFW 2014, 2016; USFWS 2024b; data compiled by Ascent in 2024.

Agriculture

Agricultural land cover in the BSA is characterized by the active cultivation of monoculture agricultural crops that are generally irrigated. Common crop species found throughout the BSA include almond, cherry, peach, and walnut orchards; vineyards; and corn fields (Jacobs Engineering Group 2023).

Grassland

Grasslands occur throughout the BSA in large areas, such as pastures and other undeveloped areas, and in smaller patches, such as along roadsides. Within the BSA, these grasslands are surrounded by agricultural or urban development, are dominated by nonnative grasses and forbs, and are often disturbed (Jacobs Engineering Group 2023). Seminatural alliances including wild oats and annual brome (*Avena* spp., *Bromus* spp.) grasslands and perennial rye grass (*Lolium perenne*) fields are common in most grasslands, with low cover of upland mustards (*Brassica* spp.) or yellow star thistle (*Centaurea solstitialis*) fields that are more common near roads and other developed areas (Jacobs Engineering Group 2023).

Urban

Urban development in the BSA includes paved and dirt roads and parking lots; the Central California Traction (CCT) railroad; residential, retail, and commercial development, including existing PG&E and LEU substations and other infrastructure; and a portion of the Lodi Memorial Park and Cemetery located northeast of the intersection of East Lodi Avenue and South Guild Avenue.

Ruderal

Ruderal land cover is characterized by disturbed and largely barren ground surrounding developed areas, such as along roadways, levees, railroads, and other urban buildings and infrastructure. Ruderal land cover generally lacks vegetation or is dominated by nonnative or invasive plant species, such as thistles (*Carduus* spp.), yellow star thistle, black mustard (*Brassica nigra*), foxtail barley (*Hordeum murinum*), broad leaf filaree (*Erodium botrys*), perennial pepperweed (*Lepidium latifolium*), and stinkwort (*Dittrichia graveolens*) (Jacobs Engineering Group 2023).

Tree Cover

Tree cover is sparse and scattered throughout the BSA and largely consists of planted, ornamental, or landscaped overstory trees that are not associated with agricultural land, as well as some native trees, such as oaks (*Quercus* spp.). Tree cover is mapped in the undeveloped lot east of the existing PG&E Lockeford Substation, as well as east of

the proposed LEU Guild Substation and PG&E Thurman Switching Station near the junction of East Sargent Road and the CCT Railroad.

Riparian

Riparian habitat in the BSA is limited to the banks of Bear Creek, Paddy Creek, and a realigned tributary to Paddy Creek, where these features bisect the proposed PG&E 230 kV transmission line. These riparian areas are narrow, sparsely vegetated, and confined by steep slopes (Jacobs Engineering Group 2023). Vegetation is characterized by nonnative grasses, sparse willows (*Salix* spp.) along Bear and Paddy Creeks and a few small coast live oaks (*Quercus agrifolia*) and walnut trees along the realigned tributary to Paddy Creek (Jacobs Engineering Group 2023).

Aquatic Land Cover: Wetlands and Other Waters

Aquatic landcover in the BSA consists of eight seasonal wetlands and several other watercourses. Other watercourses consist of natural watercourses (i.e., Bear Creek, Paddy Creek), constructed watercourses (i.e., two irrigation channels, the realigned tributary to Paddy Creek), seven drainage ditches, and one irrigation ditch.

Bear Creek is a perennial creek that has low water flow year-round except during extreme drought years. In the drought year of 2021, Bear Creek was mostly dry except for some areas of shallow ponding and wetted soils (Jacobs Engineering Group 2022b). Bear Creek is a tributary to Pixley Slough and the San Joaquin River. Paddy Creek is an intermittent tributary to Bear Creek that has been diverted for irrigation. Stands of bulrush (*Schoenoplectus* sp.) occur throughout both channels, and nonnative annual grasses are dominant on the upslopes of the creeks (Jacobs Engineering Group 2022b).

Seasonal wetlands within the BSA consist of shallow concave basins that fill with water during wet winter months and are dry for the remainder of the year (Jacobs Engineering Group 2022b). Most of the wetlands are dominated by seaside barley (*Hordeum marinum*), whereas some include native species, such as annual hairgrass (*Deschampsia danthonioides*), popcornflower (*Plagiobothrys* sp.), sprikerush (*Eleocharis* sp.), and tall flatsedge (*Cyperus eragrostis*) (Jacobs Engineering Group 2022b). None of these wetlands contain vernal pool hydrology or habitat (Jacobs Engineering Group 2022b).

The constructed watercourses, drainage ditches, and irrigation ditches within the BSA are human-made excavated features. One of the irrigation channels is dominated by tall flatsedge curly dock (*Rumex crispus*) and nonnative annual grasses; the other contains no vegetation and is inhabited by red-eared sliders (*Trachemys scripta elegans*) (Jacobs Engineering Group 2022b). The realigned tributary to Paddy Creek is a perennial feature containing minimal vegetation except for a small section of riparian habitat. The drainage ditches are roadside drainages that drain water away from roads and agricultural areas, and the irrigation ditch conveys flow from nearby irrigation channel to a corn field and is excavated on an annual basis during the growing season (Jacobs Engineering Group 2022b).

SENSITIVE BIOLOGICAL RESOURCES

Special-Status Species

Special-status species are defined as species that are legally protected or that are otherwise considered sensitive by federal, state, or local resource agencies. Special-status species are species, subspecies, or varieties that are in one or more of the following categories, regardless of their legal or protection status:

- officially listed by California or the federal government as endangered, threatened, or rare;
- a candidate for state or federal listing as endangered, threatened, or rare;
- taxa (i.e., taxonomic category or group) that meet the criteria for listing, even if not currently included on any list, as described in State CEQA Guidelines Section 15380;
- species identified by CDFW as species of special concern;
- species listed as fully protected under the California Fish and Game Code;

- species covered under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP);
- species afforded protection under local planning documents; and
- taxa considered by CDFW to be "rare, threatened, or endangered in California" and assigned a California Rare Plant Rank (CRPR). The CDFW system includes five rarity and endangerment ranks for categorizing plant species of concern, summarized as follows:
  - CRPR 1A: Plants presumed to be extinct in California
  - CRPR 1B: Plants that are rare, threatened, or endangered in California and elsewhere
  - CRPR 2: Plants that are rare, threatened, or endangered in California but more common elsewhere
  - CRPR 3: Plants about which more information is needed (a review list)
  - CRPR 4: Plants of limited distribution (a watch list)

The designation "California species of special concern" is assigned by CDFW to animals not listed under the federal Endangered Species Act (ESA) or California Endangered Species Act (CESA) but that are considered to be declining at a rate that could result in listing or that historically occurred in low numbers and known threats to their persistence currently exist. CDFW's fully protected status was California's first attempt to identify and protect animals that were rare or facing extinction. Most species listed as fully protected were eventually listed as threatened or endangered under CESA; however, some species remain listed as fully protected but do not have simultaneous listing under CESA. Fully protected species may not be taken or possessed at any time and no take permits can be issued for these species except for scientific research purposes or for relocation to protect livestock.

Of the 53 special-status plant species that are known to occur within the vicinity of the BSA, two species were determined to have potential to occur in the BSA based on the presence of habitat suitable for the species (Table 3.6-2) (CNDDB 2024; CNPS 2024; Calflora 2024). Of the 76 special-status wildlife species that could occur within the vicinity of the BSA, 30 species are either known to occur or were determined to have potential to occur in the BSA based on the presence of habitat suitable for the species (Table 3.6-3) (CNDDB 2024). Tables 3.6-2 and 3.6-3 provide lists of the special-status plant and special-status wildlife species, respectively, that have been documented within the 15 USGS quadrangles including and surrounding the BSA. Reconnaissance-level surveys for biological resources of the BSA were conducted on December 11, 2019, and August 11, 2022, and botanical surveys of the project footprint were conducted in 2021 and 2022, and observations from these surveys informed the determinations for the potential for special-status species to occur (Jacobs Engineering Group 2022a, 2023). The tables describe the species' regulatory status, habitat, and potential for occurrence in the BSA.

Table 3.6-2 Special-Status Plant Species Known to Occur in the Vicinity of the BSA and Their Potential for Occurrence in the BSA

Species	Federal Listing Status[1]	State Listing Status[1]	CRPR	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Henderson's bent grass *Agrostis hendersonii*	—	—	3.2	—	Valley and foothill grassland, vernal pools. 215–3,380 ft in elevation. Blooms April–June. Annual.	*Not expected to occur*. The BSA does not contain vernal pool habitat for this species.
Large-flowered fiddleneck *Amsinckia grandiflora*	FE	SE	1B.1	SJVHCP SJMSCP	Annual grassland in various soils. 900–1,805 ft in elevation. Blooms April–May. Annual.	*Not expected to occur*. The BSA is outside the elevational range of this species.
Ione manzanita *Arctostaphylos myrtifolia*	FT	—	1B.2	—	On Ione clay with chaparral associates. Often comprises 50–80 percent cover. 295–1,835 ft in elevation. Blooms November–March. Perennial.	*Not expected to occur*. The BSA is outside the known elevational range of this species.

Species	Federal Listing Status[1]	State Listing Status[1]	CRPR	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Alkali milk vetch *Astragalus tener* var. *tener*	—	—	1B.2	SJMSCP	Alkali playa, alkali flats, alkaline valley and foothill grassland, flooded areas, vernal pools. 0–550 ft in elevation. Blooms March–June. Annual.	*Not expected to occur*. The BSA does not contain vernal pool, flooded areas, or alkali habitat for this species. The grasslands that are present in the BSA are disturbed and dominated by nonnative and invasive species. The closest known occurrence is a historic observation from Stockton that is now extirpated (CNDDB 2024), the BSA is outside the range of all other known occurrences.
Heartscale *Atriplex cordulata* var. *cordulata*	—	—	1B.2	SJMSCP	Alkali habitat in chenopod scrub, valley and foothill grassland, meadows and seeps. 10–900 ft in elevation. Blooms April–October. Annual.	*Not expected to occur*. The BSA does not contain alkali habitat for this species.
Brittlescale *Atriplex depressa*	—	—	1B.2	SJMSCP	Usually in alkali scalds or alkaline clay in meadows or annual grassland; rarely associated with riparian, marshes, or vernal pools. 5–1,065 ft in elevation. Blooms April–October. Annual.	*Not expected to occur*. The BSA does not contain alkali habitat for this species.
Mexican mosquito fern *Azolla microphylla*	—	—	4.2	—	Marshes and swamps. Ponds and still water. 100–330 ft in elevation. Blooms August. Annual/perennial.	*Not expected to occur*. The BSA does not contain marsh, swamp, or pond habitat for this species.
Big tarweed *Blepharizonia plumosa*	—	—	1B.1	SJVHCP	Valley and foothill grassland. Dry hills and plains in annual grassland. Clay to clay-loam soils; usually on slopes and often in burned areas. 100–1,655 ft in elevation. Blooms July–October. Annual.	*Not expected to occur*. The BSA is outside the known range of this species.
Watershield *Brasenia schreberi*	—	—	2B.3	—	Freshwater marshes and swamps. Aquatic from water bodies both natural and artificial in California. 100–7,220 ft in elevation. Blooms June–September. Geophyte.	*Not expected to occur*. The BSA does not contain marsh, swamp, or perennial wetland habitat for this species.
Valley brodiaea *Brodiaea rosea* ssp. *vallicola*	—	—	4.2	—	Valley and foothill grassland (swales) and vernal pools. Old alluvial terraces. Silty, sandy, and gravelly loam. 30–1,100 ft in elevation. Blooms April–May. Geophyte.	*Not expected to occur*. The BSA is out of the known range for this species and does not contain vernal pool habitat for this species.
Hoover's calycadenia *Calycadenia hooveri*	—	—	1B.3	SJMSCP	Cismontane woodland, valley and foothill grassland. On exposed, rocky, barren soil. 230–855 ft in elevation. Blooms July–September. Annual.	*Not expected to occur*. The BSA is outside the known elevational range of this species.

Species	Federal Listing Status[1]	State Listing Status[1]	CRPR	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Bristly sedge *Carex comosa*	—	—	2B.1	SJMSCP	Marshes, swamps, and lake margins in coastal prairie and valley and foothill grassland. 15–5,315 ft in elevation. Blooms May–September. Geophyte.	*Not expected to occur*. The BSA does not contain marsh, swamp, or lake margin habitat for this species.
Succulent owl's-clover *Castilleja campestris* var. *succulenta*	FT	SE	1B.2	SJVHCP SJMSCP	Vernal pools, often in acidic soils. 65–2,315 ft in elevation. Blooms April–May. Annual.	*Not expected to occur*. The BSA does not contain vernal pool habitat for this species.
Parry's rough tarplant *Centromadia parryi* ssp. *rudis*	—	—	4.2	—	Vernally mesic areas such as vernal pools, swales, and edges of marshes. Alkaline, disturbed sites and sometimes roadsides. Valley and foothill grasslands. 0–330 ft in elevation. Blooms May–October. Annual.	***May occur***. The BSA contains vernally mesic watercourses and roadside ditches that may provide habitat for this species. This species is known to tolerate disturbed sites. Parry's rough tarplant was not found during botanical surveys of the project footprint in 2021 or 2022, conducted during its bloom period (Jacobs Engineering Group 2022a).
Palmate bracted bird's-beak *Chloropyron palmatum*	FE	SE	1B.1	SJVHCP	Alkaline, usually on Pescadero silty clay, with *Distichlis* spp., and *Frankenia* spp. 15–510 ft in elevation. Blooms May–October. Annual.	*Not expected to occur*. The BSA does not contain alkaline or Pescadero silty clay soil for this species.
Bolander's water-hemlock *Cicuta maculata* var. *bolanderi*	—	—	2B.1	—	Marshes and swamps, fresh or brackish water. 0–655 ft in elevation. Blooms July–September. Perennial.	*Not expected to occur*. The BSA does not contain marsh or swamp habitat for this species.
Slough thistle *Cirsium crassicaule*	—	—	1B.1	SJVHCP SJMSCP	Sloughs, riverbanks, and marshy areas. 10–330 ft in elevation. Blooms May–August. Annual/perennial.	*Not expected to occur*. The BSA is outside the known range of this species.
Bisbee Peak rush-rose *Crocanthemum suffrutescens*	—	—	3.2	—	Ione formation, limestone. Chaparral. Often on serpentine, gabbroic, or Ione formation soils; in openings in chaparral. 150–2,755 ft in elevation. Blooms April–August. Perennial.	*Not expected to occur*. The BSA is outside the known range of this species.
Hospital Canyon larkspur *Delphinium californicum* ssp. *interius*	—	—	1B.2	SJMSCP	In wet, boggy meadows, openings in chaparral and in canyons. 640–3,595 ft in elevation. Blooms April–June. Perennial.	*Not expected to occur*. The BSA is outside the known elevational range of this species.
Recurved larkspur *Delphinium recurvatum*	—	—	1B.2	SJMSCP	On alkaline soils; often in valley saltbush or valley chenopod scrub. 10–2,590 ft in elevation. Blooms March–June. Perennial.	*Not expected to occur*. The BSA does not contain alkali habitat for this species.
Dwarf downingia *Downingia pusilla*	—	—	2B.2	—	Valley and foothill grassland (mesic sites), vernal pools. Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 5–1,610 ft in elevation. Blooms March–May. Annual.	*Not expected to occur*. The BSA does not contain vernal pool habitat for this species.

Species	Federal Listing Status[1]	State Listing Status[1]	CRPR	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Ione buckwheat *Eriogonum apricum* var. *apricum*	FE	SE	1B.1	—	Ione formation. Chaparral. In gravelly openings on Ione formation soil. 280–490 ft in elevation. Blooms July–October. Perennial.	*Not expected to occur*. The BSA is outside the known elevational range of this species.
Tuolumne button-celery *Eryngium pinnatisectum*	—	—	1B.2	—	Vernal pools, cismontane woodland, lower montane coniferous forest. Volcanic soils; vernal pools and mesic sites within other natural communities. 230–3,000 ft in elevation. Blooms May–August. Annual/perennial.	*Not expected to occur*. The BSA is outside the known elevational range of this species.
Delta button-celery *Eryngium racemosum*	—	SE	1B.1	SJMSCP	Riparian scrub. Seasonally inundated floodplain on clay. 5–1,100 ft in elevation. Blooms June–October. Annual/perennial.	*Not expected to occur*. The BSA is outside the known range of this species.
Stanislaus monkeyflower *Erythranthe marmorata*	—	—	1B.1	—	Cismontane woodland, lower montane coniferous forest. 330–2,955 ft in elevation. Blooms March–May. Annual.	*Not expected to occur*. The BSA is outside the known elevational range of this species.
Diamond petaled California poppy *Eschscholzia rhombipetala*	—	—	1B.1	SJMSCP	Valley and foothill grassland. Alkaline, clay slopes and flats. 100–2,050 ft in elevation. Blooms March–April. Annual.	*Not expected to occur*. The BSA is outside the known range of this species.
San Joaquin spearscale *Extriplex joaquinana*	—	—	1B.2	—	Chenopod scrub, alkali meadow, playas, valley and foothill grassland. In seasonal alkali wetlands or alkali sink scrub with *Distichlis spicata* and *Frankenia* spp. 5–2,740 ft in elevation. Blooms April–October. Annual.	*Not expected to occur*. The BSA does not contain alkali habitat for this species.
Boggs Lake hedge-hyssop *Gratiola heterosepala*	—	SE	1B.2	SJVHCP SJMSCP	Clay soils; usually in vernal pools, sometimes on lake margins. 35–7,790 ft in elevation. Blooms April–August. Annual.	*Not expected to occur*. The BSA does not contain vernal pool or lake margin habitat for this species.
Hogwallow starfish *Hesperevax caulescens*	—	—	4.2	—	Valley and foothill grassland, vernal pools. Clay soils; mesic sites. 0–1,655 ft in elevation. Blooms March–June. Annual.	*Not expected to occur*. The BSA does not contain clay soils or vernal pool habitat for this species.
Woolly rose-mallow *Hibiscus lasiocarpos* var. *occidentalis*	—	—	1B.2	SJMSCP	Moist, freshwater-soaked riverbanks and low peat islands in sloughs; can also occur on riprap and levees. In California, known from the delta watershed. 0–510 ft in elevation. Blooms June–September. Geophyte.	*Not expected to occur*. The BSA is outside the known range of this species.
Parry's horkelia *Horkelia parryi*	—	—	1B.2	—	Openings in chaparral or woodland; especially known from the Ione formation in Amador County. 280–3,660 ft in elevation. Blooms April–September. Perennial.	*Not expected to occur*. The BSA is outside the known elevational range of this species.

Species	Federal Listing Status[1]	State Listing Status[1]	CRPR	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Foothill jepsonia *Jepsonia heterandra*	—	—	4.3	—	Cismontane woodland, lower montane coniferous forest. Crevices, especially in slate-like rock. 165–1,640 ft in elevation. Blooms August–December. Perennial.	*Not expected to occur*. The BSA is outside the known range of this species.
Ahart's dwarf rush *Juncus leiospermus* var. *ahartii*	—	—	1B.2	—	Restricted to the edges of vernal pools in grassland. 100–330 ft in elevation. Blooms March–May. Annual.	*Not expected to occur*. The BSA does not contain vernal pool habitat for this species.
Red Bluff dwarf rush *Juncus leiospermus* var. *leiospermus*	—	—	1B.1	SJMSCP	Vernally mesic sites. Sometimes on edges of vernal pools. 100–3,365 ft in elevation. Blooms March–June. Annual.	*Not expected to occur*. The BSA is outside the known range of this species.
Ferris' goldfields *Lasthenia ferrisiae*	—	—	4.2	—	Vernal pools, wetland. Alkaline, clay soils. 65–2,295 ft in elevation. Blooms February–May. Annual.	*Not expected to occur*. The BSA does not contain vernal pool habitat for this species.
Delta tule pea *Lathyrus jepsonii* var. *jepsonii*	—	—	1B.2	SJMSCP	Freshwater and brackish marshes. Often found with *Typha* spp., *Aster lentus*, *Rosa californica*, *Juncus* spp., and *Scirpus* spp. Usually on marsh and slough edges. 0–15 ft in elevation. Blooms May–July. Perennial.	*Not expected to occur*. The BSA is outside the known range of this species.
Legenere *Legenere limosa*	—	—	1B.1	SJVHCP SJMSCP	Vernal pools, wetland. In beds of vernal pools. 5–2,885 ft in elevation. Blooms April–June. Annual.	*Not expected to occur*. The BSA does not contain vernal pool habitat for this species.
Mt. Hamilton coreopsis *Leptosyne hamiltonii*	—	—	1B.2	SJMSCP	On steep shale talus with open southwestern exposure. 1,740–4,265 ft in elevation. Blooms March–May. Annual.	*Not expected to occur*. The BSA is outside the known elevational and geographical range of this species.
Mason's lilaeopsis *Lilaeopsis masonii*	—	SR	1B.1	SJVHCP SJMSCP	Freshwater and brackish marshes, riparian scrub. Tidal zones, in muddy or silty soil formed through river deposition or riverbank erosion. 0–35 ft in elevation. Blooms April–November. Geophyte.	*Not expected to occur*. The BSA is outside the known range of this species.
Delta mudwort *Limosella australis*	—	—	2B.1	SJMSCP	Riparian scrub, marshes and swamps. Usually on mud banks of the Delta in marshy or scrubby riparian associations; often with *Lilaeopsis masonii*. 0–15 ft in elevation. Blooms May–August. Perennial.	*Not expected to occur*. The BSA is outside the known range of this species.
Showy madia *Madia radiata*	—	—	1B.1	SJVHCP SJMSCP	Valley and foothill grassland, cismontane woodland. Mostly on adobe clay in grassland or among shrubs. 245–4,005 ft in elevation. Blooms March–May. Annual.	*Not expected to occur*. The BSA is outside the known elevational range of this species.

Species	Federal Listing Status[1]	State Listing Status[1]	CRPR	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Pincushion navarretia *Navarretia myersii* ssp. *myersii*	—	—	1B.1	SJVHCP	Vernal pools, wetland. Clay soils within nonnative grassland. 150–330 ft in elevation. Blooms April–May. Annual.	*Not expected to occur*. The BSA does not contain vernal pool habitat for this species.
Patterson's navarretia *Navarretia paradoxiclara*	—	—	1B.3	—	Meadows and seeps. Serpentinite, openings, vernally mesic, often drainages. 490–1,410 ft in elevation. Blooms May–June. Annual.	*Not expected to occur*. The BSA is outside the known elevational range of this species.
Sacramento Orcutt grass *Orcuttia viscida*	FE	SE	1B.1	—	Vernal pools, wetland. 50–280 ft in elevation. Blooms April–July. Annual.	*Not expected to occur*. The BSA is outside the known range of this species.
Lobb's aquatic buttercup *Ranunculus lobbii*	—	—	4.2	—	Vernal pools and ponds in cismontane woodland, valley and foothill grassland, north coast coniferous forest. 50–1,540 ft in elevation. Blooms February–May. Annual.	*Not expected to occur*. The BSA does not contain vernal pool or pond habitat for this species.
Sanford's arrowhead *Sagittaria sanfordii*	—	—	1B.2	SJMSCP	Marshes and swamps. In standing or slow-moving freshwater ponds, marshes, and disturbed sites such as canals and ditches. 0–2,135 ft in elevation. Blooms May–October. Geophyte.	***May occur.*** The BSA contains ponded areas in Bear Creek, constructed watercourses, and drainage ditches that provide habitat for this species. This species was not found during botanical surveys of the project footprint in 2021 or 2022, conducted during its bloom period (Jacobs Engineering Group 2022a).
Marsh skullcap *Scutellaria galericulata*	—	—	2B.2	—	Marshes and swamps, lower montane coniferous forest, meadows and seeps. Swamps and wet places. 0–6,400 ft in elevation. Blooms June–September. Geophyte.	*Not expected to occur*. The BSA is outside the known range of this species.
Side-flowering skullcap *Scutellaria lateriflora*	—	—	2B.2	SJMSCP	Meadows and seeps, marshes and swamps. Wet meadows and marshes. In the Delta, often found on logs. 0–1,640 ft in elevation. Blooms July–September. Geophyte.	*Not expected to occur*. The BSA is outside the known range of this species.
Suisun Marsh aster *Symphyotrichum lentum*	—	—	1B.2	SJMSCP	Marshes and swamps (brackish and freshwater). Most often seen along sloughs with *Phragmites* spp., *Scirpus* spp., blackberry, and *Typha* spp. 0–100 ft in elevation. Blooms May–November. Geophyte.	*Not expected to occur*. The BSA is outside the known range of this species.
Wright's trichocoronis *Trichocoronis wrightii* var. *wrightii*	—	—	2B.1	SJMSCP	Marshes and swamps, riparian forest, meadows and seeps, vernal pools. Mud flats of vernal lakes, drying riverbeds, alkali meadows. 15–1,425 ft in elevation. Blooms May–September. Annual.	*Not expected to occur*. The BSA does not contain marsh, swamp, riparian forest, seep, vernal pool, alkali meadow, or riverbed habitat for this species. This species is nearly extirpated in the Central Valley and largely threatened by agriculture.

Species	Federal Listing Status[1]	State Listing Status[1]	CRPR	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Saline clover *Trifolium hydrophilum*	—	—	1B.2	—	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0–985 ft in elevation. Blooms April–June. Annual.	*Not expected to occur*. The BSA is outside the known range of this species.
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	—	—	1B.1	SJMSCP	Valley and foothill grassland. Alkaline clay. 0–1,180 ft in elevation. Blooms March–April. Annual.	*Not expected to occur*. The BSA is outside the known range of this species.
Greene's tuctoria *Tuctoria greenei*	FE	SR	1B.1	SJVHCP SJMSCP	Vernal pools, wetland. Vernal pools in open grasslands. 80–4,345 ft in elevation. Blooms May–July. Annual.	*Not expected to occur*. The BSA does not contain vernal pool habitat for this species.

Notes: CRPR = California Rare Plant Rank; CEQA = California Environmental Quality Act; ESA = Endangered Species Act; NPPA = Native Plant Protection Act; SJMSCP = San Joaquin County Multi-Species Habitat Conservation and Open Space Plan; SJVHCP = San Joaquin Valley Habitat Conservation Plan; ft =feet.

[1] Legal Status Definitions

Federal:

FE Federally listed as endangered (legally protected by the ESA)

FT Federally listed as threatened (legally protected by the ESA)

State:

SE State listed as endangered (legally protected by CESA)

SR State listed as rare (legally protected by the NPPA)

California Rare Plant Ranks (CRPR):

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under the ESA or CESA)

2B Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under the ESA or CESA)

3 Plant species that lack the necessary information to assign them to one of the other ranks or to reject them; most species in this category are taxonomically problematic (most are protected under CEQA, but not legally protected under the ESA or CESA)

4 Plant species of limited distribution or infrequent throughout a broader area in California (few are protected under CEQA, but not legally protected under the ESA or CESA)

CRPR Threat Ranks:

0.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)

0.2 Moderately threatened in California (20-80% occurrences threatened; moderate degree and immediacy of threat)

0.3 Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known)

Sources: CNDDB 2024; CNPS 2024; Calflora 2024; Jacobs Engineering Group 2022a, 2022b.

Table 3.6-3 Special-Status Wildlife Species Known to Occur in the Vicinity of the BSA and Their Potential for Occurrence in the BSA

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Amphibians and Reptiles					
California tiger salamander - central California DPS *Ambystoma californiense* pop. 1	FT	ST	SJVHCP SJMSCP	Lives in vacant or mammal-occupied burrows throughout most of the year; in grassland, savanna, or open woodland habitats. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	*May occur*. There are three documented occurrences of California tiger salamanders within 3 miles of the BSA: approximately 1.2 miles southeast of the eastern end of the BSA (near Clements Road and East Harney Lane), 2 miles northeast of the eastern end of the BSA (near Clements and Brandt Roads), and 2.8 miles north of the BSA (near Lockeford) (CNDDB 2024). Some of these occurrences are located within the described dispersal distance for this species (i.e., 1.2 miles), and grassland habitat with vernal pool habitat suitable for California tiger salamander that could be occupied by the species is also located within this dispersal distance. The BSA is separated from the documented occurrences by agricultural development (e.g., row crops, vineyards, orchards). CDFW and USFWS consider high-density residential or urban development and Interstate Highways as significant physical barriers to movement for California tiger salamander, while features such as golf courses, disked fields, and most paved roads are not considered barriers (CDFW 2003). While the BSA does not contain vernal pool breeding habitat for California tiger salamanders, upland habitat (i.e., grasslands within 1.2 miles of documented or potential breeding habitat) is present.
Western pond turtle *Emys marmorata*	FP	SSC	SJMSCP	Ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 ft in elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to approximately 0.3 mile from water for egg-laying.	*May occur*. The BSA crosses and is otherwise located adjacent to Bear Creek and Paddy Creek, which provide marginal aquatic habitat for western pond turtles. The edges of these creeks, berms, and adjacent grassland and ruderal areas may provide upland habitat for this species.
San Joaquin coachwhip (formerly whipsnake) *Coluber* (formerly *Masticophis*) *flagellum ruddocki*	—	SSC	SJMSCP	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub in the San Joaquin Valley. Needs mammal burrows for refuge and oviposition sites.	*Not expected to occur*. The BSA is outside of the range of this species which includes only southwestern San Joaquin County.

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Coast horned lizard *Phrynosoma coronatum*	—	SSC	SJMSCP	A variety of habitats, often grasslands or shrublands. Warm, dry areas with patches of loose soil or sand, open spaces for sunning and foraging. Burrows under rocks or logs or uses animal burrows or other crevices for hibernation.	*Not expected to occur*. The BSA contains mostly agricultural habitat, and while some grassland habitat is present on and adjacent to the BSA, it is not contiguous with other grassland habitats, and is generally disturbed.
Foothill yellow-legged frog (South Sierra DPS) *Rana boylii* pop. 5	FE	SE	SJMSCP	Sierra Nevada from South Fork American River subbasin (HU 8) in El Dorado County south to Tehachapi Mountains in Kern County. Partly shaded shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying and at least 15 weeks to attain metamorphosis.	*Not expected to occur*. Stream habitat suitable for foothill yellow-legged frog is not present in the BSA.
California red-legged frog *Rana draytonii*	FT	SSC	SJVHCP SJMSCP	Artificial flowing waters, artificial standing waters, freshwater marsh, marsh & swamp, riparian forest, riparian scrub, riparian woodland, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, south coast flowing waters. Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	*Not expected to occur*. The BSA is outside the range of this species.
Western spadefoot *Spea hammondii*	FP	SSC	SJMSCP	Cismontane woodland, coastal scrub, valley and foothill grassland, vernal pool, and wetlands. Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	*Not expected to occur*. The BSA does not contain vernal pool habitat for this species. While there are several documented occurrences of western spadefoot within a few miles of the BSA, these occurrences are in areas that have not been converted to agricultural uses where vernal pools remain.
Giant gartersnake *Thamnophis gigas*	FT	ST	SJVHCP SJMSCP	Marsh and swamp, riparian scrub, wetland. Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches. This is the most aquatic of the garter snakes in California.	*May occur*. The western half of the BSA (i.e., west of approximately Jack Tone Road) is within the giant gartersnake Delta Basin Recovery Unit (USFWS 2017a). The segment of Bear Creek that runs through the BSA contains tule and during years with high rainfall, may convey water long enough to support giant gartersnakes; however, only pooled water was observed in the segment of Bear Creek in the BSA during an aquatic resources delineation in April of 2022, likely due to drought conditions (Jacobs Engineering Group 2022b). While the lack of water conveyance may preclude Bear Creek as breeding habitat for giant gartersnake, snakes may use Bear Creek, Paddy Creek, and constructed canals and ditches within and adjacent to the BSA for movement.

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Birds					
Cooper's hawk *Accipter cooperi*	—	—	SJMSCP	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	***May occur***. Cooper's hawks can nest in urban and suburban residential areas where nest trees are present. Nesting habitat potentially suitable for this species is present in trees in the BSA.
Sharp-shinned hawk *Accipter striatus*	—	—	SJMSCP	Ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats. Prefers riparian areas. North-facing slopes, with plucking perches are critical requirements. Nests usually within 275 ft of water.	*Not expected to occur*. Woodland and riparian woodland habitats are not present on or adjacent to the BSA.
Western grebe *Aechmophorus occidentalis*	—	—	SJMSCP	Breeds on freshwater lakes and marshes with open water bordered by vegetation. Saltwater or brackish bays, estuaries, or the coast in winter. Less frequently on freshwater lakes or rivers.	*Not expected to occur*. The BSA does not contain lake, marsh, or river habitat for this species.
Tricolored blackbird *Agelaius tricolor*	—	ST SSC	SJVHCP SJMSCP	Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	***May occur***. Nesting habitat potentially suitable for tricolored blackbirds is present along canals and creeks in and adjacent to the BSA.
Bell's sage sparrow *Amphispiza belli belli*	—	—	SJMSCP	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range. Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground.	*Not expected to occur*. Chaparral or coastal sage scrub habitats are not present on or adjacent to the BSA.
Lesser sandhill crane *Antigone canadensis canadensis*	—	SCC	—	Nests in wetland habitats in northeastern California; winters in the Central Valley. Prefers grain fields within 4 miles of a shallow body of water used as a communal roost site; irrigated pasture used as loafing sites.	***May occur***. The BSA overlaps the overwintering range of this species, and there are many observations of lesser sandhill cranes in the region surrounding the BSA (eBird 2024). Agricultural areas and grassland in the BSA may provide foraging habitat for this species.
Greater sandhill crane *Antigone canadensis tabida*	—	FP ST	SJMSCP	Nests in wetland habitats in northeastern California; winters in the Central Valley. Prefers grain fields within 4 miles of a shallow body of water used as a communal roost site; irrigated pasture used as loafing sites.	***May occur***. The BSA overlaps the overwintering range of this species, and there are many observations of greater sandhill cranes in the region surrounding the BSA (eBird 2024). Agricultural areas and grassland in the BSA may provide foraging habitat for this species.
Golden eagle *Aquila chrysaetos*	—	FP	SJVHCP SJMSCP	Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	*Not expected to occur*. Nesting and foraging habitats suitable for this species are not present on or adjacent to the BSA.

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Great egret *Ardea alba*	—	—	SJMSCP	Colonial nester in large trees. Rookery sites located near marshes, tide-flats, irrigated pastures, and margins of rivers and lakes.	*Known to occur*. Great egret is a very common species in the Central Valley and is often abundant in agricultural areas. This species likely forages in the BSA year-round, and may nest in trees near the BSA.
Great blue heron *Ardea herodias*	—	—	SJMSCP	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	*Known to occur*. Great blue heron is a very common species in the Central Valley and is often abundant in agricultural areas. This species likely forages in the BSA year-round, and may nest in trees near the BSA.
Short-eared owl *Asio flammeus*	—	SSC	SJMSCP	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	*May occur*. The BSA overlaps the winter range of short-eared owl. While this species is not expected to nest in the BSA, it may forage in the BSA during the nonbreeding season.
Burrowing owl *Athene cunicularia*	SC	SSC	SJVHCP SJMSCP	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	*May occur*. Grassland and agricultural areas on and adjacent to the BSA may provide nesting habitat for burrowing owls.
Ferruginous hawk *Buteo regalis*	—	—	SJMSCP	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice. Population trends may follow lagomorph population cycles.	*May occur*. The BSA overlaps the ferruginous hawk winter range, and this species may forage on grassland-agricultural habitat edges where rodents are present.
Swainson's hawk *Buteo swainsoni*	—	ST	SJVHCP SJMSCP	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	*Known to occur.* There are several documented occurrences of nesting Swainson's hawks directly adjacent to the BSA (CNDDB 2024). Trees in the BSA may provide nesting habitat for this species.
Aleutian Canada goose *Branta canadensis leucopareia*	—	—	SJMSCP	Winters in the San Joaquin Valley. Roosts near inland lakes and marshes and utilize agricultural lands such as flooded rice fields, pastures, and crops for foraging.	*Not expected to occur*. The BSA is outside of the range of this species.
Mountain plover *Charadrius montanus*	—	SSC	SJMSCP	Short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Short vegetation, bare ground and flat topography. Prefers grazed areas and areas with burrowing rodents.	*Not expected to occur*. The BSA is outside of the range of this species.

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Northern harrier *Circus hudsonius*	—	SSC	SJMSCP	Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	*May occur*. Grassland habitat in the BSA may provide nesting habitat suitable for northern harrier.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT	SE	SJMSCP	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry, nettles, or wild grape.	*Not expected to occur*. The BSA does not contain dense riparian forest habitat suitable for this species.
Snowy egret *Egretta thula*	—	—	SJMSCP	Marsh and swamp, meadow and seep, riparian forest, riparian woodland, wetland. Colonial nester, with nest sites situated in protected beds of dense tules. Rookery sites situated close to foraging areas: marshes, tidal-flats, streams, wet meadows, and borders of lakes.	*May occur*. Snowy egret is a very common species in the Central Valley and is often abundant in agricultural areas. This species likely forages in the BSA year-round, and may nest in trees near the BSA.
White-tailed kite *Elanus leucurus*	—	FP	SJVHCP SJMSCP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	*May occur*. Trees in the BSA may provide nesting habitat suitable for white-tailed kites.
California horned lark *Eremophila alpestris actia*	—	—	SJMSCP	Marine intertidal and splash zone communities, meadow and seep. Coastal regions, chiefly from Sonoma County to San Diego County. Also main part of San Joaquin Valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	*May occur*. Agricultural areas and grasslands on and adjacent to the BSA may provide habitat for this species.
Merlin *Falco columbarius*	—	—	SJMSCP	Seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands, deserts, farms, and ranches. Clumps of trees or windbreaks are required for roosting in open country.	*May occur*. The BSA overlaps the merlin winter range, and this species may forage in grassland habitat edges where rodents are present.
Prairie falcon *Falco mexicanus*	—	—	SJMSCP	Inhabits dry, open terrain, either level or hilly. Breeding sites are located on cliffs. Forages far afield, even to marshlands and ocean shores.	*May occur*. The BSA overlaps the prairie falcon winter range, and this species may forage in grassland habitat edges where rodents are present.
Bald eagle *Haliaeetus leucocephalus*	FD	SE FP	SJVHCP	Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests are within 1 mile of water. Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	*Not expected to occur*. Nesting and foraging habitats suitable for this species are not present on or adjacent to the BSA.

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Yellow-breasted chat *Icteria virens*	—	SSC	SJMSCP	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	*Not expected to occur*. Riparian habitat is present in the BSA; however, this habitat is not dense and would not provide the microhabitat characteristics preferred by this species (e.g., cover).
Loggerhead shrike *Lanius ludovicianus*	—	SSC	SJMSCP	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub, and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	*Not expected to occur*. The BSA does not contain shrub or woodland habitat suitable for this species.
California black rail *Laterallus jamaicensis coturniculus*	—	ST FP	SJMSCP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	*Not expected to occur*. The BSA does not contain marsh or meadow habitat suitable for this species.
Song sparrow ("Modesto" population) *Melospiza melodia* pop. 1	—	SSC	—	Breeds chiefly below 200 ft in elevation. Freshwater marshes, riparian thickets, sparsely vegetated irrigation canals, and valley oak restoration sites. Cover consists of willow and nettle thickets, growths of tules and cattails, and riparian oak forests with sufficient understory of blackberry.	***May occur***. Riparian vegetation adjacent to creeks and canals in the BSA may provide nesting habitat suitable for this species.
Long-billed curlew *Numenius americanus*	—	—	SJMSCP	Breeds in upland shortgrass prairies and wet meadows in northeastern California. Habitats on gravelly soils and gently rolling terrain are favored over others.	***May occur***. The BSA is outside of the breeding range of long-billed curlew; however, this species may forage in grasslands and agricultural habitats in the winter.
Black-crowned night heron *Nycticorax nycticorax*	—	—	SJMSCP	Colonial nester, usually in trees, occasionally in tule patches. Rookery sites located adjacent to foraging areas: lake margins, mud-bordered bays, marshy spots.	***May occur***. The BSA does not contain lakes, bays, or marshes with adjacent trees that would provide nesting habitat suitable for black-crowned night herons; however, this species may forage in grasslands and agricultural habitats in the BSA.
Osprey *Pandion haliaetus*	—	—	SJMSCP	Ocean shore, bays, fresh-water lakes, and larger streams. Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	*Not expected to occur*. The BSA does not contain open water habitat suitable for this species.
American white pelican *Pelecanus erthrorhynchos*	—	SSC	SJMSCP	Colonial nester on large interior lakes. Nests on large lakes, providing safe roosting and breeding places in the form of well-sequestered islets.	*Not expected to occur*. The BSA does not contain open water habitat suitable for this species.
Double-crested cormorant *Phalacrocorax auritus*	—	—	SJMSCP	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	*Not expected to occur*. The BSA does not contain nesting or foraging habitat for this species.

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
White-faced ibis *Plegadis chichi*	—	—	SJMSCP	Shallow fresh-water marsh. Dense tule thickets for nesting interspersed with areas of shallow water for foraging.	*May occur*. The BSA does not contain marsh habitat that would provide nesting habitat for white-faced ibis; however, the species may forage in grasslands and agricultural habitats in the winter.
Bank swallow *Riparia riparia*	—	ST	SJVHCP SJMSCP	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	*May occur*. Potential nesting habitat for bank swallow is present along the banks of Paddy and Bear creeks.
Yellow warbler *Setophaga petechia*	—	SSC	—	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	*Not expected to occur*. The BSA is outside of the range of this species.
Fish					
Green sturgeon - southern DPS *Acipenser medirostris* pop. 1	FT	—	SJMSCP	Spawns in the Sacramento, Feather and Yuba Rivers. Presence in upper Stanislaus and San Joaquin Rivers may indicate spawning. Nonspawning adults occupy marine/estuarine waters.	*Not expected to occur*. Aquatic habitat for this species is not present on or adjacent to the BSA.
Delta smelt *Hypomesus transpacificus*	FT	SE	SJMSCP	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay.	*Not expected to occur*. Aquatic habitat for this species is not present on or adjacent to the BSA.
Hardhead *Mylopharodon conocephalus*	—	SSC	—	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River. Clear, deep pools with sand-gravel-boulder bottoms and slow water velocity. Not found where exotic centrarchids predominate.	*Not expected to occur*. Aquatic habitat for this species is not present on or adjacent to the BSA.
Steelhead - Central Valley DPS *Oncorhynchus mykiss irideus* pop. 11	FT	—	—	Populations in the Sacramento and San Joaquin rivers and their tributaries.	*Not expected to occur*. Aquatic habitat for this species is not present on or adjacent to the BSA.
Sacramento splittail *Pogonichthys macrolepidotus*	—	SSC	SJMSCP	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay, and associated marshes. Slow-moving river sections, dead end sloughs. Requires flooded vegetation for spawning and foraging for young.	*Not expected to occur*. Aquatic habitat for this species is not present on or adjacent to the BSA.
Longfin smelt *Spirinchus thaleichthys*	FP	ST SSC	SJMSCP	Found in open waters of estuaries, mostly in middle or bottom of water column. Can be found in completely freshwater to almost pure seawater.	*Not expected to occur*. Aquatic habitat for this species is not present on or adjacent to the BSA.

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Invertebrates					
Ciervo aegialian scarab beetle *Aegialia concinna*	—	—	SJMSCP	Interior dunes. Known only from Fresno County in sandy substrates.	*Not expected to occur*. The BSA does not contain dune habitat for this species.
Crotch's bumble bee *Bombus crotchii*	—	SC	—	Found primarily in California: mediterranean, Pacific coast, western desert, Great Valley, and adjacent foothills through most of southwestern California. Habitat includes open grassland and scrub. Nests underground.	***May occur***. The BSA is within the range of Crotch's bumble bee and the species has been recently (2023) documented approximately 5.4 miles northwest of the BSA (CDFW 2023; iNaturalist 2024). Grassland, agricultural, and riparian habitats in the BSA may provide foraging, nesting, and overwintering habitat for Crotch's bumble bee.
Longhorn fairy shrimp *Branchinecta longiantenna*	FE	—	SJMSCP	Endemic to the eastern margin of the Central Coast mountains in seasonally astatic grassland vernal pools. Inhabit small, clear-water depressions in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales.	*Not expected to occur*. There are no vernal pools on or adjacent to the BSA.
Vernal pool fairy shrimp *Branchinecta lynchi*	FT	—	SJVHCP SJMSCP	Endemic to the grasslands of the Central Valley, Central Coast mountains, and South Coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	*Not expected to occur*. There are no vernal pools on or adjacent to the BSA.
Midvalley fairy shrimp *Branchinecta mesovallensis*	—	—	SJVHCP SJMSCP	Vernal pools in the Central Valley.	*Not expected to occur*. There are no vernal pools on or adjacent to the BSA.
Monarch butterfly *Danaus plexippus*	FC	—	—	Habitat requirements include host plants for larvae (primarily milkweeds [*Asclepias* spp.]); adult nectar sources (i.e., flowering plants); and sites for roosting, thermoregulation, mating, hibernation, and predator escape. Additionally, monarch butterfly requires conditions and resources for initiating and completing migration both to and from winter roosting areas. Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	***May occur***. The BSA contains grassland habitat that may provide foraging habitat (i.e., floral resources) for monarch butterflies. No milkweed (*Asclepias* spp.) was observed in the BSA that would provide breeding habitat for monarch butterflies (Jacobs Engineering Group 2022a).

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT	—	SJVHCP SJMSCP	Riparian scrub. Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberries 2–8 inches in diameter; some preference shown for "stressed" elderberries.	***May occur***. Blue elderberry shrubs (i.e., potential host plants) were observed in the BSA (i.e., near the PG&E Lockeford Substation) during reconnaissance-level surveys. The BSA is within the range of valley elderberry longhorn beetle and there are several documented occurrences of the species near the BSA associated with Bear Creek and the Mokelumne River (CNDDB 2024).
Curved-foot diving beetle *Hygrotis curvipes*	—	—	SJMSCP	This species is known from vernal pool complexes in the East Bay Area of California. Known only from Alameda and Contra Costa counties.	*Not expected to occur*. There are no vernal pools on or adjacent to the BSA.
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	—	SJVHCP SJMSCP	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	*Not expected to occur*. There are no vernal pools on or adjacent to the BSA.
Molestan blister beetle *Lytta molesta*	—	—	SJMSCP	Vernal pool, wetland. Inhabits the Central Valley of California, from Contra Costa to Kern and Tulare counties.	***May occur***. Wetlands are present in the BSA, adjacent to the BSA, which may provide habitat suitable for this species.
Mammals					
Pallid bat *Antrozous pallidus*	—	SSC	—	Most common in open, dry habitats with rocky areas for roosting. Tree roosting has also been documented in large conifer snags, inside basal hollows of redwoods and giant sequoias, and bole cavities in oaks. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	*Not expected to occur*. The BSA does not contain roost habitat (e.g., rocky areas, large snags) suitable for pallid bats.
Northern California ringtail *Bassaricus astutus raptor*	—	FP	SJMSCP	Dens most often in rock crevices, boulder piles, or talus, but also tree hollows, root cavities, and rural buildings. Rarely use same den for more than a few days. Females with litters change dens within 10 days of birth and almost daily after 20 days.	*Not expected to occur*. The BSA is mostly outside of the range of ringtail, and lacks chaparral, woodland, dense riparian, and rocky habitat suitable for this species.
Townsend's big-eared bat *Corynorhinus townsendii*	—	SSC	SJMSCP	Throughout California in a wide variety of habitats. Most common in mesic sites. Requires large cavities for roosting, which may include abandoned buildings and mines, caves, and basal cavities of trees. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	*Not expected to occur*. The BSA does not contain large abandoned buildings, mines, caves, or other large cavities that would provide roost habitat for this species.

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Berkeley kangaroo rat *Dipodomys heermanni berkeleyensis*	—	—	SJMSCP	Open grassy hilltops and open spaces in chaparral and blue oak/digger pine woodlands. Needs fine, deep, well-drained soil for burrowing.	*Not expected to occur*. The BSA is outside of the range of this species.
Western mastiff bat *Eumops perotis californicus*	—	SSC	SJMSCP	Found in a variety of habitats, from desert scrub to chaparral to oak woodland and into the ponderosa pine belt and high elevation meadows of mixed conifer forests. The distribution of this species is likely geomorphically determined, with the species being present only where there are significant rock features offering roosting habitat.	*Not expected to occur*. The BSA does not contain rock crevice roost habitat suitable for this species.
Western red bat *Lasiurus frantzii*	—	SSC	SJMSCP	Roosts primarily in trees, 2–40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	*May occur*. The BSA contains trees which may provide roost habitat for this species.
Western small-footed myotis *Myotis ciliolabrum*	—	—	SJMSCP	Wide range of habitats mostly arid wooded and brushy uplands near water. Seeks cover in caves, buildings, mines and crevices Prefers open stands in forests and woodlands. Requires drinking water. Feeds on a wide variety of small flying insects.	*Not expected to occur*. The BSA does not contain forest or woodland habitat suitable for this species.
Long-eared myotis *Myotis evotis*	—	—	SJMSCP	Found in all shrub, woodland, and forest habitats from sea level to about 9,000 ft, but prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	*Not expected to occur*. The BSA does not contain shrub, forest, or woodland habitat suitable for this species.
Fringed myotis *Myotis thysanodes*	—	—	SJMSCP	In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood, and hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.	*Not expected to occur*. The BSA does not contain forest or woodland habitat suitable for this species.
Long-legged myotis *Myotis volans*	—	—	SJMSCP	Most common in woodland and forest habitats above 4,000 ft in elevation. Trees are important day roosts; caves and mines are night roosts. Nursery colonies usually under bark or in hollow trees, but occasionally in crevices or buildings.	*Not expected to occur*. The BSA does not contain forest or woodland habitat suitable for this species.
Yuma myotis *Myotis yumanensis*	—	—	SJMSCP	Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings, or crevices.	*Not expected to occur*. The BSA does not contain forest or woodland habitat suitable for this species.

Species	Federal Listing Status[1]	State Listing Status[1]	SJMSCP or SJVHCP	Habitat	Potential for Occurrence
Riparian woodrat *Neotoma fucipes riparia*	FE	SSC	SJVHCP SJMSCP	Riparian areas along the San Joaquin, Stanislaus, and Tuolumne rivers. Prefers areas with mix of brush and trees and nesting sites in trees, snags, or logs.	*Not expected to occur*. The BSA does not contain dense riparian forest habitat suitable for this species.
San Joaquin pocket mouse *Perognathus inornatus inornatus*	—	—	SJMSCP	Grassland, oak savanna, and arid scrubland in the southern Sacramento Valley, Salinas Valley, San Joaquin Valley and adjacent foothills, south to the Mojave Desert. Associated with fine-textured, sandy, friable soils. Occurs in areas between 1,100 and 2,000 ft in elevation.	*Not expected to occur*. The BSA is outside of the range of this species.
Riparian brush rabbit *Sylvilagus bachmani riparius*	FE	SE	SJVHCP SJMSCP	Riparian forest. Riparian areas on the San Joaquin River in northern Stanislaus County. Dense thickets of wild rose, willows, and blackberries.	*Not expected to occur*. The BSA is outside of the range of this species.
American badger *Taxidea taxus*	—	SSC	SJMSCP	American badgers are most commonly found in treeless areas including tallgrass and shortgrass prairies, grass-dominated meadows and fields within forested habitats, and shrub-steppe communities. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	*May occur*. Grasslands and agricultural areas with friable soils may provide habitat suitable for American badgers.
San Joaquin kit fox *Vulpes macrotis mutica*	FE	ST	SJVHCP SJMSCP	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	*Not expected to occur*. The BSA is outside of the range of this species.

Notes: CNDDB = California Natural Diversity Database; CEQA = California Environmental Quality Act; DPS = distinct population segment; ESA = Endangered Species Act; SJMSCP = San Joaquin County Multi-Species Habitat Conservation and Open Space Plan; SJVHCP = San Joaquin Valley Habitat Conservation Plan; ft = feet.

1 Legal Status Definitions

Federal:

FE Federally listed as endangered (legally protected)

FT Federally listed as threatened (legally protected)

FC Candidate for listing under the ESA

FP Proposed for listing under the ESA

FD Federally delisted

State:

FP Fully protected (legally protected)

SSC Species of special concern (no formal protection other than CEQA consideration)

SE State listed as endangered (legally protected)

ST State listed as threatened (legally protected)

SC State candidate for listing (legally protected)

Sources: CDFW 2003, 2023; CNDDB 2024; eBird 2024; iNaturalist 2024; Jacobs Engineering Group 2022b; USFWS 2017a, 2024a.

State and Federally Protected Wetlands

The BSA contains several aquatic habitats, as described above, under "Land Cover." Wetland delineation surveys of the BSA were conducted on April 27, April 28, and May 11, 2021 (Jacobs Engineering Group 2022b). The results and conclusions of the wetland delineation are considered preliminary and are pending verification by the Sacramento US Army Corps of Engineers (USACE) Regulatory Branch. Most of the aquatic features (i.e., intermittent drainages, perennial drainages, constructed watercourses, seasonal wetlands, irrigation ditches, drainage ditches) in the BSA may meet the state and federal definitions of wetlands (Jacobs Engineering Group 2022b). An irrigation ditch that runs parallel to the access route and partially intersects the BSA south of Kettleman Lane and west of Paddy Creek is intermittently used to irrigate corn. It is seasonally graded and filled, along with the adjacent corn fields when not in use. This feature is likely excluded from USACE jurisdiction. All delineated aquatic resources in the BSA are expected to be considered waters of the state and would be subject to regulation by the Central Valley Regional Water Quality Control Board (RWQCB) and CDFW.

Sensitive Natural Communities

Sensitive natural communities are those native plant communities defined by CDFW as having limited distribution statewide or within a county or region and that are often vulnerable to environmental effects of projects (CDFW 2018). These communities may or may not contain special-status plants or their habitat (CDFW 2018). CDFW designates sensitive natural communities based on their state rarity and threat ranking using NatureServe's Heritage Methodology. Natural communities with rarity ranks of S1 to S3, where S1 is critically imperiled, S2 is imperiled, and S3 is vulnerable, are considered sensitive natural communities to be addressed under CEQA (CDFW 2018).

Sensitive natural communities are generally identified at the alliance level of vegetation-classification hierarchy using the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009). Known occurrences of sensitive natural communities are included in the CNDDB; however, no new occurrences have been added to the CNDDB since the mid-1990s when funding was cut for this portion of the CNDDB program. Five sensitive natural communities were identified within the 15 USGS quadrangles surrounding the BSA through a query of the CNDDB: northern hardpan vernal pool, coastal and valley freshwater marsh, great valley mixed riparian forest, great valley valley oak riparian forest, and valley oak woodland (CNDDB 2024). Vernal pools, marshland, and extensive tree cover associated with these sensitive natural communities were not observed during reconnaissance and other surveys performed in 2021 and 2022. In addition, grasslands within the BSA were classified as seminatural alliances according to the *Manual of California Vegetation, Second Edition* (Sawyer et al. 2009; Jacobs Engineering Group 2023). These grasslands are dominated by nonnative grasses and no sensitive natural communities were observed.

Wildlife Movement Corridors

A wildlife movement corridor is generally a topographical/landscape feature or movement zone that connects two or more natural habitat areas. Wildlife corridors link areas of wildlife habitat that are separated by variation in vegetation, rugged terrain, human disturbance and habitat fragmentation, or other biophysical factors. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas, such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors, allowing animals to move between various locations in their range. Therefore, wildlife movement and migration corridors are considered an important ecological resource by CDFW and other agencies and are protected by many local governments in California.

Some of the important areas for habitat connectivity in California were mapped as Essential Connectivity Areas (ECAs) for the California Essential Habitat Connectivity Project, which was commissioned by the California Department of Transportation and CDFW with the purpose of making transportation and land use planning more efficient and less costly while helping reduce dangerous wildlife-vehicle collisions (Spencer et al. 2010). The ECAs were not developed for the purposes of defining areas subject to specific regulations by CDFW or other agencies. The BSA is not located in any ECA modeled by the California Essential Habitat Connectivity Project (CDFW 2024). The BSA contains very little natural habitat and is surrounded by agriculture and urban development that likely limits wildlife movement within these areas. The BSA does not currently function as a critical habitat linkage or as a movement corridor for wildlife species.

Wildlife Nursery Sites

Nursery sites are locations where fish or wildlife concentrate for hatching or raising young, such as nesting rookeries for birds (e.g., herons, egrets), spawning areas for native fish, fawning areas for mule deer (*Odocoileus hemionus*), and maternal roosts for bats. As described above, the BSA contains very little natural habitat and is surrounded by agriculture and urban development, and most of the BSA likely does not contain significant wildlife nursery sites. However, maternal bat roosts may be present in large trees in the BSA.

3.6.2 Regulatory Setting

FEDERAL

Federal Endangered Species Act

Pursuant to the federal Endangered Species Act (ESA) (16 US Code Section 1531 et seq.), USFWS regulates the taking of species listed in the ESA as threatened or endangered. In general, people subject to the ESA (including private parties) are prohibited from "taking" endangered or threatened fish and wildlife species on private property and from "taking" endangered or threatened plants in areas under federal jurisdiction or in violation of state law. Under Section 9 of the ESA, the definition of "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." USFWS has also interpreted the definition of "harm" to include significant habitat modification that could result in take.

Section 10 of the ESA applies if a nonfederal agency is the lead agency for an action that results in take and no federal agencies are involved in permitting the action. Section 7 of the ESA applies if a federal discretionary action is required (e.g., a federal agency must issue a permit), in which case the involved federal agency consults with USFWS.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), first enacted in 1918, provides for protection of international migratory birds and authorizes the Secretary of the Interior to regulate the taking of migratory birds. The MBTA provides that it will be unlawful, except as permitted by regulations, to pursue, take, or kill any migratory bird, or any part, nest, or egg of any such bird. Under the MBTA, "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or any attempt to carry out these activities." A take does not include habitat destruction or alteration if such destruction or alteration does not result in a direct taking of birds, nests, eggs, or parts thereof. The current list of species protected by the MBTA can be found in Title 50 of the Code of Federal Regulations (CFR), Section 10.13 (50 CFR 10.13). The list includes nearly all birds native to the United States.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act, enacted in 1940 and amended multiple times since, prohibits the taking of bald and golden eagles without a permit from the Secretary of the Interior. Similar to the ESA, the Bald and Golden Eagle Protection Act defines "take" to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" (16 US Code Sections 668–668c). For the purpose of the act, disturbance that would injure an eagle, decrease productivity, or cause nest abandonment, including habitat alterations that could have these results, are considered take and can result in civil or criminal penalties.

Clean Water Act

Section 404 of the Clean Water Act (CWA) requires project applicants to obtain a permit from USACE before performing any activity that involves any discharge of dredged or fill material into waters of the United States, including some wetlands. Waters of the United States include navigable waters of the United States, interstate waters, tidally influenced waters, and all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent (i.e., having a continuous surface connection) to any of these waters or their tributaries. Many surface waters and wetlands in California meet the criteria for waters of the United States.

In accordance with Section 401 of the CWA, projects that apply for a USACE permit for discharge of dredged or fill material must obtain water quality certification from the appropriate state agency, which in California is the State Water Resources Control Board or RWQCB, indicating that the action would uphold state water quality standards.

STATE

California Endangered Species Act

Pursuant to the CESA, a permit from CDFW is required for projects that could result in the "take" of a plant or animal species that is listed by the state as threatened or endangered. Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species, but does not include "harm" or "harass," as does the federal definition. As a result, the threshold for take is higher under CESA than under the federal ESA. Authorization for take of state-listed species can be obtained through a California Fish and Game Code Section 2081 incidental take permit.

California Fish and Game Code Sections 3503 and 3503.5, Protection of Bird Nests and Raptors

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders Falconiformes and Strigiformes), including their nests or eggs. Typical violations include destruction of active nests as a result of tree removal or disturbance caused by project construction or other activities that cause the adults to abandon the nest, resulting in loss of eggs or young.

Fully Protected Species under the California Fish and Game Code

Protection of fully protected species is described in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take (as defined under the CESA) or possession of fully protected species and do not provide for authorization of incidental take.

California Fish and Game Code Section 1602, Lake and Streambed Alteration

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports fish or wildlife resources are subject to regulation by CDFW under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do any of the following without first notifying CDFW:

- substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The regulatory definition of a stream is a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation (California Code of Regulations Title 14, Section 1.72). CDFW jurisdiction in altered or artificial waterways is based on the value of those waterways to fish and wildlife. A lake and streambed alteration agreement must be obtained for any diversion or alteration that would substantially adversely affect a fish or wildlife resource in a river, stream, or lake.

Native Plant Protection Act

The Native Plant Protection Act (NPPA) (California Fish and Game Code Section 1900 et seq.) allows the California Fish and Game Commission to designate plants as rare or endangered. Sixty-four species, subspecies, and varieties of plants are protected as rare under the NPPA. The act prohibits take of endangered or rare native plants but includes exceptions for agricultural and nursery operations; for emergencies; and, after proper notification of CDFW, for vegetation removal from canals, roads, and other building sites, changes in land use, and other situations.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the state fall under the jurisdiction of the appropriate RWQCB. Waters located in the BSA are under the jurisdiction of the Central Valley RWQCB. The RWQCB must prepare and periodically update water quality control plans (basin plans). Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control point and nonpoint sources of pollution to achieve and maintain these standards. The RWQCB's jurisdiction includes federally protected waters, as well as areas that meet the definition of "waters of the state," including waters meeting the state definition of a wetland. Waters of the state are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. Under the state definition, an area is a wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater or shallow surface water or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area either lacks vegetation or the vegetation is dominated by hydrophytes.

The RWQCB has the discretion to take jurisdiction over areas not federally protected under Section 401 of the CWA provided they meet the definition of waters of the state. The California Water Code generally regulates more substances contained in discharges and defines discharges to receiving waters more broadly than does the CWA. In addition, waters of the state cover a broader range of aquatic habitats than the CWA, including ephemeral streams and wetlands. Actions that affect waters of the state, including wetlands, must meet the RWQCB waste discharge requirements. This issue is addressed with respect to state-protected wetlands and associated biological resources in this section. It is addressed comprehensively in Section 3.11, "Hydrology and Water Quality."

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA-review process. Because LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County Multi-Species Habitat Conservation and Open Space Plan

The SJMSCP was adopted in 2001. It covers all of San Joaquin County excepting all federal lands and areas encompassing those projects not covered by the SJMSCP (i.e., agricultural activities; dredging; projects requiring a CDFW Streambed Alteration Agreement; water diversion and conveyance; pesticide use; activities involving tidally influenced wetlands, jurisdictional wetlands, or other waters of the United States). Multiple cities (including Lodi), San Joaquin County, and local and state agencies and districts are participants in the SJMSCP. The key purpose of the SJMSCP is to provide a strategy for balancing the need to conserve open space and the need to convert open space to nonopen-space uses while protecting the region's agricultural economy; preserving landowner property rights; providing for the long-term management of plant, fish, and wildlife species, especially those that are currently listed, or may be listed in the future, under the ESA or CESA; providing and maintaining multiple-use open spaces that contribute to the quality of life of the residents of San Joaquin County; and accommodating a growing population while minimizing costs to project proponents and society at large.

Permitted activities covered under the SJMSCP include urban development, mining, expansion of existing urban boundaries, nonagricultural activities occurring outside of urban boundaries, levee maintenance undertaken by the San Joaquin Area Flood Control Agency, transportation projects, school expansions, nonfederal flood control projects, new parks and trails, maintenance of existing facilities for nonfederal irrigation district projects, utility installation, maintenance activities, managing preserves, and similar public agency projects. The SJMSCP covers 97 plant and wildlife species and includes incidental take avoidance measures for several species, including California tiger salamander, valley elderberry longhorn beetle, giant garter snake, western pond turtle, Swainson's hawk, bank swallow, burrowing owl, several other nesting birds, American badger, and bats.

The BSA is within the plan area of the SJMSCP, and utility installations are considered covered activities under the SJMSCP. Therefore, the project qualifies for coverage under the SJMSCP should PG&E or LEU elect to seek coverage under the plan, and consistency with this plan is evaluated in the impact analysis below.

San Joaquin County General Plan

The *San Joaquin County General Plan Natural and Cultural Resources Element* includes the following policies that pertain to biological resources (San Joaquin County 2017).

- Policy NCR-2.1: Protect Significant Biological and Ecological Resources. The County shall protect significant biological and ecological resources including: wetlands; riparian areas; vernal pools; significant oak woodlands and heritage trees; and rare, threatened, and endangered species and their habitats.
- Policy NCR-2.4: Preservation of Significant Oak Groves. The County shall require new development in the vicinity of significant oak groves to be designed and sited to maximize the long-term preservation of the trees and the integrity of their natural setting.
- Policy NCR-2.5: No Net Loss of Wetlands. The County shall not allow development to result in a net loss of riparian or wetland habitat.
- Policy NCR-2.6: Criteria for Development Impacts to Wetlands. The County shall not approve new development projects that have the potential to fill wetlands, unless:
  - no suitable alternative site exists for the land use, and the use is considered necessary to the public;
  - there is no degradation of the habitat or numbers of any rare, threatened, or endangered plant or animal species as a result of the project; and
  - habitat of greater quantity and superior or comparable quality will be created or restored to compensate for the loss.
- Policy NCR-2.7: Protect Waterfowl Habitat. The County shall strive to preserve, protect, and enhance feeding areas and winter habitat for migratory waterfowl.
- Policy NCR-2.8: Natural Open Space Buffer. The County shall require a natural open space buffer to be maintained along any natural waterway to provide nesting and foraging habitat and to protect waterway quality.

San Joaquin County Ordinance Code

San Joaquin County Ordinance Code includes natural resources regulations that apply to biological resources, and these regulations are described below.

Trees

The removal of a native oak tree, heritage oak tree, or historical tree would require an approved Improvement Plan application, and replacement of the tree at a 5:1 ratio for heritage oaks and historic trees and a 3:1 ratio for other native oaks. Tree removal by a public utility that is necessary to protect electric power lines is not subject to the regulations.

Riparian Habitat

Potential destruction, elimination, or degradation of the riparian habitat would require mitigation through a Riparian Habitat Mitigation Plan, which would include a plan to protect existing riparian habitat or a plan to replace, preserve, or develop new habitat, or a combination thereof. Furthermore, parallel to any natural bank of a waterway, a natural open space for riparian habitat and waterway protection shall be maintained to provide nesting and foraging habitat and the protection of waterway quality. The minimum width of this buffer would be 100 feet, measured from the mean high-water level of the natural bank or 50 feet from the existing riparian habitat, whichever is greater.

City of Lodi General Plan

The *City of Lodi General Plan Conservation Element* includes the following policies that pertain to biological resources (City of Lodi 2010).

- Policy C-P10. Continue to coordinate with the San Joaquin Council of Governments and comply with the terms of the Multi Species Habitat Conservation and Open Space Plan to protect critical habitat areas that support endangered species and other special-status species.

- **Policy C-P11.** Work with other agencies to ensure that the spread of invasive/noxious plant species do not occur in the Planning Area. Support efforts to eradicate invasive and noxious weeds and vegetation on public and private property.
- **Policy C-P12.** Protect the river channel, pond and marsh, and riparian vegetation and wildlife communities and habitats in the Mokelumne River and floodplain areas. Prohibit any activity that will disturb bottom sediments containing zinc deposits in Mokelumne River, because such disturbance could cause fish kills. Prohibit activities that could disturb anadromous fish in the Mokelumne River during periods of migration and spawning.
- **Policy C-P13**. Support the protection, restoration, expansion, and management of wetland and riparian plant communities along the Mokelumne River for passive recreation, groundwater recharge, and wildlife habitat.
- **Policy C-P15**. Site new development to maximize the protection of native tree species and sensitive plants and wildlife habitat. Minimize impacts to protect mature trees, Swainson's hawk, vernal pool tadpole shrimp, and any threatened, endangered or other sensitive species when approving new development. Mitigate any loss.

APPLICABLE MITIGATION PROGRAMS

PG&E's San Joaquin Valley Habitat Conservation Plan

PG&E's San Joaquin Valley Habitat Conservation Plan (SJVHCP) covers infrastructure operation and maintenance (O&M) activities in the San Joaquin Valley. The SJVHCP covers 23 wildlife and 42 plant species, some of which may occur in the BSA, for routine O&M activities for PG&E's electric and gas transmission and distribution systems within nine counties of the San Joaquin Valley. The project is included within the boundaries of the SJVHCP. While construction of the proposed project is not a covered activity under the SJVHCP, O&M activities for the proposed project, including inspections and electrical system tower replacement or repair would be covered activities. The SJVHCP includes 11 avoidance and minimization measures (AMMs) that would be implemented by PG&E during O&M activities as part of the proposed project.

3.6.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

As described at the beginning of this section, this impact evaluation is based on database searches; review of aerial photographs of the BSA and surrounding region; reconnaissance-level field surveys conducted on December 11, 2019, and August 11, 2022; and information from several previously completed documents that address biological resources in the BSA (Jacobs Engineering Group 2022a, 2022b).

Construction and O&M of the proposed project would result in permanent and temporary disturbance of the BSA. Temporary disturbance includes construction and vegetation removal in all work areas, staging areas, and access routes, and the occasional use of access routes for O&M. Permanent disturbance includes pole footprints and new and expanded station footprints and associated infrastructure. Table 3.6-4 provides the approximate acreage for temporary and permanent disturbance in the BSA for each land cover type where direct impacts from project activities would occur.

Table 3.6-4 Temporary and Permanent Disturbance in the BSA by Land Cover Type

Vegetation Community Type	Temporary Disturbance (approximate acreage[1])	Permanent Disturbance (approximate acreage[1])
Agriculture	48.83	0.73
Urban/ruderal	3.52	0.16
Grassland	25.86	10.23
Tree cover	0.25	0.07

[1]Some project components overlap. The totals in this table were adjusted to avoid double-counting approximate acreage.

Source: Jacobs Engineering Group 2022b.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant-proposed measures (APMs) that are incorporated into PG&E's components of the proposed project. Similarly, LEU has developed best management practices (BMPs) that would apply to the LEU components of the proposed project. The project includes the following APMs and BMPs related to biological resources.

PG&E APMs

- **APM BIO-1: Develop and Implement a PG&E Worker Environmental Awareness Program.** A PG&E biologist familiar with resources in the area and with delivering Worker Environmental Awareness Programs will conduct an environmental awareness program for all onsite construction personnel before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers will be informed of the presence, life history, and habitat requirements of all special-status species that may be affected by the PG&E portion of the project, and about state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. Color photos of special-status species will be included, as well as a discussion of relevant APMs and specific avoidance or minimization measures for special-status species and habitats. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.
- **APM BIO-2: Avoid and Protect Nesting Birds from PG&E Impact.** If construction is to occur during the avian nesting season (March 1 through August 15), a preconstruction migratory bird and raptor nesting survey will be performed by a PG&E biologist who is familiar with local avian species and nesting birds. Surveys will occur only in publicly accessible areas and areas where PG&E has existing access; private property will not be accessed and will instead be observed from adjacent accessible areas.

  Preconstruction nesting bird surveys will be performed in accordance with PG&E's Nesting Bird Management Plan. The preconstruction survey will cover a radius of 200 feet for nonlisted raptors and 100 feet for nonlisted passerines from project locations that will be actively worked at in the near term. Surveys for Swainson's hawk will cover a 0.25-mile radius from the project footprint. The survey will cover all affected areas where ground disturbance or vegetation clearing is required in the near term. Subsequent surveys will be conducted in advance of other project locations becoming active. If any active nests containing eggs or young are found, an appropriate nest exclusion zone will be established by the PG&E biologist in accordance with PG&E's Nesting Bird Management Plan. No heavy equipment will be operated in this exclusion zone until the biologist has determined that the nest is no longer active and the young have fledged. If it is not practicable to avoid work in an exclusion zone around an active nest, work activities will be modified to minimize disturbance of nesting birds but may proceed in these zones at the discretion of the biologist. As appropriate, the biologist will monitor work activities in these zones daily or periodically when construction is occurring and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance. If work cannot proceed without disturbing the nesting birds, or signs of disturbance are observed by the monitor, work may need to be halted or redirected to other areas until the nesting and fledging is completed or the nest has otherwise failed for reasons not related to construction.
- **APM BIO-3: Identify and Mark Sensitive Biological Resource Areas near PG&E Portion of the Project.** Sensitive biological resources (for example, aquatic resources and nesting birds) in or adjacent to PG&E construction work areas identified during the preconstruction surveys will be clearly marked in the field and on project maps as appropriate. Such areas will be avoided during construction to the greatest extent feasible.
- **APM BIO-4: Install Exclusion Fencing near PG&E Portion of the Project.** At the discretion of the PG&E biologist, prior to any ground disturbing work in proximity to suitable habitat for special-status species or adjacent to

wetlands or waters, exclusion fence will be installed around PG&E workspaces as appropriate. Exclusion fencing will be routinely inspected during project activities and any damage, such as holes or gaps, will be promptly repaired.

- **APM BIO-5: Allow Biological Monitor Onsite during PG&E Construction Activities in Sensitive Biological Resource Areas.** At the discretion of the PG&E biologist, a qualified biologist will be onsite during construction activities in sensitive biological resource areas identified in APM BIO-4 unless the area has been protected by barrier fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the PG&E biologist. The qualified biologist will ensure implementation and compliance with all avoidance and mitigation measures and have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.
- **APM BIO-6: Avoid and Protect Special-Status Amphibians from PG&E Impact.** During wet weather or the rainy season, all open holes, pits, and trenches at PG&E work areas will be protected to ensure that wildlife does not become entrapped. Protective fencing, coverings, or ramps will be installed to either prevent wildlife from falling into excavations or to allow for escape if they do. At the end of each workday, steep-walled holes or trenches more than approximately 6 inches deep will be covered or provided with one or more escape ramps and/or fenced. Open excavations will be inspected, prior to the start of construction activities, to ensure that no wildlife is trapped. Construction personnel also will check underneath vehicles and within materials to be moved (that is, tires, tracks, pipes) for the presence of frogs when parked or placed near suitable aquatic or upland dispersal habitat.
- **APM BIO-7: Implement General Protection Measures for Wetlands and Other Waters near PG&E Portion of the Project**. PG&E will implement the following general measures to minimize or avoid impacts on wetlands and other waters:
  - Avoid wetlands and other waters during construction activities.
  - Do not refuel vehicles within approximately 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.
  - Implement a stormwater pollution prevention plan (SWPPP) to minimize construction-related erosion and sediments from entering nearby waterways (refer to APM HYD-1).
- **APM BIO-8: Implement General Resource Protection Measures for PG&E Portion of the Project**. This APM consists of the following components:
  - Hazardous materials spills. Emergency spill response and cleanup kits will be readily available for immediate containment and cleanup of an accidental spill. Construction crews will be trained in safe handling of hazardous materials and cleanup responsibilities. Any inadvertent spills into aquatic habitat will be reported to the applicable resource agencies within 24 hours.
  - Reporting and communication. The PG&E biologist will be responsible for immediately reporting any capture and relocation, or inadvertent harm, entrapment, or death, of a federally or state-listed species under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA) to the applicable resource agencies.
  - Restoring temporarily disturbed habitats. All habitat areas for special-status species that are temporarily disturbed as a result of project activities will be restored upon completion of construction. Disturbed areas will be restored and revegetated in coordination with landowners. Many areas are actively cultivated or grazed and landowners may request replanting of similar crops or plant species as existed previously. These may not necessarily be native plant species. For PG&E-owned parcels, revegetation would be accomplished through application of a habitat-appropriate native seed mix. Restoration is anticipated to be completed within approximately 6 to 9 months after the project, depending on landowner requests and the season in which disturbance activities and subsequent restoration activities will take place.
  - Erosion control materials. Only tightly woven netting or similar material will be used for all geosynthetic erosion control materials such as coir rolls and geotextiles. No plastic monofilament matting will be used. Sod may be used when restoring landscaped areas.

- Minimizing grading and vegetation removal along access roads and construction work areas. PG&E will only trim, clear, or remove vegetation as necessary to establish the access routes and allow equipment use. Trees will be directionally felled away from sensitive biological resource areas and, if that is not possible, they will be removed in sections. Damage to adjacent trees will be avoided to the greatest extent possible.
- Weed management. Vehicles and construction equipment will be cleaned of mud and dirt as needed to minimize transport of weed plant parts or seed. Vehicles also will be cleaned at the completion of the project or when off-road use for that vehicle has been completed.

- APM BIO-9: Prevent Avian Electrocution from PG&E Project Facilities. PG&E conductors and ground wires would be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire, causing electrocution (APLIC 2006).
- APM BIO-10: Protect Birds on PG&E Power Lines. All PG&E transmission and power lines and PG&E switching station and substation facilities for the project will be designed to be avian-safe as appropriate and feasible, following the intent of Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006, 2012).
- APM HYD-1: Prepare and Implement an SWPPP for PG&E Project Components. Stormwater discharges associated with project construction activities are regulated under the Construction General Permit (CGP). Cases in which construction will disturb more than 1 acre of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. PG&E will comply with all CGP requirements for construction of PG&E project components.

  Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater runoff to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at PG&E project components. Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the SWPPP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and wastes to stormwater. Measures will be installed following manufacturer's specifications and according to standard industry practice.

  Erosion and sediment control measures may include the following:

  - straw wattle, silt fence, or gravel bag berms;
  - trackout control at all entrances and exits;
  - stockpile management;
  - effective dust control measures;
  - good housekeeping measures; and
  - stabilization measures, which may include wood mulch, gravel, and/or seeding

  Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of

sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations.

The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. A copy of the SWPPP will be provided to CPUC for recordkeeping. The plan will be maintained and updated during construction as required by the CGP.

- APM HYD-4: SPCC Plan for PG&E Thurman Switching Station and SPCC Plan Modification for PG&E Lockeford Substation. PG&E will prepare an SPCC [spill prevention, control, and countermeasure] plan for PG&E Thurman Switching Station for implementation during operation, and the existing PG&E Lockeford Substation SPCC Plan will be modified prior to operation of the expanded facility, as required by applicable regulations (40 CFR 112). An SPCC plan includes engineered and operational methods for preventing, containing, and controlling potential releases (for example, construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.
- APM AIR-1: PG&E Dust Control During Construction. PG&E will implement measures to control fugitive dust in compliance with SJVAPCD standards. Dust control measures will include the following at a minimum:
  - All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
  - The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
  - Cover all haul trucks entering/leaving the site and trim their loads as necessary.
  - Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
  - All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
  - Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
  - Water and/or cover soil stockpiles daily.
  - Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
  - All vehicle speeds will be limited to 15 mph or less on unpaved areas.
  - Implement dust monitoring in compliance with the standards of the local air district.
  - Halt construction during any periods when wind speeds are in excess of 50 mph.

LEU BMPs

- BMP BIO-1: Develop and Implement an LEU Worker Environmental Awareness Program. A biologist for the LEU portion of the project who is familiar with resources in the area and with delivering Worker Environmental Awareness Programs will conduct an environmental awareness program for all onsite construction personnel before they begin work on the project. Training will include a discussion of the avoidance and minimization measures that are being implemented to protect biological resources as well as the terms and conditions of project permits. Training will include information about the federal and state Endangered Species Acts and the consequences of noncompliance with these acts. Under this program, workers will be informed of the presence, life history, and habitat requirements of all special-status species that may be affected by the LEU portion of the project, and about state and federal laws protecting nesting birds, wetlands, and other water resources. An educational brochure will be produced for construction crews working on the project. Color photos of special-status species will be included, as well as a discussion of relevant best practices and specific avoidance or

minimization measures for special-status species and habitats. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to the City of Lodi.

- **BMP BIO-2: Avoid and Protect Nesting Birds from LEU Impact.** If construction is to occur during the avian nesting season (March 1 through August 15), a preconstruction migratory bird and raptor nesting survey will be performed by a biologist for the LEU portion of the project who is familiar with local avian species and nesting birds. Surveys will occur only in publicly accessible areas and areas where LEU has existing access; private property will not be accessed and will instead be observed from adjacent accessible areas.

  The preconstruction survey will cover a radius of 200 feet for nonlisted raptors and 100 feet for nonlisted passerines from project locations that will be actively worked at in the near term. Surveys for Swainson's hawk will cover a 0.25-mile radius from the LEU project footprint. The survey will cover all affected areas where ground disturbance or vegetation clearing is required in the near term. Subsequent surveys will be conducted in advance of other project locations becoming active. If any active nests containing eggs or young are found, an appropriate nest exclusion zone will be established by the biologist. No heavy equipment will be operated in this exclusion zone until the biologist has determined that the nest is no longer active and the young have fledged. If it is not practicable to avoid work in an exclusion zone around an active nest, work activities will be modified to minimize disturbance of nesting birds but may proceed in these zones at the discretion of the biologist. As appropriate, the biologist will monitor work activities in these zones daily or periodically when construction is occurring and assess their effect on the nesting birds. If the biologist determines that particular activities pose a high risk of disturbing an active nest, the biologist will recommend additional, feasible measures to minimize the risk of nest disturbance. If work cannot proceed without disturbing the nesting birds, or signs of disturbance are observed by the monitor, work may need to be halted or redirected to other areas until the nesting and fledging is completed or the nest has otherwise failed for reasons not related to construction.
- **BMP BIO-3: Identify and Mark Sensitive Biological Resource Areas near LEU Portion of the Project.** Sensitive biological resources (for example, nesting birds) in or adjacent to LEU construction work areas identified during the preconstruction surveys will be clearly marked in the field and on project maps as appropriate. Such areas will be avoided during construction to the greatest extent feasible.
- **BMP BIO-4: Install Exclusion Fencing near LEU Portion of the Project.** At the discretion of the LEU biologist, prior to any ground disturbing work in proximity to suitable habitat for special-status species, exclusion fence will be installed around LEU workspaces as appropriate. Exclusion fencing will be routinely inspected during project activities and any damage, such as holes or gaps, will be promptly repaired.
- **BMP BIO-5: Allow Biological Monitor Onsite during LEU Construction Activities in Sensitive Biological Resource Areas**. At the discretion of the biologist for the LEU portion of project, a qualified biologist will be onsite during construction activities in sensitive biological resource areas identified in BMP BIO-4 unless the area has been protected by barrier fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the biologist for the LEU portion of project. The qualified biologist will ensure implementation and compliance with all avoidance and mitigation measures and have the authority to stop or redirect work if construction activities are likely to affect sensitive biological resources.
- **BMP BIO-8: Implement General Resource Protection Measures for LEU Portion of the Project.** This BMP consists of the following components:
  - Hazardous materials spills. Emergency spill response and cleanup kits will be readily available for immediate containment and cleanup of an accidental spill. Construction crews will be trained in safe handling of hazardous materials and cleanup responsibilities. Any inadvertent spills into aquatic habitat will be reported to the applicable resource agencies within 24 hours.
  - Reporting and communication. The LEU biologist will be responsible for immediately reporting any capture and relocation, or inadvertent harm, entrapment, or death, of a federally or state-listed species under ESA or CESA to the applicable resource agencies.

- Erosion control materials. Only tightly woven netting or similar material will be used for all geosynthetic erosion control materials such as coir rolls and geotextiles. No plastic monofilament matting will be used.
- Minimizing grading and vegetation removal along access roads and construction work areas. LEU will only trim, clear, or remove vegetation as necessary to establish the access routes and allow equipment use. Trees will be directionally felled away from sensitive biological resource areas and, if that is not possible, they will be removed in sections. Damage to adjacent trees will be avoided to the greatest extent possible.
- Weed management. Vehicles and construction equipment will be cleaned of mud and dirt as needed to minimize transport of weed plant parts or seed. Vehicles also will be cleaned at the completion of the project or when off-road use for that vehicle has been completed.

- BMP BIO-9: Prevent Avian Electrocution from LEU Project Facilities. LEU conductors and ground wires would be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire, causing electrocution (APLIC 2006).
- BMP BIO-10: Protect Birds on LEU Power Lines. All LEU transmission and power lines and LEU substation facilities for the project will be designed to be avian-safe as appropriate and feasible, following the intent of Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006, 2012).

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts on biological resources under CEQA are based on Appendix G of the CEQA Guidelines and *CPUC's Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. An impact on biological resources would be significant if implementation of the project would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS;
- have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan; or
- create a substantial collision or electrocution risk for birds or bats.

ISSUES NOT DISCUSSED FURTHER

Riparian Habitat or Other Sensitive Natural Community

While riparian habitat is present in the BSA, this habitat is not located within the footprint of any proposed project activities; therefore, direct and indirect impacts on this habitat would not occur. No sensitive natural communities are present in the BSA. Therefore, there would be no impact on riparian habitat or sensitive natural communities as a result of project implementation, and this issue is not discussed further.

PG&E Remote-End Facilities

As part of the proposed project, PG&E would update its system-protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system-protection scheme. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project components would not result in physical environmental changes that could have a substantial adverse effect on special-status species, sensitive natural communities, or wetlands; interfere substantially with the movement of any native resident or migratory fish or wildlife species; conflict with any local policies or ordinances protecting biological resources; conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan; or create a substantial collision or electrocution risk for birds or bats. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts, and remote-end facilities are not addressed further in this section.

IMPACT ANALYSIS

Impact BIO-1: Result in Disturbance to or Loss of Special-Status Plants and Habitat

The BSA provides habitat suitable for two special-status plant species: Parry's rough tarplant and Sanford's arrowhead. Neither of these species was observed in the BSA during surveys conducted in 2021 (Jacobs Engineering Group 2022a). Marshy edges and pools within Bear Creek and Paddy Creek could provide habitat for Parry's rough tarplant and Sanford's arrowhead. Drainage ditches, irrigation ditches, and constructed watercourses throughout the BSA may also provide habitat for Parry's rough tarplant and Sanford's arrowhead.

PG&E Project Components

Construction activities, road widening, and staging activities in proposed staging areas (e.g., office trailers, crew and equipment assembly areas, safety and tailgate training areas, equipment and materials storage, vehicle parking) could result in direct impacts on special-status plant species if present in the BSA. Individual plants may be directly removed or damaged, including being broken, crushed, or buried from vehicle and equipment operation, vegetation trimming and removal, soil excavation and compaction, and grading. Damaged plants may experience altered growth and development or reduced or eliminated seed-set and reproduction, and mortality of individuals could eventually occur. Indirect impacts on special-status plants in the BSA could occur from the introduction and spread of invasive weeds that outcompete other plants for resources; the production of fugitive dust, which can alter plant photosynthesis; soil erosion; and accidental release of toxic substances.

Permanent impacts on special-status plants include the construction of new buildings and fence lines and the installation of new tubular steel poles (TSPs). Temporary impacts on special-status plants include establishment and use of staging areas, activities in work areas surrounding proposed structures, and establishment and use of temporary access routes and overland access.

O&M of PG&E project components would involve regular inspection of electrical lines, stations, instrumentation and controls, and support systems as well as maintenance, repair, or replacement of these systems. This would include temporary disturbances as described above for construction activities, such as activities occurring in work areas surrounding proposed structures, temporary access routes, and overland access. O&M would also include permanent disturbance from vegetation maintenance of access roads, utility lines, and the inside and outside of station facilities. O&M activities would be infrequent with less physical disturbance than construction-related activities.

Construction and O&M of PG&E's project components would primarily occur on agricultural land and developed areas, which do not provide habitat for most special-status plant species. In addition, the proposed project would not substantially disrupt the continuous habitat for most special-status plant species because the BSA is predominantly surrounded by agricultural land and development. However, some project activities would occur along roadsides, and

there are seasonal wetlands and constructed and natural watercourses in the BSA, all of which could provide habitat for Parry's rough tarplant and Sanford's arrowhead.

No special-status plant species were observed in the BSA during botanical surveys conducted in 2021, and it is unlikely that any special-status species would have become established in the BSA during the intervening period. However, 2020 and 2021 were unusually dry and warm, with the region surrounding the BSA experiencing extreme to exceptional drought conditions (NOAA 2022). In addition, plant species composition in habitats that are dominated by annual and short-lived perennial species (e.g., grasslands) can vary year to year based on water availability and may require multiple annual surveys to fully capture baseline conditions (Dudney et al. 2017; CDFW 2018). Sandford's arrowhead is a perennial species generally found in wet areas and would have been detectable during botanical and aquatic resource delineation surveys conducted in 2021; therefore, this species is not expected to occur within the BSA (i.e., within 50 feet of proposed access roads and 250 feet of all other proposed project elements). Drought conditions during 2021 may have precluded the identification of Parry's rough tarplant, an annual species, in wet areas directly in the BSA. While the aquatic resource delineation was conducted for the entire BSA, botanical surveys were not conducted throughout the entire BSA corridor in 2021 and were restricted to areas along the proposed alignment and at the locations where work may occur; therefore, roadside habitat suitable for Parry's rough tarplant could have been missed. If Parry's rough tarplant is present in constructed watercourses, irrigation ditches, seasonal wetlands, or other roadside habitat directly adjacent to access roads, plants could be directly affected by mechanical crushing or removal from road widening or vegetation removal and maintenance. Furthermore, if Parry's rough tarplant is present in the BSA, plants may be indirectly affected by the introduction of invasive plants, fugitive dust, soil erosion, and accidental releases of toxic substances.

The PG&E project components would cross over Paddy Creek and Bear Creek. As noted above, habitat for Parry's rough tarplant is present in both creeks. TSPs for the proposed lines and their associated work areas would be placed approximately 150 feet west of Paddy Creek and 130 feet west of Bear Creek, entirely within agricultural land, and no in-water work or activities along the edges of the creeks would occur. Furthermore, while drainage ditches, irrigation ditches, and constructed watercourses throughout the BSA may also provide habitat for Parry's rough tarplant and Sanford's arrowhead, none of these features are present in the BSA. Therefore, direct disturbance in these areas would not occur and special-status plants potentially present within creeks, ditches, or other watercourses would not be adversely affected.

Implementation of APMs

Implementation of APMs would minimize potential impacts on special-status plant species. APM BIO-1 requires all on-site construction personnel to receive training in avoidance and minimization measures that are being implemented to protect biological resources and the consequences of noncompliance with these acts. APM BIO-3 requires sensitive biological resource areas near the PG&E portion of the BSA to be identified and clearly marked in the field and on project maps for avoidance, to the greatest extent feasible.

APM BIO-8 would minimize the spread of invasive species by requiring vehicles and construction equipment to be cleaned of mud and dirt as needed and requiring vehicles to be cleaned at the completion of the project or when off-road use for that vehicle has been completed. Fugitive dust would be controlled through implementation of APM AIR-1, which provides various dust control measures, such as watering or covering all surfaces that could generate dust; covering all haul trucks and stockpiles; applying gravel or nontoxic soil stabilizers on all unpaved access roads, parking areas, and staging areas in the BSA; revegetating disturbed areas as soon as possible; and requiring vehicles to not exceed a speed limit of 15 mph on unpaved roadways.

To address construction-related erosion, APM HYD-1 requires the preparation and implementation of a SWPPP, which would provide erosion and sediment control measures to reduce the potential for stormwater runoff to affect adjacent properties, which may contain sensitive plant species. The SWPPP would also identify areas where refueling and vehicle maintenance activities and storage of hazardous materials would be permitted. APM BIO-8 would minimize hazardous material spills by requiring that emergency spill response and cleanup kits be available for immediate containment and cleanup of an accidental spill. Construction crews would be trained in safe handling of hazardous materials and cleanup responsibilities. Furthermore, APM HYD-4 would require the creation of a Spill

Prevention, Control, and Countermeasure plan that would provide methods for preventing, containing, and controlling potential releases as well as provisions for quick and safe cleanup.

The presence of Parry's rough tarplant within the BSA cannot be ruled out because habitat suitable for the species is present along roads and other wet areas in the BSA, and despite the species being absent during surveys conducted in 2021, the presence and accurate identification of annuals can be greatly affected by annual conditions, such as drought, which were predominant in 2021. Sanford's arrowhead is a perennial species found in wet areas and would have been detected during botanical and aquatic resource delineation surveys conducted in 2021; therefore, this species is not expected to occur in or near the BSA. APMs do not require additional surveys to detect the presence of special-status species in the BSA prior to construction. Furthermore, APM BIO-3 would only be implemented to the extent feasible and does not include a specific buffer size for special-status plant species, should they occur in the BSA, to avoid direct and indirect affects during construction or O&M.

Furthermore, APMs AIR-1, HYD-1, HYD-4, and BIO-8 would prevent the indirect effects of fugitive dust, soil erosion, and hazardous material spills on Parry's rough tarplant directly in the BSA. While APM BIO-8 would minimize the spread of invasive plants in the BSA, it does not require the use of certified weed-free materials for other construction or revegetation activities to adequately prevent the introduction of invasive species that may adversely affect nearby occurrences of Parry's rough tarplant.

LEU Project Components

No direct or indirect impacts on special-status plant species are expected for LEU project components. Modifications and expansions of existing Industrial Substation facilities, construction of the Guild Substation, installation of the two Thurman-Guild 230 kV lines and the two 60 kV lines, and all associated staging areas would occur in the grassland west of the existing Industrial Substation. Relocation of the aboveground 12 kV line (PG&E Lockeford-Industrial pole 2 to pole 6) to an underground configuration along the existing alignment would occur on an already-developed and paved area adjacent to the CCT railroad and an industrial distribution center. O&M for the LEU project components would be restricted to these same areas. The grassland does not contain aquatic features or other mesic habitat for Parry's rough tarplant or Sanford's arrowhead. Although there are roads on the south and east side of the grassland, there are no roadside ditches that would provide habitat for Parry's rough tarplant. Furthermore, all LEU project components are surrounded by industrial and urban development, so no indirect effects to nearby habitat for these species would occur.

Implementation of BMPs

No applicable BMPs are proposed as part of the project.

Significance before Mitigation

No direct or indirect impacts on special-status plant species are expected for LEU project components. PG&E project components may result in direct impacts on Parry's rough tarplant individuals or populations along roadsides in areas where road widening and vegetation removal and maintenance would occur. In addition, indirect effects on Parry's rough tarplant near the project area may occur from the introduction of invasive plant species through contaminated construction and revegetation materials, the production of fugitive dust, soil erosion, or accidental release of toxic substances. APMs would reduce impacts on this species, but impacts could still occur after implementation of APMs.

As described above, Parry's rough tarplant has a CRPR of 4, which indicates that the species has limited distribution or infrequent distribution throughout a broader area in California. Some CRPR 4 plant species may meet the State CEQA Guidelines Section 15380 definition of an endangered, rare, or threatened species or may be regionally rare or unique as defined in State CEQA Guidelines Section 15125(c), particularly if the occurrences or potential occurrences in a project area are or would be at the periphery of the species' range, if the species is regionally rare within the region of the project area, if the plant occurs on unusual substrates, or if the species is associated with habitat that is declining in the state (CNPS 2020).

The range of Parry's rough tarplant includes the Central Valley from (approximately) the Butte County/Tehama County border south to Merced County, the Coast Range foothills in Colusa and Glenn counties, and portions of Yolo and Solano counties (Calscape 2024). The BSA is not on the periphery of the overall range of this species. Most of the

documented occurrences of this species are within the northern half of the range in Colusa, Butte, Yolo, Solano, and Sacramento counties (Calflora 2024). The population size for this species is not known; however, plants are considered common and weedy at many Central Valley occurrences (CNPS 2018). This suggests that the species may not be regionally rare in the Central Valley, including within the BSA.

As described above, Parry's rough tarplant is associated with grasslands and vernally mesic areas with alkaline soils and can sometimes occur on roadsides and other disturbed sites (CNPS 2018; Baldwin et al. 2012). The BSA does not contain vernal pool or wetland habitat, and grasslands in the BSA were characterized as being dominated by nonnative grasses. Although vernal pool habitat is declining in California, no vernal pools would be affected by the project. Roadsides and nonnative grasslands may be affected by the project, but these habitats represent secondary unnatural habitat for Parry's rough tarplant and are not declining in California.

For these reasons, and because Parry's rough tarplant was not detected during plant surveys conducted in 2021 (although the plant may not have been detected due to drought conditions), impacts on Parry's rough tarplant associated with the project would be **less than significant** even if some individual plants are lost because this loss would not threaten to eliminate the plant community or substantially reduce the number or restrict the range of Parry's rough tarplant, which would constitute a substantial adverse effect.

Mitigation Measures

No mitigation is required for this impact.

Impact BIO-2: Result in Disturbance to or Loss of Special-Status Wildlife and Habitat

Thirty special-status wildlife species have potential to occur in the BSA: western pond turtle, California tiger salamander, giant gartersnake, short-eared owl, ferruginous hawk, merlin, prairie falcon, long-billed curlew, black-crowned night heron, white-faced ibis, Cooper's hawk, tricolored blackbird, burrowing owl, northern harrier, snowy egret, white-tailed kite, California horned lark, song sparrow ("Modesto" population), bank swallow, great egret, great blue heron, lesser sandhill crane, greater sandhill crane, Swainson's hawk, Crotch's bumble bee, monarch, valley elderberry longhorn beetle, Molestan blister beetle, western red bat, and American badger (Table 3.6-3). In addition, native birds without special status protected by the California Fish and Game Code and the federal MBTA may also nest in the BSA.

Nine special-status bird species that may occur in the BSA—short-eared owl, ferruginous hawk, greater sandhill crane, lesser sandhill crane, merlin, prairie falcon, long-billed curlew, black-crowned night heron, and white-faced ibis—are not expected to nest in the BSA. Ferruginous hawk, greater sandhill crane, lesser sandhill crane, long-billed curlew, merlin, prairie falcon, and short-eared owl do not breed in the project region and would only be potentially present in the BSA during the nonbreeding season (i.e., winter). Black-crowned night heron and white-faced ibis breed in the project region; however, there is no breeding habitat in the BSA. Agricultural land and grassland habitat in the BSA may provide overwintering or foraging habitat for these species. Project implementation would not result in significant loss of foraging or overwintering habitat or a substantial change in the character of the foraging or overwintering habitat in the BSA. During project implementation, these species may temporarily avoid using grassland and agricultural habitat in the BSA; however, after project implementation, this habitat would be available for foraging and overwintering birds. Impacts on most of these species would not occur for PG&E or LEU project components, and they are not discussed further. Additional impacts on lesser sandhill cranes and greater sandhill cranes may occur as a result of collision with high-voltage lines; therefore, these species are discussed below.

The PG&E project components would cross over Paddy Creek and Bear Creek, which provide marginal aquatic habitat for giant gartersnakes and western pond turtles. The banks of these creeks may provide upland habitat for these species. However, direct impacts from TSP installation and associated access and work areas would occur entirely within agricultural crop fields (i.e., cultivated feed and grain) that are over 100 feet away from Paddy and Bear Creeks. Cultivated feed and grain fields do not provide upland habitat for giant gartersnakes or western pond turtles. Furthermore, the drainage ditch in the BSA that is used intermittently to irrigate corn is disturbed (i.e., seasonally filled and graded) does not carry water consistently and does not contain emergent vegetation or bank habitat for these species. Because project implementation would not result in direct loss of western pond turtle, giant gartersnake, or

their habitats, and because aquatic and upland habitat is not present where ground-disturbing activities would occur, impacts on these species would not occur for PG&E or LEU components, and they are not discussed further.

Molestan blister beetle, a covered species under the SJMSCP, is associated with vernal pools and wetlands. As described above, wetland habitat is present in the BSA. However, temporary or permanent impacts on wetland habitat would not occur as a result of project implementation (i.e., PG&E and LEU project components). There would be no impact on this species, and it is not discussed further.

California Tiger Salamander

California tiger salamanders require access to both aquatic (e.g., vernal pools, wetlands) and upland habitat throughout their life cycle. Upland aestivation (i.e., inactivity and a lowered metabolic rate, that is entered in response to high temperatures and arid conditions) habitat includes grasslands that contain small animal burrows or underground hideaways, including those constructed by California ground squirrel (*Otospermophilus beecheyi*) and Botta's pocket gopher (*Thommomys bottae*), which are used for shelter and protection from predators during nonbreeding periods. The BSA does not contain vernal pool breeding habitat for California tiger salamanders; however, upland habitat (i.e., grasslands within 1.2 miles of documented or potential breeding habitat) is present.

PG&E Project Components

Grassland that may provide upland habitat for California tiger salamander is present within work areas (i.e., where vehicle and equipment use or structure foundation excavation, drilling, construction, or removal could occur during construction) and staging areas, particularly east of the PG&E Lockeford Substation, where there are documented occurrences of the species and potential breeding habitat within the typical dispersal distance (i.e., 1.2 miles). O&M of PG&E project components would include temporary disturbances like those described above for construction activities, such as activities occurring in work areas surrounding proposed structures, temporary access routes, and overland access. Vehicle and equipment use, as well as excavation and construction activities, could inadvertently crush rodent burrows occupied by California tiger salamanders or injure or kill adult salamanders while moving between the grassland habitat to or from nearby vernal pool habitat.

Implementation of APMs

APM BIO-1 would require implementation of a worker environmental awareness program, through which PG&E employees and contractors would become familiar with the identification of special-status species, the regulatory status of the species, and procedures should a salamander be detected in the BSA. APM BIO-4 would, at the discretion of a PG&E biologist, require exclusion fencing to be installed around work areas near habitat for special-status species prior to any ground-disturbing work. APM BIO-5 would, at the discretion of the PG&E biologist, require a qualified biologist (i.e., monitor) to be on-site during construction activities in sensitive biological resource areas unless the area has been protected by fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the PG&E biologist. APM BIO-6 would require that all open holes, pits, and trenches at PG&E work areas be protected and inspected to ensure that wildlife does not become entrapped during wet weather or the rainy season.

Implementation of APMs would minimize potential impacts on California tiger salamanders. While APMs BIO-1, BIO-4, BIO-5, and BIO-6 would reduce impacts on California tiger salamanders, impacts on this species remain significant because the requirements of APMs BIO-4 and BIO-5 are only required at the discretion of a PG&E biologist and would not ensure that installation would occur around all potential upland habitat areas. Furthermore, APMs would not require a survey of grassland habitats in the BSA prior to installation of exclusion fencing; therefore, California tiger salamanders aestivating in uplands may not be detected prior to project implementation.

LEU Project Components

Although grassland habitat is present where LEU project components would be implemented, this area is approximately 5.6 miles west of the nearest documented occurrence of the species (i.e., farther than the typical dispersal range), and there is dense industrial development (e.g., large buildings, paved parking lots, CCT railroad tracks) surrounding the grassland habitat in this portion of the BSA, which would be a substantial barrier for migrating salamanders. Habitat suitable for California tiger salamanders is not present in the LEU portion of the BSA

because there are no documented occurrences or vernal pools within 1.2 miles and there are substantial barriers to dispersal surrounding the LEU portion of the BSA; therefore, direct loss of California tiger salamanders or their habitat would not occur as a result of LEU project construction or O&M.

Implementation of BMPs

No applicable BMPs are proposed as part of the project.

Significance before Mitigation

PG&E project construction and O&M activities may result in direct loss of California tiger salamanders in upland grassland habitat, if present. APMs do not require adequate survey protocols or avoidance measures to identify and protect California tiger salamanders, if present, in the PG&E portion of the BSA. Therefore, impacts on California tiger salamanders from implementation of the project would be **significant**.

Special-Status Birds and Common Native Birds

Cooper's hawk, tricolored blackbird, burrowing owl, northern harrier, snowy egret, white-tailed kite, California horned lark, song sparrow ("Modesto" population), bank swallow, great egret, and great blue heron may nest and forage in the BSA. Swainson's hawk nests have been documented near the BSA, and nesting habitat is present in the BSA (CNDDB 2024). Lesser sandhill crane and greater sandhill crane do not nest in the region of the BSA; however, they may be present during the winter. In addition, other raptor species (e.g., red-tailed hawk [*Buteo jamaicensis*], red-shouldered hawk [*Buteo lineatus*]) and other native nesting birds could nest in the BSA, and these species and their nests are protected under the California Fish and Game Code and MBTA.

Grasslands and agricultural areas in and adjacent to the BSA may provide nesting habitat for northern harrier, California horned lark, and other native bird species. Trees in and adjacent to the PG&E portion of the BSA may provide nesting habitat for Cooper's hawk, great egret, great blue heron, Swainson's hawk, white-tailed kite, snowy egret, other native raptors, and other native bird species. Grassland and agricultural habitat in and adjacent to PG&E portions of the BSA may provide habitat suitable for burrowing owls. While no signs of burrowing owl (e.g., individuals, whitewash, scat, pellets) were observed, potential burrows were observed in the BSA during a previous reconnaissance-level survey for biological resources (Jacobs Engineering Group 2022c). Vegetation along constructed watercourses and creeks in the PG&E portion of the BSA may provide nesting habitat for tricolored blackbird, song sparrow ("Modesto" population), and other native birds, and the banks of Paddy and Bear creeks may provide nesting habitat for bank swallow.

Tree cover is mapped in the undeveloped lot east of the existing PG&E Lockeford Substation, as well as east of the proposed LEU Guild Substation and PG&E Thurman Switching Station near the junction of East Sargent Road and the CCT Railroad. Trees in these areas, as well as isolated trees throughout the BSA, may be trimmed or removed during project construction and O&M activities. Four large eucalyptus trees (*Eucalyptus* sp.) are proposed for heavy trimming or removal near the west end of East Sargent Lane. Eighteen medium to large walnut trees are proposed for removal on the PG&E Lockeford Substation property. An additional 51 trees are proposed for trimming primarily along access routes throughout the BSA, with most work occurring along access routes extending to pole sites from East Kettleman Lane. Ornamental and landscaped row trees are the primary tree types proposed for trimming, including walnut, eucalyptus, sycamore (*Platanus* sp.), pine (*Pinus* sp.), Mexican palm (*Washingtonia robusta*), and weeping willow (*Salix babylonica*). Four native oak trees are also expected to be trimmed along access roads off Smith Road and North Locust Tree Road, and the new 230 kV right-of-way (ROW). Some trees proposed for trimming may be removed during project implementation depending on conditions at the time of construction (e.g., tree removal for safe access) or as needed during O&M to protect electric lines and facilities. The locations of trees proposed for removal are provided in Appendix F. Another 352 orchard trees (i.e., almond, walnut, cherry, apple, olive) would be removed to establish temporary construction work areas and access, and an additional 291 would be permanently removed for structure placement or conductor clearance.

PG&E and LEU Project Components

Project construction and O&M activities would include tree removal, vegetation clearing, ground disturbance, staging, and heavy equipment, which may result in direct loss of special-status or common birds, active nests, or

active burrows (i.e., associated with burrowing owls) if present in the BSA. In addition, operation of heavy equipment and other construction activities could generate noise or visual stimuli that could result in disturbance of nearby nesting birds, which may result in nest abandonment and potential loss of eggs or chicks. Noise and visual stimuli could also disturb nests or colonies within riparian and creek bank habitat that would not otherwise be directly removed or adversely affected (i.e., tricolored blackbird, song sparrow ["Modesto" population], bank swallow)

During construction, a light-duty helicopter (Hughes MD 500 or equivalent) is expected to be used for conductor stringing. Helicopters would operate during daylight hours, and their flight path would generally follow the proposed transmission line alignment. PG&E estimates that a helicopter would be used on the project for approximately 50, likely nonconsecutive, days (for an average of approximately five flight hours per day) during construction. Proposed temporary helicopter landing zones would be located in staging areas. To assist with conductor stringing, a helicopter would fly a lightweight sock line and thread it through traveler pulleys affixed to structure arms, which typically requires approximately 10–15 minutes of hover time at each structure. Helicopters may also be used for O&M activities, including annual aerial inspections of the new 230 kV lines and periodic cleaning of insulators.

There is a risk that helicopters may strike birds while in flight, which could result in bird mortality. The number of wildlife strikes reported per year to the Federal Aviation Administration (FAA), which is an underestimate because of the voluntary nature of the reporting, increased steadily from about 1,800 in 1990 to 19,600 in 2023 (FAA 2024). Bird strikes are most common during the day, and most bird strikes occur at altitudes of 100 feet or lower above ground level (AGL) (Dolbeer et al. 2015). Most reported helicopter bird strikes occur during the en route flight phase (FAA 2017).

The FAA Rotorcraft Bird Strike Working Group concluded that avoiding airspeeds above 80 nautical miles per hour (knots) in areas of known high avian concentration would reduce the likelihood of bird strikes (FAA 2017). The working group recommended that the following text be included in all rotorcraft flight manuals (FAA 2017):

> CAUTION: Operating rotorcraft in areas of high concentrations of birds or flocking birds increases likelihood of a damaging bird strike as airspeed increases and altitude AGL decreases. When operating the rotorcraft at lower altitudes during takeoff and climb-out, the rotorcraft should be operated at lower airspeeds to decrease the likelihood and severity of a potential bird strike. Though regional differences exist during spring and fall migration periods, operating a rotorcraft at altitudes below 2,500 feet AGL may increase the likelihood of a damaging bird strike during those seasons.

Helicopters conducting construction and O&M activities would inherently be flying lower than 2,000 feet AGL, and the discrete, sudden sound of a helicopter approaching nearby may result in a disturbance response from nesting birds, leading to flushing, potential helicopter strikes, or potential abandonment of nests and loss of eggs or chicks. Although any species of bird may be at risk of helicopter strikes or disturbance, including special-status bird species that may occur in the BSA, as discussed previously, there are several known Swainson's hawk nests directly adjacent to the BSA and as a result adjacent to the proposed flight path where helicopters would be operating at low altitudes. A helicopter would also be a novel visual stimulus to a nesting Swainson's hawk, and it is possible that this stimulus would cause agitation or would cause a hawk to flush from its nest. The proximity of these nests to the proposed flight path increases the risk of a Swainson's hawk flushing and being killed as a result of a collision with a helicopter. In addition, the novel disturbance source may result in abandonment of an established Swainson's hawk nest site.

Implementation of APMs and BMPs

Implementation of APMs would minimize potential impacts on special-status bird species. APM BIO-1 and BMP BIO-1 would require a biologist to deliver an environmental awareness program for all on-site construction personnel before they begin work on the project. Training would include a discussion of the presence, life history, and habitat requirements of special-status bird species, avoidance and minimization measures that are being implemented to protect the species, the terms and conditions of project permits, and the consequences of noncompliance with these acts. APM BIO-2 and BMP BIO-2 would require preconstruction surveys for activities conducted during the avian nesting season and the establishment of an appropriate exclusion zone around active nests within which no heavy equipment would be operated until a biologist has determined that the nest is no longer active and the young have fledged. APM BIO-3 and BMP BIO-2 require sensitive biological resources (e.g., nesting birds) in or near the BSA to be identified and clearly marked in the field and on project maps for avoidance, to the greatest extent feasible.

APM BIO-4 and BMP BIO-4 would, at the discretion of a biologist, require exclusion fencing to be installed around work areas near habitat for special-status species prior to any ground-disturbing work. APM BIO-5 and BMP BIO-5 would, at the discretion of a biologist, require a qualified biologist (i.e., monitor) to be on-site during construction activities in sensitive biological resource areas unless the area has been protected by fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the PG&E biologist.

APMs BIO-2 and BIO-3 and BMPs BIO-2 and BIO-3 would require surveys for special-status and common nesting birds and for nests to be clearly marked in the field and on project maps; however, the avian nesting season cited in APM BIO-2 and BMP BIO-2 would not capture early or late nesting, which is common in the region; surveys are only specified for construction activities that would result in ground disturbance or vegetation removal, which does not incorporate all activities that could result in disturbance to nesting birds (e.g., staging, O&M); the cited search radius for nonlisted raptor and passerine species would not necessarily be sufficient to protect all nearby nesting birds (i.e., 200 feet and 100 feet, respectively). the measure requires only heavy equipment use to be excluded from the exclusion zone, which would not incorporate all activities that could result in disturbance to nesting birds (e.g., vehicle use, staging, personnel activity, helicopters), and specific exclusion zone sizes are not defined. In addition, APM BIO-2 and BMP BIO-2 do not describe specific survey or avoidance protocols for species like burrowing owl and Swainson's hawk to sufficiently identify and avoid impacts on these species or mitigation required if loss of burrowing owl nests or Swainson's hawk nests occur (e.g., compensatory mitigation, incidental take permitting). The search radius measure also does not provide details regarding how and why a biologist would allow work to occur within the exclusion zone or monitor whether disturbance to the nest is occurring. Furthermore, avoidance measures described under APMs BIO-3, BIO-4, and BIO-5 and BMPs BIO-3, BIO-4, and BIO-5 are required only to the greatest extent feasible or at the discretion of the project biologist and would not ensure the avoidance and protection of nesting birds during project implementation.

Significance before Mitigation

PG&E and LEU project construction and O&M activities may result in direct loss of nesting special-status or common native birds, if present. APMs and BMPs do not include adequate measures or do not require surveys or avoidance measures to identify and reduce impacts on special-status or other native bird species, nor do they provide species-specific buffers. Impacts on special-status and common native bird species would be **significant**.

Crotch's Bumble Bee

Crotch's bumble bee has recently undergone a decline in abundance and distribution and is no longer present across much of its historic range. In California, the Crotch's bumble bee's range includes the Mediterranean region (ecoregion encompassing the greater Central Valley, Sierra foothills, and central Coast Ranges of California south to Mexico), Pacific Coast, Great Valley, and adjacent foothills though most of southwestern California. The BSA is within this range (CDFW 2023).

Although all life history characteristics of Crotch's bumble bees are not well understood, bumble bees have three basic habitat requirements: suitable nesting sites for the colonies, availability of nectar and pollen from floral resources throughout the duration of the colony period (spring, summer, and fall), and suitable overwintering sites for queens. Bumble bees in general are capable of flying up to approximately 6 miles from the nest while foraging; however, most foraging activity is likely conducted much closer to the nest (Williams et al. 2014).

Known native floral resources for Crotch's bumble bee include milkweed (*Asclepias* spp.), lupine (*Lupinus* spp.), *Phacelia* spp., *Clarkia* spp., poppy (*Eschscholzia* spp.), sage (*Salvia* spp.), and buckwheat (*Eriogonum* spp.). Bumble bees are typically generalist foragers and are known to use other native and nonnative floral resources, such as vetch (*Vicia* spp.) and clover (*Trifolium* spp.) (Williams et al. 2014). These floral species are fairly common within grassland habitats in California, and lupine, vetch, and clover are known to occur in the BSA.

In California, Crotch's bumble bees typically inhabit open grassland and scrub habitats (Xerces Society 2018). Crotch's bumble bees nest underground and likely use, at least in part, old rodent burrows (Williams et al. 2014; Xerces Society 2018). Some bumble bees favor nest sites near woody transitional habitats and nest in holes or crevices in leaf litter, beneath woody debris, at the base of a tree, in herbaceous plant debris, or near grass clumps (Lanterman et al. 2019).

Overwintering likely occurs primarily in woodlands (USFWS 2021). Overwintering queens may prefer shaded areas near trees in areas without dense vegetation and north-facing slopes (Liczner and Colla 2019; Williams et al. 2019). Bumble bees in California have been documented overwintering under 1–2 inches of duff, between leaf/needle litter and mineral soil (Williams et al. 2014).

PG&E and LEU Project Components

Agricultural land is the dominant land cover in the BSA, and the use of insecticides, pesticides, or managed honeybee colonies may make it unlikely that the BSA supports a high concentration of Crotch's bumble bee colonies, if the species is present; however, grassland habitat in the BSA may provide habitat for the species. Grassland habitat in the BSA is dominated by nonnative grasses and forbs and may include flowering plants that could be used by bumble bees for foraging. Vegetation removal activities would result in removal of this potential foraging habitat, and the proposed project would permanently convert a small amount of the habitat (Table 3.6-4). Staging areas located in grassland habitat would temporarily limit foraging habitat by removing floral resources through crushing, covering, or other ground-disturbing activities. Nesting habitat potentially suitable for this species may be present in the BSA in grassland habitat or edges of agricultural areas that contain grasses or forbs that also contain rodent burrows. Vegetation removal and ground-disturbing activities from construction and O&M (i.e., staging areas, vehicle or equipment operation, trenching, grading) could result in mortality of Crotch's bumble bees while they are foraging or within nesting or overwintering colonies (e.g., in underground rodent holes, loose soil, leaf litter, log/tree cavities, surface vegetation). Overwintering habitat for Crotch's bumble bee is likely limited to woodlands or woodland edges with sufficient leaf/needle litter, and because this habitat is not present in the BSA, this species is unlikely to overwinter in the BSA.

Implementation of APMs and BMPs

Implementation of APMs would minimize potential impacts on Crotch's bumble bee. APM BIO-1 and BMP BIO-1 would require a biologist to deliver an environmental awareness program for all on-site construction personnel before they begin work on the project. Training would include a discussion of the presence, life history, and habitat requirements of special-status species, avoidance and minimization measures that are being implemented to protect the species, the terms and conditions of project permits, and the consequences of noncompliance with these acts. APM BIO-3 and BMP BIO-3 require sensitive biological resources in or near the BSA to be identified and clearly marked in the field and on project maps for avoidance, to the greatest extent feasible.

Pursuant to APM BIO-4 and BMP BIO-4, and at the discretion of the biologist, exclusion fencing would be installed around PG&E workspaces prior to any ground-disturbing work in proximity to habitat for special-status species. APM BIO-5 and BMP BIO-5 would, at the discretion of the biologist, require a qualified biologist (i.e., monitor) to be on-site during construction activities in sensitive biological resource areas unless the area has been protected by fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the biologist. When grassland habitat suitable for Crotch's bumble bee is temporarily disturbed by project activities, APM BIO-8 would require restoration and revegetation of these areas, which includes the application of a habitat-appropriate native seed mix for PG&E-owned parcels.

The APMs and BMPs do not include survey requirements for Crotch's bumble bee, nor do they describe protocols or avoidance measures to identify and protect this species, if present. While APMs BIO-3 and BIO-4 and BMPs BIO-3 and BIO-4 would reduce impacts on Crotch's bumble bee through protection of sensitive biological resources, these measures are only required to the greatest extent feasible or at the discretion of the project biologist and would not ensure the detection and sufficient avoidance of Crotch's bumble during project implementation.

Significance before Mitigation

While the APMs and BMPs would reduce impacts on Crotch's bumble bee, APM BIO-3, BMP BIO-3, APM BIO-4, and BMP BIO-4 are required only to the greatest extent feasible or at the discretion of the project biologist and would not ensure the detection and avoidance of Crotch's bumble bee or significant habitat for Crotch's bumble bee. Furthermore, these measures do not include survey requirements for Crotch's bumble bee nor do they describe protocols or avoidance measures to identify and protect this species, if present. The population status of this species

is poorly understood, and loss of a colony as a result of project implementation could have a substantial effect on the population. Therefore, loss of Crotch's bumble bees would be a **significant** impact.

Monarch

The BSA is outside of the monarch overwintering range; however, it is within the breeding and foraging range of the species. Monarchs require milkweed (*Asclepias* spp.) as a structure for egg laying, a food source for caterpillars, and a floral resource for foraging adults.

PG&E and LEU Project Components

Floral resources in the BSA may provide foraging habitat for monarch butterflies. No milkweed species, which are perennial, were observed in the BSA during surveys conducted in 2021, so it is unlikely that substantial breeding habitat is present in the BSA (Jacobs Engineering Group 2022a). Vegetation removal, equipment laydown in staging areas, and vehicle and equipment operation could crush or bury floral resources during construction and O&M, temporarily removing potential foraging habitat. Habitat conversion to urban use from the construction of substations could permanently remove floral resources that could be used by monarch for foraging. However, the BSA is dominated by agricultural land cover types and grasslands that contain mostly nonnative grasses and represents low-quality foraging habitat for monarchs. In addition, most vegetation removal would be temporary (Table 3.6-4), and there is better quality grassland habitat in the vicinity of the BSA that may provide higher quality foraging habitat for monarch. Therefore, project implementation is not expected to result in a significant loss of overall foraging habitat for monarch, and impacts would not be substantial.

Implementation of APMs and BMPs

No applicable APMs or BMPs are proposed as part of the project.

Significance before Mitigation

The BSA lacks substantial breeding habitat for monarch, the potential foraging habitat in the BSA is low quality, there is additional potential foraging habitat in the vicinity of the BSA, and most vegetation removal would be temporary; therefore, project implementation is not expected to result in direct loss of monarchs or a significant loss of overall breeding or foraging habitat for monarch.

Project implementation is not expected to result in direct loss of monarchs or a significant loss of overall breeding or foraging habitat for monarch, and impacts would be **less than significant**.

Valley Elderberry Longhorn Beetle

PG&E Project Components

Valley elderberry longhorn beetle may be present in the BSA in association with elderberry (*Sambucus* spp.) shrubs, which is the obligate host plant for this species. The valley elderberry longhorn beetle is strongly associated with the elderberry shrub and is nearly always found on or in close proximity to the plant. Two elderberry shrubs were observed during surveys conducted in 2021 (Jacobs Engineering Group 2022c): one shrub is located in the BSA next to a proposed guard structure and pull site between PG&E proposed structures north of the PG&E Lockeford Substation, and the other shrub is located within the fence line of PG&E Lockeford Substation, surrounded by a small patch of grassland on the eastern side of the substation's general construction yard in the BSA. Stems on the elderberry shrubs were greater than 1 inch in diameter, which is large enough to accommodate valley elderberry longhorn beetle. Although no exit holes were observed on the shrubs during the surveys, valley elderberry longhorn beetle could utilize the shrubs anytime between surveys and project implementation.

Elderberry stems of at least 1 inch in diameter may contain eggs, larvae, pupae, or preemergent adults. Removal, trimming, or damage to elderberry shrubs from vegetation clearing during construction and O&M, construction of the proposed guard structure and pull site, and construction activities associated with PG&E Lockeford Substation modification and expansion would result in injury or direct mortality of valley elderberry longhorn beetle. Beetles could also be injured or killed by vehicles or equipment during construction and O&M when they are outside of their host plant during adult emergence, feeding, or dispersal.

Implementation of APMs

Implementation of APMs would minimize potential impacts on valley elderberry longhorn beetle. APM BIO-3 requires sensitive biological resources, such as elderberry shrubs, in or near the BSA to be identified and clearly marked in the field and on project maps for avoidance, to the greatest extent feasible. APM BIO-1 would require a biologist to deliver an environmental awareness program for all on-site construction personnel before they begin work on the project. Training would include a discussion of the presence, life history, and habitat requirements of valley elderberry longhorn beetle, avoidance and minimization measures that are being implemented to protect the species, the terms and conditions of project permits, and the consequences of noncompliance with these acts.

Pursuant to APM BIO-4 and at the discretion of the PG&E biologist, exclusion fencing would be installed around PG&E workspaces prior to any ground-disturbing work in proximity to habitat suitable for special-status species. APM BIO-5 would, at the discretion of the PG&E biologist, require a qualified biologist (i.e., monitor) to be on-site during construction activities in sensitive biological resource areas unless the area has been protected by fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the PG&E biologist.

Valley elderberry longhorn beetle is a covered species under the SJVHCP, and PG&E is required to comply with applicable AMMs. Accordingly, during routine O&M activities that are conducted near elderberry shrubs, a qualified individual would survey for the presence of elderberry plants within a minimum of 20 feet from the worksite. If elderberry plants have one or more stems measuring 1 inch or more in diameter at ground level, the qualified individual would flag those areas to avoid or minimize potential impacts on elderberry plants. If impacts (e.g., pruning, trimming, removal, ground disturbance, damage) are unavoidable or occur, then additional measures to reduce, avoid, or compensate for impacts would be implemented, in compliance with the requirements in the SJVHCP. Furthermore, PG&E developed and implemented a Valley Elderberry Longhorn Beetle Conservation Program, which was adopted by USFWS in 2003, after which USFWS issued a biological opinion (BO) as part of formal ESA Section 7 consultation for the species to address impacts of PG&E routine O&M activities (e.g., vegetation management, emergency activities) on valley elderberry longhorn beetles (USFWS 2003). The Valley Elderberry Longhorn Beetle Conservation Plan and BO do not cover construction activities, such as new electric pole/tower construction, substation expansion, new pipeline installation, or pressure limiting station construction, and these activities would be subject to separate authorizations. The BO required avoidance, minimization, and conservation measures that included environmental training and education for staff and contractors; flagging areas to avoid valley elderberry longhorn beetle habitat; limitations on the use of pesticides near valley elderberry longhorn beetle habitat; directional felling of hazard trees; erosion control; monitoring and reporting of activities that may affect valley elderberry longhorn beetle to USFWS; and PG&E providing incremental funding for acquisition or long-term management of up to 1,000 acres of high-quality habitat near or adjacent to existing valley elderberry longhorn beetle populations in the Sacramento and San Joaquin Valleys.

While PG&E's SJVHCP and Valley Elderberry Longhorn Beetle Conservation Plan would require surveys and avoidance or minimization of impacts on valley elderberry longhorn beetle, these plans only apply to O&M activities. While APM BIO-3 and APM BIO-4 would reduce impacts on valley elderberry longhorn beetle associated with PG&E construction activities, these measures are only required to the greatest extent feasible or at the discretion of the project biologist and would not ensure the detection and avoidance of valley elderberry longhorn beetles during project implementation. Furthermore, the APMs do not require surveys or avoidance measures to identify and protect this species, if present. Therefore, impacts on valley elderberry longhorn beetle may still occur during construction activities (e.g., construction of the proposed guard structure and pull site, construction activities associated with PG&E Lockeford Substation modification and expansion) that lead to injury or loss of this species.

LEU Project Components

No elderberry shrubs are present in the LEU portion of the BSA; therefore, impacts on valley elderberry longhorn beetle would not occur.

Implementation of BMPs

No applicable BMPs are proposed as part of the project.

Significance before Mitigation

PG&E APMs would not ensure the detection and avoidance of valley elderberry longhorn beetle during PG&E project implementation. Furthermore, the APMs do not require surveys or avoidance measures to identify and protect this species, if present. Implementation of AMMs pursuant to the SJVHCP would be required for PG&E O&M activities, which would avoid and minimize impacts on valley elderberry longhorn beetles. However, construction of PG&E components of the project could result in direct impacts, including mortality and loss of habitat for valley elderberry longhorn beetles, which would therefore be a **significant** impact.

Western Red Bat

PG&E Project Components

Trees, including orchard trees, within the BSA may provide roosting habitat for western red bat in crevices, cavities, exfoliating bark, and foliage. Tree removal during construction and O&M activities may result in direct loss of roosting western red bats if they are present. This would be a substantial adverse effect on western red bats.

Implementation of APMs

Implementation of APMs would minimize potential impacts on western red bat. APM BIO-1 would require a biologist to deliver an environmental awareness program for all on-site construction personnel before they begin work on the project. Training would include a discussion of the presence, life history, and habitat requirements of all special-status species that may be affected by the project, avoidance and minimization measures that are being implemented to protect biological resources, the terms and conditions of project permits, and the consequences of noncompliance with these acts. APM BIO-3 requires sensitive biological resources in or near the BSA to be identified and clearly marked in the field and on project maps for avoidance, to the greatest extent feasible.

APM BIO-4 would, at the discretion of a PG&E biologist, require exclusion fencing to be installed around work areas near habitat for special-status species prior to any ground-disturbing work. APM BIO-5 would, at the discretion of the PG&E biologist, require a qualified biologist (i.e., monitor) to be on-site during construction activities in sensitive biological resource areas unless the area has been protected by fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the PG&E biologist.

While APMs BIO-3 and BIO-4 would require the identification and avoidance of sensitive biological resources, these measures are required only to the greatest extent feasible and would not ensure the detection and avoidance of roosting bats during project implementation. Furthermore, APMs do not require surveys or avoidance measures to identify and protect western red bats, if present. The APMs also do not describe measures to prevent western red bats from establishing nursery or hibernation sites in the BSA during construction or in trees that would require future maintenance.

LEU Project Components

No trees are present in the LEU portion of the BSA; therefore, roosting habitat for western red bat is not present and direct loss of western red bats or their habitat would not occur as a result of LEU project construction or O&M.

Implementation of BMPs

No applicable BMPs are proposed as a part of the project.

Significance before Mitigation

Removal of trees within the PG&E portion of the BSA may result in direct loss of roosting western red bat, if present. APMs do not require surveys or avoidance measures to identify and protect this species, nor do they describe measures to prevent western red bats from establishing nursery or hibernation sites in the BSA after surveys are conducted. Project construction and O&M activities (i.e., tree removal) may result in a substantial adverse effect on roosting western red bats, either directly (i.e., mortality of individuals) or through habitat modifications (i.e., loss of roost habitat) if they are present in the BSA. The impact on western red bat would be **significant**.

American Badger

PG&E Project Components

Grassland habitat and agricultural areas in the BSA may provide habitat suitable for American badger. Vegetation clearing, ground disturbance, staging, and heavy equipment use associated with construction and O&M may result in direct loss of American badgers or active badger dens if they are present in the BSA.

Implementation of APMs

APM BIO-3 requires sensitive biological resources in or near the BSA to be identified and clearly marked in the field and on project maps for avoidance, to the greatest extent feasible. APM BIO-1 would require a biologist to deliver an environmental awareness program for all on-site construction personnel before they begin work on the project. Training would include a discussion of the presence, life history, and habitat requirements of all special-status species that may be affected by the project, avoidance and minimization measures that are being implemented to protect biological resources, the terms and conditions of project permits, and the consequences of noncompliance with these acts. APM BIO-4 would, at the discretion of a PG&E biologist, require exclusion fencing to be installed around work areas near habitat suitable for special-status species prior to any ground-disturbing work. APM BIO-5 would, at the discretion of the PG&E biologist, require a qualified biologist (i.e., monitor) to be on-site during construction activities in sensitive biological resource areas unless the area has been protected by fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the PG&E biologist.

While APMs BIO-3 and BIO-4 would minimize impacts on American badger, these measures are only required to the greatest extent feasible or at the discretion of the biologist and would not ensure the detection and avoidance of badgers or dens during project implementation. Furthermore, APMs do not describe survey protocols or avoidance measures to identify and protect this species, if present.

LEU Project Components

LEU project components would occur in the grassland west of the existing Industrial Substation. This grassland area is unlikely to provide denning habitat for badger because it is surrounded by industrial development on all sides, including SR 99 to the west and the CCT railroad to the north and east, which are substantial barriers to movement that would likely deter badgers from moving into this area from surrounding areas.

Grassland habitat in the LEU BSA does not provide habitat suitable for American badgers. Therefore, loss of American badgers and their habitat is not expected to occur as a result of implementation of LEU project components.

Implementation of BMPs

No applicable BMPs are proposed as part of the project.

Significance before Mitigation

PG&E project construction and O&M activities could result in direct loss of American badgers. APMs do not require surveys or avoidance measures to identify and protect American badgers, if present, in the PG&E portion of the BSA. Therefore, impacts on American badger from construction and O&M of PG&E project components would be **significant**.

Mitigation Measures

Mitigation Measure BIO-2a [PG&E]: Conduct Survey for Estivating California Tiger Salamanders and Monitor Initial Ground Disturbance

The following mitigation measure shall supersede and replace APMs BIO-3 and BIO-4 for California tiger salamander:

- Within 48 hours prior to any ground-disturbing work, vegetation removal, or staging activities in grassland habitat east of the PG&E Lockeford Station (i.e., PG&E staging areas and work areas adjacent to the PG&E Lockeford Station and near E19, E20, E9, E7, and E6 shown in Appendix B to the Draft EIR), a qualified biologist approved by USFWS, CDFW, and CPUC shall survey the areas for California tiger salamander. The survey will include a search for rodent burrows and cracks and inspection of these features using appropriate methods (e.g., a borescope).

- If California tiger salamanders are detected during the survey, all project construction and staging activities shall cease within a buffer the size of which will be determined by the qualified biologist such that direct and indirect impacts on the salamander would not occur, the grassland habitat determined to be occupied is avoided, and the salamander can leave the project area into adjacent suitable habitat unimpeded by project construction and staging activities or equipment. In addition, USFWS, CDFW, and CPUC shall be notified. Project activities shall not resume in the buffer until CDFW and USFWS have provided input. PG&E shall initiate consultation with CDFW and USFWS, and if it is determined, in consultation with CDFW and USFWS, that take of California tiger salamanders could occur, then PG&E may be required to obtain incidental take authorization through Section 7 consultation or a Section 10 permit pursuant to ESA and through Section 2081 of California Fish and Game Code pursuant to CESA. Additional conservation measures to reduce the possibility of take may be required by CDFW or USFWS during the consultation process, and these measures shall be implemented by PG&E (e.g., biological monitoring, preconstruction surveys, procedures for incidental sightings of California tiger salamanders). CDFW and USFWS may also require compensatory mitigation through on-site habitat restoration or purchase of credits at an appropriate mitigation bank.
- If no California tiger salamanders are detected, the qualified biologist shall submit a report documenting the survey methods and results to PG&E and CPUC, and then the following measures shall be implemented.
    - After the areas described above are surveyed, and it is determined that California tiger salamanders are not present, further mitigation will not be required.
    - A qualified biologist shall be present during any initial ground-disturbing activities in work areas that contain grassland habitats as described above. If a California tiger salamander is observed or unearthed during initial ground-disturbance activities, all work shall stop immediately, and USFWS, CDFW, and CPUC shall be contacted. All project activities in the work area shall cease until USFWS and CDFW have provided further guidance. The qualified biologist shall have the authority to stop or redirect work if construction activities are likely to affect California tiger salamanders.
    - No exclusion fencing shall be installed in the areas described above to avoid entanglement, entrapment, and potential take of California tiger salamanders.

Mitigation Measure BIO-2b [PG&E and LEU]: Conduct Focused Surveys for Special-Status Birds, Nesting Raptors, and Other Native Nesting Birds and Implement Protective Buffers

The following mitigation measure shall supersede and replace APM BIO-2, APM BIO-3, BMP BIO-2, and BMP BIO-3 for special-status birds:

- To minimize the potential for loss of special-status bird species, raptors, and other native birds, project construction and O&M activities (e.g., tree removal, vegetation clearing, ground disturbance, staging) shall be conducted during the nonbreeding season (approximately September 1 through January 31, as determined by a qualified biologist), if feasible. If project activities are conducted during the nonbreeding season, no further mitigation shall be required.
- Within 14 days before the onset of all project construction or O&M activities during the breeding season (approximately February 1 through August 31, as determined by a qualified biologist), a qualified biologist approved by CPUC, familiar with birds of California and with experience conducting nesting bird surveys shall conduct focused surveys for special-status birds, other nesting raptors, and other native birds. Surveys shall be conducted in accessible areas (i.e., publicly accessible areas and areas where PG&E and LEU has existing access) within 0.25 miles of the BSA for Swainson's hawk and white-tailed kite, 500 feet of the BSA for other raptor species and special-status birds, and 100 feet of the BSA for nonraptor common native bird nests. Private property will be observed (e.g., using binoculars or spotting scopes) from adjacent accessible areas.
- Surveys for Swainson's hawk shall be conducted according to the guidelines outlined in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000).

- If no active nests are found, the qualified biologist shall submit a report documenting the survey methods and results to PG&E or LEU and CPUC, and no further mitigation shall be required.
- If active nests are found, impacts on nesting birds shall be avoided by establishing appropriate buffers around active nest sites identified during focused surveys to prevent disturbance to the nest. Project activity (e.g., ground disturbance, vegetation removal, staging, heavy equipment use, vehicle use, helicopter overflight) shall not commence within the buffer areas until a qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer would not likely result in nest abandonment. Buffers typically shall be 0.25 miles for Swainson's hawk and white-tailed kite; 500 feet for tricolored blackbird, great blue heron, northern harrier, and California horned lark (consistent with the SJMSCP); 500 feet for other raptors; and 300 feet for bank swallow (consistent with the SJMSCP). Buffer size for other nonraptor bird species shall be determined by a qualified biologist. Factors to be considered for determining buffer size shall include presence of natural buffers provided by vegetation or topography, nest height above the ground, baseline levels of noise and human activity, species sensitivity, and proposed project activities. Generally, buffer size for these species shall be at least 100 feet for special-status bird species and at least 20 feet for common bird species. The size of the buffer may be adjusted if a qualified biologist determines that such an adjustment shall not be likely to adversely affect the nest. Any buffer reduction for a special-status bird species shall require coordination with CDFW. Periodic monitoring of the nest by a qualified biologist during project activities shall be required if the activity has potential to adversely affect the nest, the buffer has been reduced, or if birds within active nests are showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during project activities, as determined by the qualified biologist.
- PG&E and LEU shall develop a nesting bird management plan. The nesting bird management plan shall be submitted to USFWS and CDFW for review and comment. PG&E and LEU shall submit the final plan to CPUC no less than 60 days prior to construction. CPUC approval is required before the plan is implemented. The nesting bird management plan shall include measures and an adaptive management program to avoid and minimize impacts on special-status and bird species protected by the MBTA or California Fish and Game Code during project construction. Specifically, the nesting bird management plans shall refer to the requirements listed above and shall contain the following information:
  - Appropriate survey timing, extents, methods, and surveyor qualifications; approved nest deterrent methods, including areas where vegetation will be cleared for the purpose of deterring nesting; monitoring and reporting protocols during construction; protocols for determining whether a nest is active; and protocols for documenting, reporting, and protecting active nests within construction areas. If preconstruction survey protocols exist for a certain species, the plan shall outline the implementation of these protocols.
  - Guidelines for determining appropriate and effective buffer distances that shall account for specific project settings, bird species, stage of nesting cycle, and construction work type. Language for the buffer reduction process shall be included in the plan and shall include substantial evidence for reducing the buffer including but not limited to relevant scientific literature, studies, and life history accounts. Buffer reduction shall include coordination with the appropriate wildlife agencies and CPUC if reducing the buffer of a raptor or special-status species.

Mitigation Measure BIO-2c [PG&E and LEU]: Conduct Protocol-Level Surveys for Burrowing Owl and Implement Avoidance Measures

The following mitigation measure shall supersede and replace APM BIO-2, APM BIO-3, BMP BIO-2, and BMP BIO-3 for burrowing owl:

- A qualified biologist approved by CPUC shall conduct surveys for burrowing owls in areas of habitat suitable for the species on and within 1,640 feet of the BSA. Inaccessible areas (e.g., adjacent private property) will not be surveyed directly, but the biologist may use binoculars or a spotting scope to survey these areas. A minimum of four surveys shall be conducted to determine whether burrowing owls occupy the site. Surveys shall be conducted according to Appendix D of the 2012 *Staff Report on Burrowing Owl Mitigation* prepared by the California Department of Fish and Game (now CDFW) (CDFG 2012) or any subsequent updated guidance. If

feasible, at least one survey should be conducted between February 15 and April 15, and the remaining surveys should be conducted between April 15 and July 15, at least three weeks apart. Because burrowing owls may recolonize a site after only a few days, one of the surveys, or an additional survey, shall be conducted no less than 14 days before initiating ground disturbance activities to verify that take of burrowing owl would not occur.

- If no occupied burrows are found, the qualified biologist shall submit a report documenting the survey methods and results to PG&E or LEU and CPUC, and no further mitigation shall be required.
- If an active burrow is found within 1,640 feet of pending construction activities, PG&E or LEU shall establish and maintain a buffer around the occupied burrow and any identified satellite burrows (i.e., nonnesting burrows that burrowing owls use to escape predators or move young into after hatching) to prevent take of the burrowing owls.
  - During the nonbreeding season (September 1 through January 31), the minimum buffer distance shall be 164 feet (50 meters). During the breeding season (February 1 through August 31), the minimum buffer distance shall be increased to 1,640 feet (500 meters).
  - The buffer may be adjusted if, in consultation with CDFW, the qualified biologist determines that an alternative buffer shall not result in take of burrowing owl adults, young, or eggs because of particular site features (e.g., topography, natural line-of-sight barriers), level of project disturbance, or other considerations. If the buffer is reduced, the qualified biologist shall monitor the behavior of the burrowing owls during all project activities within 1,640 feet of the burrow. If the owls are disturbed or agitated (e.g., vocalizations, bill snaps, fluffing feathers to increase body size appearance, drooping wings and rotating them forward, crouching and weaving back and forth) by the project activities, the biologist shall have the authority to halt the activities and reestablish a buffer consistent with the first item above until the agitated behavior ceases and normal behavior resumes.
  - The buffer shall remain in place around the occupied burrow and associated satellite burrows until the qualified biologist has determined through noninvasive methods that the burrows are no longer occupied by burrowing owl. A previously occupied burrow will be considered unoccupied if surveys demonstrate that no owls have used the burrow for seven consecutive days.
  - Locations of burrowing owls detected during surveys shall be reported to the CNDDB.

Mitigation Measure BIO-2d [PG&E and LEU]: Implement Limited Operating Period, Conduct Focused Surveys, and Implement Avoidance Measures for Crotch's Bumble Bee

The following mitigation measure shall supersede and replace APM BIO-3, APM BIO-4, BMP BIO-3, and BMP BIO-4 for Crotch's bumble bee:

- Initial ground-disturbing work (e.g., grading, vegetation removal, staging) in grassland habitat or edges of agricultural areas that contain grasses or forbs shall take place between August 15 and March 15, if feasible, to avoid impacts on nesting Crotch's bumble bees.
- If the above limited operating period is not feasible, a qualified biologist approved by CPUC, familiar with bumble bees of California, and experienced using survey methods for bumble bees, shall conduct a habitat assessment and focused survey for Crotch's bumble bee before the start of any ground-disturbing activities in grassland habitat or edges of agricultural areas that contain grasses or forbs. Surveys shall be performed when Crotch's bumble bee is most likely to be identified, typically from April through August (i.e., the colony active period) when floral resources and ideal weather conditions are present and shall follow the methods in *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023). Surveys shall be conducted during the colony active period closest to the start of planned construction activities.
- PG&E or LEU shall submit a survey report to CDFW and CPUC within 1 month of survey completion and shall notify CDFW and CPUC within 24 hours if Crotch's bumble bees are detected.
- If Crotch's bumble bees are detected during the focused survey, appropriate avoidance measures shall be implemented. Avoidance measures shall include, but not be limited to, the following:

- Protective buffers shall be implemented around active nesting colonies until these sites are no longer active. A qualified biologist, in coordination with CDFW, shall determine the appropriate buffer size to protect nesting colonies.
- If nesting colonies are detected, avoidance areas shall be implemented in areas near the colony location that contain significant floral resources for the colony, if present. A qualified biologist shall determine the appropriate avoidance area size to protect foraging resources.
- If project activities involving temporary disturbance (e.g., staging) would occur where a nesting colony was detected after the nesting colony is no longer active, the area shall be restored to original conditions after the temporary disturbance is complete such that habitat for Crotch's bumble bee would be available.

- If take of Crotch's bumble bee cannot be avoided, PG&E or LEU shall obtain an incidental take permit (ITP) from CDFW and shall implement all avoidance measures included in the ITP. CDFW may also require compensatory mitigation through on-site habitat restoration or purchase of credits at an appropriate mitigation bank. Avoidance measures included in the ITP would reduce the likelihood of take of Crotch's bumble bees such that impacts on the species would be fully mitigated. These measures would include but not be limited to:
  - specifications for construction timing and sequencing requirements to avoid impacts on nesting Crotch's bumble bees;
  - preconstruction surveys conducted within 30 days prior to the start of ground-disturbing activities;
  - establishment of seasonal no-disturbance buffers around nest sites;
  - construction monitoring;
  - restrictions associated with construction practices, equipment, or materials that may harm bumble bees (e.g., BMPs to minimize the spread of invasive plant species); and
  - provisions to avoid Crotch's bumble bees or potential Crotch's bumble bees if observed away from a nest during project activity (e.g., ceasing of project activities until the animal has left the work area).
- Documentation of compliance with this mitigation measure and any required coordination with CDFW or acquisition of an ITP shall be provided to CPUC before commencement of any project construction activities.

Mitigation Measure BIO-2e [PG&E]: Implement Avoidance Measures for Valley Elderberry Longhorn Beetles or Compensate for Unavoidable Impacts Associated with Construction Activities

The following mitigation measure shall supersede and replace APM BIO-3 for valley elderberry longhorn beetle:

- Impacts on valley elderberry longhorn beetle shall be avoided and minimized by following the conservation measures outlined in the USFWS's 2017 *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle* (Framework) for cases where the elderberry shrubs identified in the BSA can be retained and protected within 165 feet of the project footprint.
- If elderberry shrubs are 165 feet or more from project construction activities, direct or indirect impacts are not expected. Shrubs shall be protected during construction by establishing and maintaining a high-visibility fence at least 165 feet from the drip line of each elderberry shrub.
- If PG&E determines that elderberry shrubs within the project footprint can be retained, project activities may occur up to 20 feet from the drip line of elderberry shrubs if precautions are implemented to minimize the potential for indirect impacts. Specifically, these shall include the following minimization measures:
  - All areas to be avoided during construction activities shall be fenced or flagged as close to construction limits as possible.
  - A minimum avoidance area of at least 20 feet from the dripline of each elderberry plant shall be maintained to avoid direct impacts that could damage or kill the plant.

- A qualified biologist shall provide training for all contractors, work crews, and any on-site personnel on the status of valley elderberry longhorn beetle, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for noncompliance.
- A qualified biologist shall monitor the work area at project-appropriate intervals to assure that all avoidance and minimization measures are implemented. The amount and duration of monitoring shall depend on the project specifics and will be discussed with a USFWS biologist.
- As much as feasible, all activities that could occur within 165 feet of an elderberry shrub shall be conducted outside of the flight season of the valley elderberry longhorn beetle (March through July).
- Trimming of elderberry shrubs, if required, shall occur between November and February and shall avoid removal of any branches or stems that are greater than or equal to 1 inch in diameter to avoid and minimize adverse effects to valley elderberry longhorn beetle.
- Project construction activities, such as truck traffic or other use of machinery, shall not create excessive dust on the project site, such that the growth or vigor of elderberry shrubs is adversely affected. Enforcement of a speed limit and watering dirt roadways are potential methods to minimize excessive dust creation.
- Herbicides shall not be used within the drip line of any elderberry shrub. Insecticides shall not be used within 98 feet of any elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method. Mechanical weed removal within the drip line of any elderberry shrub shall be limited to the season when adults are not active (August through February) and will avoid damaging the elderberry.
- Erosion control (e.g., straw wattle) shall be implemented, and the affected area shall be revegetated with appropriate native plants.

- If elderberry shrubs cannot be avoided, compliance with ESA and consultation with USFWS is required and may involve acquiring an incidental take permit through Section 10 or a take exemption through Section 7 (if the project were to establish a federal nexus). All elderberry shrubs with stems greater than 1 inch in diameter that cannot be avoided or have been adversely affected by indirect damage to stems of the entire shrub shall be transplanted.
  - No elderberry shrub shall be removed or transplanted until authorization has been issued by USFWS and CPUC, and PG&E has abided by all pertinent conditions of the incidental take permit or biological opinion.
  - Relocation of existing elderberry shrubs and planting of new elderberry seedlings and associated native riparian plant species shall be implemented according to the Framework (USFWS 2017b). Native associates shall include a mix of woody trees, shrubs, and other natives appropriate for the site, and would help establish historic native riparian conditions when planted with the elderberry shrubs and seedlings, once established. The Framework uses presence or absence of exit holes and whether the affected elderberry shrubs are located in riparian habitat to determine the number of elderberry seedlings or cuttings and associated riparian vegetation that would need to be planted as compensatory mitigation for affected valley elderberry longhorn beetle habitat. Compensatory mitigation may include purchasing credits at a USFWS-approved conservation bank, providing on-site mitigation, or establishing and protecting habitat for valley elderberry longhorn beetle.

Mitigation Measure BIO-2f [PG&E]: Conduct Focused Bat Surveys and Implement Avoidance Measures

The following mitigation measure shall supersede and replace APM BIO-3 for western red bat:

- Within 14 days before any tree removal, a qualified biologist familiar with bats and bat ecology, and experienced in conducting bat surveys, and approved by CPUC, shall conduct surveys for bat roosts in suitable habitat (e.g., large trees, crevices, cavities, exfoliating bark, foliage) on and directly adjacent to the BSA.
- If no evidence of bat roosts is found, the qualified biologist shall submit a report summarizing the results of the survey to PG&E and CPUC and no further study shall be required. If nursery or hibernation habitat is found, these areas shall be removed or sealed prior to nursery season (May through August) and hibernation season (November through March) to prevent future occupation.

- If evidence of bat maternity roosts or hibernacula is observed, the species and number of bats using the roost shall be determined by a qualified biologist using noninvasive methods. Bat detectors (i.e., acoustic monitoring) or evening emergence surveys shall be used if deemed necessary to supplement survey efforts by the qualified biologist.
- A no-disturbance buffer of 250 feet shall be established around active western red bat maternity roosts or hibernacula, as well as substantial maternity roosts or hibernacula of other bat species considered to be a wildlife nursery by the qualified biologist, and project activities shall not occur within this buffer until after the roosts are unoccupied as determined by a qualified biologist.
- If western red bat roosts are determined to be present and must be removed, the bats shall be excluded from the roosting site before the tree is removed. A program addressing compensation, exclusion methods, and roost removal procedures shall be developed in coordination with CDFW and approved by CPUC before implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave but not reenter) or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts shall be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). The loss of each roost (if any) resulting from the project shall be replaced in coordination with CDFW and may require construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site. If determined necessary during coordination with CDFW, replacement roosts shall be implemented before bats are excluded from the original roost sites. After the replacement roosts are constructed and it is confirmed that bats are not present in the original roost site by a qualified biologist, the roost tree may be removed. PG&E shall monitor any replacement roosts to determine whether the roosts are being used by western red bats. If the replacement roosts are not being used by the species within 1 year of construction, PG&E shall consult with CDFW to determine if additional replacement roosts are required, whether different types of artificial roosts should be constructed, or whether additional mitigation is required (e.g., planting replacement trees). A two-step tree removal process supervised by a qualified biologist shall be implemented, including removal of all branches that do not provide roosting habitat on the first day and removal of the remaining portion of the tree on the following day.

Mitigation Measure BIO-2g [PG&E]: Conduct Focused American Badger Surveys and Establish Protective Buffers

The following mitigation measure shall supersede and replace APM BIO-3 for American badger:

- Within 14 days before commencement of project activities, a qualified wildlife biologist approved by CPUC familiar with American badger and experienced using survey methods for the species shall conduct focused surveys of habitat suitable for the species in the BSA to identify any American badger dens.
- If occupied dens are not found, the qualified biologist shall submit a report summarizing the results of the survey to PG&E and CPUC, and further mitigation shall not be required.
- If occupied dens are found, then dens shall be monitored to determine if occupation is by an adult badger only or if it is a natal den. Impacts on active badger dens shall be avoided by establishing exclusion zones around all active badger dens. If the qualified biologist determined that the den is a natal den, an exclusion zone of 200 feet shall be maintained around the den until the qualified biologist determines that den has been vacated. If the den is occupied by an adult badger only, the size of the buffer shall be determined by a qualified biologist. No project activities (e.g., vegetation removal, ground disturbance, staging) shall occur within the exclusion zone until denning activities are complete or the den is abandoned, as confirmed by a qualified biologist. The qualified biologist shall monitor each den once per week to track the status of the den and to determine when it is no longer occupied. When it is no longer occupied, project activities within the exclusion zone may occur. Monitoring reports shall be submitted to CDFW and CPUC.

Significance after Mitigation

Implementation of Mitigation Measure BIO-2a would reduce potential impacts on California tiger salamanders to a less-than-significant level by requiring clearance surveys of grassland areas in the PG&E portion of the BSA prior to implementation of project activities and biological monitoring during initial ground-disturbance activities in these areas. If a California tiger salamander is found during clearance surveys, PG&E would be required to consult with

CDFW and USFWS and potentially obtain an ITP, which would require that impacts on the species be fully mitigated through implementation of conservation measures that would reduce the likelihood of take of individuals and potential compensatory mitigation. Therefore, project activities would not substantially reduce the number or restrict the range of California tiger salamander, and there would be no substantial adverse effect on this species.

Implementation of Mitigation Measure BIO-2b would reduce potential impacts on special-status birds, raptors, and other native nesting birds to a less-than-significant level by requiring implementation of focused surveys and protective buffers for active nests to avoid disturbance, injury, or mortality of special-status and common native birds if nests are detected.

Implementation of Mitigation Measure BIO-2c would reduce potential impacts on burrowing owl to a less-than-significant level by requiring protocol-level surveys for the species and implementation of measures to avoid injury or mortality of burrowing owls and destruction of active burrows if detected.

Implementation of Mitigation Measure BIO-2d would reduce potential impacts on Crotch's bumble bee to a less-than-significant level by conducting initial ground-disturbance work from August 15 to March 15, if feasible; focused surveys for bumble bees; and implementation of measures to avoid mortality of the Crotch's bumble bees if nests or overwintering queens are detected. If Crotch's bumble bees are found during focused surveys, PG&E and LEU would be required to consult with CDFW and potentially obtain an ITP, which would require that impacts on the species be fully mitigated through implementation of conservation measures that would reduce the likelihood of take of individuals and potential compensatory mitigation. Therefore, project activities would not substantially reduce the number or restrict the range of Crotch's bumble bee, and there would be no substantial adverse effect on this species.

Implementation of Mitigation Measure BIO-2e would reduce potential impacts on valley elderberry longhorn beetle to a less-than-significant level by requiring surveys for elderberry shrubs, avoidance of the shrubs, or compensation for unavoidable impacts on the species for PG&E construction activities.

Implementation of Mitigation Measure BIO-2f would reduce potential impacts on western red bat to a less-than-significant level by requiring focused surveys for bat roosts, preventing future occupation in the BSA, implementation of no-disturbance buffers around active special-status bat maternity roosts or hibernacula, and implementation of an exclusion plan approved by CDFW, if necessary. Exclusion would be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young) that would potentially include construction of replacement roosts and performance measures for the success of replacement roosts. Therefore, project activities would not substantially reduce the number or restrict the range of western red bat, and there would be no substantial adverse effect on this species.

Implementation of Mitigation Measure BIO-2g would reduce the potential impact on American badger to a less-than-significant level by requiring focused surveys for the species and implementation of measures to avoid injury or mortality of American badger and destruction of active dens if they are detected.

Implementation of Mitigation Measures BIO-2a through BIO-2g would reduce impacts on these special-status species by requiring focused or protocol-level surveys prior to project implementation, species-specific avoidance measures and buffers if found in or near the BSA, and mitigation for unavoidable impacts. With implementation of mitigation, adverse residual effects would not be substantial, and this impact would be **less than significant**.

Impact BIO-3: Have A Substantial Adverse Effect on State or Federally Protected Wetlands

As described above in Section 3.6.1, "Environmental Setting," 20 aquatic features are present in the BSA that may meet the state and federal definitions of wetlands. These include eight seasonal wetlands, Bear Creek, Paddy Creek, two irrigation channels, a realigned tributary to Paddy Creek, seven drainage ditches, and one irrigation ditch. Paddy Creek and Bear Creek are the only two features present within the BSA; all other features are outside of proposed project areas. Wetland delineation surveys of the BSA were conducted on April 27, April 28, and May 11, 2021 (Jacobs Engineering Group 2022b). The results and conclusions of the wetland delineation are considered preliminary and are pending verification by the Sacramento USACE Regulatory Branch. For the purposes of this analysis, identified resources are considered potentially jurisdictional.

PG&E Project Components

Bear Creek and Paddy Creek are present within proposed transmission line corridors: the PG&E Brighton-Bellota 230 kV Transmission Line extension would cross over Paddy Creek, and PG&E Lockeford-Thurman Lines would cross over Bear Creek. However, no construction of structures is proposed within or adjacent to either creek, and no direct disturbance to these creeks would occur. The closest ground disturbance to these creeks includes TSP placement for the proposed lines and associated work areas, which would be placed approximately 150 feet west of Paddy Creek and 130 feet west of Bear Creek and entirely within agricultural land. Therefore, no adverse effects on these features would occur through direct removal, filling, hydrological interruption, or other direct means due to project construction or O&M.

The other 18 aquatic features are not within the project footprint but are within the BSA (i.e., 250-foot buffer of work areas, access routes, and staging areas). During construction and O&M, construction-related erosion and sediments could enter nearby aquatic features in close proximity to work areas or staging areas. Furthermore, any road widening or vegetation removal along access roads could result in adverse effects on wetlands outside of, but in close proximity to, the road.

The irrigation ditch south of Kettleman Road that runs parallel to the access route and partially intersects the BSA is constructed in uplands and drains only uplands when it is intermittently used to irrigate corn. It is seasonally graded and filled, along with the adjacent corn fields, when not in use. This feature is presumed to be nonjurisdictional under the CWA and California Fish and Game Code; however, if it is present during project activities, it would be avoided, as described in Section 2.6.2, "System Design." Placement of the structure adjacent to this ditch would be coordinated with the landowner during final design and construction planning to ensure impacts on this ditch are avoided. No bridge or culvert replacements are proposed.

Implementation of APMs

APM BIO-3 would require aquatic resources in or adjacent to PG&E project construction and O&M areas to be clearly marked in the field and on project maps and avoided to the greatest extent feasible. APM BIO-7 and APM HYD-1 require avoidance of wetlands and other waters during construction activities; restrict the refueling of vehicles within approximately 100 feet of a wetland, stream, or other waterway; and require implementation of a SWPPP to minimize construction-related erosion and sediments from entering nearby waterways. To prevent accidental encroachment into nearby wetlands, APM BIO-4 would require the installation of exclusion fencing around PG&E workspaces that are in close proximity to wetlands prior to any ground-disturbing work, at the discretion of the PG&E biologist. APM BIO-1 requires a biologist to deliver an environmental awareness program for all on-site construction personnel before they begin work on the project. Training would include a discussion of the biological resources that may be affected by the project, avoidance and minimization measures that are being implemented to protect biological resources, the terms and conditions of project permits, and the consequences of noncompliance with these acts.

Although APMs BIO-3 and BIO-4 would require the identification, avoidance, and installation of exclusion fencing around wetlands, these measures are required only to the greatest extent feasible or at the discretion of the PG&E biologist. Wetlands in close proximity to the PG&E portion of the BSA may be inadvertently adversely affected if not properly marked. Pursuant to APM HYD-1, a SWPPP would be implemented to minimize construction-related erosion and sediments from entering nearby waterways.

LEU Project Components

All LEU project features would occur in dry grassland or areas mapped as "urban" land cover. No state or federally protected wetlands are present within or adjacent to the LEU portion of the BSA. Therefore, these resources would not be adversely affected by LEU project construction or O&M.

Implementation of BMPs

No applicable BMPs are proposed as part of the project.

Significance before Mitigation

There are no state or federally protected wetlands present in the BSA and no wetlands adjacent to LEU project components. However, wetlands are present outside of the BSA but in close proximity to PG&E project components. Because APM BIO-3 and APM BIO-4 do not ensure the identification and avoidance of wetlands, wetlands in close

proximity to the PG&E portion of the BSA may be inadvertently affected during construction and O&M if not properly marked. Impacts on state and federally protected wetlands would be **significant**.

Mitigation Measure BIO-3 [PG&E]: Implement Avoidance Measures for State and Federally Protected Wetlands a

The following mitigation measure shall supersede and replace APM BIO-3 and APM BIO-4 for state and federally protected wetlands:

- For any state or federally protected wetlands within a 25-foot buffer of PG&E project construction and O&M activities, a qualified biologist would establish a buffer around the wetlands and mark the buffer boundary with high-visibility flagging, fencing, stakes, or clear, existing landscape demarcations (e.g., edge of a roadway). The buffer would be a minimum width of 25 feet but may be larger if deemed necessary by the qualified biologist. The appropriate size and shape of the buffer would be determined by the qualified biologist and would depend on the type of wetland present (e.g., stream, fresh emergent wetland), the timing of project construction or O&M activities (e.g., wet or dry time of year), environmental conditions and terrain, and the project activity being implemented.

  All PG&E project construction and O&M activities (e.g., road widening, ground disturbance, vegetation removal) would be prohibited within the established buffer. A qualified biologist would periodically inspect the materials demarcating the buffer to confirm that they are intact and visible and that wetland impacts are being avoided.

Significance after Mitigation

Implementation of Mitigation Measure BIO-3 would reduce impacts on state and federally protected wetlands by requiring wetlands to be identified, clearly marked, and avoided during project implementation. With implementation of this mitigation, adverse effects to wetlands would not be substantial. This impact would be **less than significant**.

Impact BIO-4: Interfere with Wildlife Movement Corridors or Impede the Use of Wildlife Nurseries

PG&E and LEU Project Components

As described in Section 3.6.1, "Environmental Setting," the BSA does not contain any portion of a modeled ECA or natural landscape block. The BSA contains little natural habitat and is surrounded by agriculture and urban development that limits wildlife movement within the region surrounding the BSA. Furthermore, the BSA is located adjacent to SR 99 to the west, which is a significant barrier to wildlife movement. The BSA does not currently function as a critical habitat linkage or as a significant movement corridor for wildlife species. Any wildlife moving through the vicinity of the BSA would likely use the existing riparian corridors, such as Bear Creek or Paddy Creek; however, as described in Impact BIO-4, these corridors would not be affected by project implementation.

Trees located in and adjacent to the PG&E portion of the BSA may provide roosting habitat potentially suitable for common and special-status bat species. Tree removal during PG&E project construction and O&M activities may result in direct loss of roosting bats if they are present. Bat roost habitat is not present in the LEU portion of the BSA.

Implementation of APMs and BMPs

APM BIO-3 requires sensitive biological resources in or near the BSA to be identified and clearly marked in the field and on project maps for avoidance, to the greatest extent feasible. APM BIO-1 requires a biologist to deliver an environmental awareness program for all on-site construction personnel before they begin work on the project. Training would include a discussion of the biological resources that may be affected by the project, avoidance and minimization measures that are being implemented to protect biological resources, the terms and conditions of project permits, and the consequences of noncompliance with these acts.

The BSA does not currently function as a critical habitat linkage or as a significant movement corridor for wildlife species. Although APM BIO-3 would require the identification and avoidance of sensitive biological resources, including roosting bats, these measures are required only to the greatest extent feasible and would not ensure the detection and avoidance of roosting bats during project implementation. Furthermore, APMs do not require surveys or avoidance measures to identify and protect roosting bats, if present. The APMs also do not describe measures to prevent bats from establishing nursery or hibernation sites in the BSA during construction or in trees that would require future maintenance.

Significance before Mitigation

The BSA does not currently function as a critical habitat linkage or as a significant movement corridor for wildlife species. Any wildlife moving through the vicinity of the BSA would likely use Bear Creek or Paddy Creek, which would not be affected by project implementation. Removal of trees within the PG&E BSA may result in direct loss of roosting bats, if present. APMs do not require surveys or avoidance measures to identify and protect bats, nor do they describe measures to prevent bats from establishing nursery or hibernation sites in the BSA after surveys are conducted. PG&E project activities (i.e., tree removal) may result in direct loss of roosting bats if they are present in the BSA. Impacts on roosting bats would be **significant**.

Mitigation Measures

Mitigation Measure BIO-2f [PG&E]: Conduct Focused Bat Surveys and Implement Avoidance Measures

Significance after Mitigation

Implementation of Mitigation Measure BIO-2f would reduce the potential impact on bat roosts associated with PG&E project construction and O&M by requiring focused surveys for bat roosts, preventing future occupation in the BSA; implementation of no-disturbance buffers around active bat maternity roosts or hibernacula; or implementation of an exclusion plan in coordination with CDFW and CPUC that would potentially include construction of replacement roosts. The BSA does not currently function as a critical habitat linkage or as a significant movement corridor for wildlife species. Any wildlife moving through the vicinity of the BSA would likely use Bear Creek or Paddy Creek, which would not be affected by project implementation. Therefore, impacts related to wildlife movement corridors or wildlife nurseries would be **less than significant**.

Impact BIO-5: Conflict with Local Policies and Ordinances

The San Joaquin County General Plan includes policies intended to protect wetlands, riparian areas, vernal pools, significant oak woodlands and heritage trees, and rare, threatened, and endangered species and their habitats. The City of Lodi General Plan Conservation Element includes policies related to compliance with the SJMSCP, preventing the spread of invasive/noxious plant species, sensitive plants and wildlife habitat, and minimizing impacts on and mitigating loss of Swainson's hawk, vernal pool tadpole shrimp, and any threatened, endangered or other sensitive species. These policies are consistent with state and federal regulations that protect these resources. Impacts on rare, threatened, and endangered species (Impacts BIO-1 and BIO-2), riparian habitat (Impact BIO-3), state and federally protected wetlands (Impact BIO-4), and consistency with the SJMSCP (Impact BIO-6) are described above and below. The following analysis includes local policies that are not already addressed in another impact discussion.

PG&E Project Components

Although PG&E is not subject to local (city and county) discretionary regulations, any actions that conflict with the local policies and ordinances described above in Section 3.6.2, "Regulatory Setting," could affect biological resources in the BSA.

The San Joaquin County Ordinance Code includes natural resources regulations that apply to native oak trees, heritage oak trees, and historical trees. Oak trees are present in the PG&E portion of the BSA, and two oak trees would be trimmed along the access route near North Locust Tree Road. Two additional oak trees are expected to be trimmed in the new 230 kV ROW; however, these trees may be removed as necessary to protect electrical lines. Section 9-1505.8 (General Exemptions) of the San Joaquin County Ordinance Code allows oak tree removal by a public utility that is necessary to protect electric power or communication lines or other property owned by the public utility. However, construction activities associated with the project may not qualify for this exemption because oak trees would be removed for the construction of new power lines, not for the protection of existing power lines. This would result in a conflict with the San Joaquin County Ordinance Code. No native oak trees, heritage oak trees, or historical trees are expected to be removed during O&M; however, if trees are required to be removed during O&M activities, these activities would be necessary to protect electric power or communication line, or other property owned by the public utility and would not conflict with the San Joaquin County Ordinance Code.

Part of the PG&E portion of the BSA is within Lodi; therefore, the City of Lodi's General Plan Conservation Element would apply. The City of Lodi General Plan Conservation Element includes policies related to protection of native tree species and minimizing impacts on and mitigating loss of mature trees. Four mature eucalyptus trees are proposed for removal near East Sargent Road for access and utility line ROW. However, eucalyptus is not a native tree species, and other trees adjacent to these four trees would be retained.

Implementation of APMs

APM BIO-8 would limit tree removal only to what is necessary to establish access routes and allow equipment use in construction work areas. However, the removal of any oak trees for the purpose of development would result in conflict with the San Joaquin County Ordinance Code.

LEU Project Components

No tree removal is proposed in the LEU portion of the BSA during construction. No native oak trees, heritage oak trees, or historical trees are expected to be removed during O&M. LEU project construction and O&M activities would not conflict with local policies or ordinances; therefore, implementation of BMPs is not needed to be consistent with local policies or ordinances.

Implementation of BMPs

No applicable BMPs are proposed as part of the project.

Significance before Mitigation

APM BIO-8 limits the removal of trees to what is necessary for PG&E project implementation, however the removal of any trees for the purpose of development would be in conflict with County Code. This would be a **significant** impact.

Mitigation Measures

Mitigation Measure BIO-5 [PG&E]: Compensate for Removal of Protected Oak Trees Consistent with the San Joaquin County Ordinance Code

- PG&E shall initiate a zoning compliance review with San Joaquin County for the planned removal of oak trees. This review will determine whether the oak trees planned for removal are considered heritage oak trees or historical trees, whether the project is exempt from the requirements of the ordinance, whether tree removal will be permitted by the county, and the number of replacement trees required.
- Tree replacement, if required, shall be in accordance with Section 9-400.080 (Trees on Private Property), which includes the following provisions:
  - Replacement Stock. Replacement stock shall be of healthy commercial nursery stock of the species removed or other species approved by the Zoning Administrator.
  - Replacement Location. Replacement trees shall be planted as near as possible to the location of the removed tree or in an alternative location acceptable to the Zoning Administrator.
  - Timing. Replacement stock shall be planted between October 1 and December 31, and no later than 18 months after the date of tree removal.
  - Number.
    - Each Heritage Oak Tree or Historical Tree that has been removed shall be replaced with five trees or acorns, or combination thereof.
    - Each Native Oak Tree that has been removed shall be replaced with three trees or acorns, or combination thereof.
    - The applicant shall be required to demonstrate to the satisfaction of the Zoning Administrator that replacement stock will be planted and maintained in such a manner as to ensure the survival of said stock at the end of a three-year period commencing from the date of planting.

Significance after Mitigation

Implementation of Mitigation Measure BIO-6 would require compliance with local ordinances by requiring a zoning compliance review for the removal of oak trees for construction of new power lines and associated replacement requirements consistent with the San Joaquin County Ordinance Code. With implementation of mitigation, this impact would be **less than significant**.

Impact BIO-6: Conflict with the San Joaquin Multi-Species HCP or the PG&E San Joaquin Valley HCP

The BSA is within the plan area of two HCPs: the SJMSCP and the PG&E SJVHCP for O&M activities. Utility installations are considered activities that are eligible for coverage under the SJMSCP. Only O&M activities are considered eligible for coverage under the PG&E SJVHCP (i.e., construction activities are not covered activities), and LEU project activities would not be eligible for coverage under the SJVHCP.

The SJMSCP is a voluntary plan for both local jurisdictions (i.e., the cities, San Joaquin County) and for project proponents. As potential permittees, PG&E and LEU can determine whether or not to become plan participants. Project proponents who opt against SJMSCP coverage in jurisdictions that have opted for SJMSCP coverage (i.e., San Joaquin County) must satisfy applicable ESA and CESA regulations outside of the framework of the SJMSCP.

PG&E Project Components

PG&E is not a participant in the SJMSCP. As discussed under Impact BIO-2, project construction and O&M activities have potential to cause direct and indirect effects on several special-status species, including the following species that are covered under the SJMSCP: Parry's rough tarplant, California tiger salamander, valley elderberry longhorn beetle, giant gartersnake, American badger, western red bat, Swainson's hawk, burrowing owl, Cooper's hawk, greater sandhill crane, great blue heron, northern harrier, California horned lark, white-tailed kite, snowy egret, tricolored blackbird, and bank swallow. As described above in Section 3.6.2 "Regulatory Setting," the SJMSCP includes incidental take avoidance measures for several species, including California tiger salamander, valley elderberry longhorn beetle, giant gartersnake, western pond turtle, Swainson's hawk, bank swallow, burrowing owl, several other nesting birds, American badger, and bats. While PG&E is not required to participate in the SJMSCP, impacts on SJMSCP covered species that are also regulated under the ESA, the CESA, or CEQA are analyzed below for purposes of CEQA. Adverse effects on these species could lead to conflict with the SJMSCP.

Eight species covered under the SJVHCP may occur in the BSA: California tiger salamander, giant gartersnake, tricolored blackbird, burrowing owl, Swainson's hawk, white-tailed kite, bank swallow, and valley elderberry longhorn beetle. PG&E is required to participate in the SJVHCP for O&M activities, would also be required to implement applicable AMMs, and is covered by associated take permitting for species covered under the plan. Therefore, there would be no conflict with the SJVHCP.

Implementation of APMs

Several APMs would reduce impacts on special-status plant and wildlife species, including those covered under the SJMSCP. APM BIO-1 would require implementation of a worker environmental awareness program through which PG&E employees and contractors would become familiar with special-status species that may occur in the BSA, the regulatory status of the species, and procedures should a special-status species be detected in the BSA. APM BIO-2 would require preconstruction surveys for activities conducted during the avian nesting season and establishment of an appropriate exclusion zone around active nests within which no heavy equipment would be operated until a biologist has determined that the nest is no longer active and the young have fledged. APM BIO-3 requires sensitive biological resources in or near the BSA to be identified and clearly marked in the field and on project maps for avoidance, to the greatest extent feasible.

Pursuant to APM BIO-4 and at the discretion of the PG&E biologist, exclusion fencing would be installed around PG&E workspaces prior to any ground-disturbing work in proximity to suitable habitat for special-status species. APM BIO-5 would, at the discretion of the PG&E biologist, require a qualified biologist (i.e., monitor) to be on-site during construction activities in sensitive biological resource areas unless the area has been protected by fencing to protect sensitive biological resources and previously cleared by the qualified biologist and the PG&E biologist. APM BIO-6 would require that all open holes, pits, and trenches at PG&E work areas be protected and inspected to ensure that

wildlife does not become entrapped during wet weather or the rainy season. APM BIO-9 and APM BIO-10 would minimize electrocution risk associated with new transmission lines. These measures require conductors and ground wires to be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire simultaneously, causing electrocution (APLIC 2006).

Although APMs BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-9, and BIO-10 would reduce impacts on SJMSCP-covered species, APMs BIO-3, BIO-4, and BIO-5 are only required to the extent feasible or at the discretion of a biologist. Furthermore, the APMs do not sufficiently describe specific survey protocols, exclusion buffers, or other avoidance measures required to adequately protect these species nor are they as protective or more protective than the incidental take avoidance minimization measures outlined in the SJMSCP. Therefore, implementation of PG&E project components may result in conflict with the SJMSCP. PG&E would implement applicable AMMs; therefore, there would be no conflict with the SJVHCP.

LEU Project Components

LEU is not a participant in the SJMSCP. As discussed under Impact BIO-2, project construction and O&M activities have potential to cause direct and indirect effects on several special-status species, including the following species covered under the SJMSCP: Swainson's hawk, burrowing owl, Cooper's hawk, greater sandhill crane, great blue heron, northern harrier, California horned lark, white-tailed kite, and snowy egret. Although LEU is not required to participate in the SJMSCP, impacts on SJMSCP covered species that are also regulated under the ESA, the CESA, or CEQA are analyzed below for purposes of CEQA. Adverse effects on these species could lead to conflict with the SJMSCP.

The SJVHCP does not apply to LEU project components because it is a PG&E-specific plan that applies only to PG&E activities.

Implementation of BMPs

Several BMPs would reduce impacts on special-status wildlife species, including those covered under the SJMSCP. BMP BIO-1 would require implementation of a worker environmental awareness program through which LEU employees and contractors would become familiar with special-status species that may occur in the study area, the regulatory status of the species, and procedures should a special-status species be detected in the BSA. BMP BIO-2 would require preconstruction surveys for activities conducted during the avian nesting season and establishment of an appropriate exclusion zone around active nests within which no heavy equipment would be operated until a biologist has determined that the nest is no longer active and the young have fledged. BMP BIO-3 requires sensitive biological resources in or near the BSA to be identified and clearly marked in the field and on project maps for avoidance, to the greatest extent feasible.

Pursuant to BMP BIO-4 and at the discretion of the biologist, exclusion fencing would be installed around LEU workspaces prior to any ground-disturbing work in proximity to suitable habitat for special-status species. BMP BIO-5 would, at the discretion of the biologist, require a qualified biologist (i.e., monitor) to be on-site during construction activities in sensitive biological resource areas unless the area has been protected by fencing to protect sensitive biological resources and previously cleared by the biologist. BMP BIO-9 and BMP BIO-10 would minimize electrocution risk associated with new transmission lines. These measures require conductors and ground wires to be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire simultaneously, causing electrocution (APLIC 2006).

While BMPs BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-9, and BIO-10 would reduce impacts on SJMSCP-covered species, impacts remain significant because the requirements of BMPs BIO-3, BIO-4 and BIO-5 are required only to the extent feasible or at the discretion of a biologist. Furthermore, BMPs do not sufficiently describe specific survey protocols, exclusion buffers, or other avoidance measures required for each species to adequately protect these species nor are they as protective or more protective than the incidental take avoidance minimization measures outlined in the SJMSCP. Therefore, implementation of LEU project components may result in conflict with the SJMSCP.

Significance before Mitigation

APMs and BMPs do not require surveys or avoidance measures to identify and protect special-status species, including those covered under the SJMSCP, if present in the BSA. Adverse effects on these species could lead to conflict with the SJMSCP, and this impact would be **significant**.

Mitigation Measures

Mitigation Measure BIO-2a [PG&E]: Conduct Survey for Estivating California Tiger Salamanders, Install Amphibian Exclusion Fencing, and Monitor Initial Ground Disturbance

Mitigation Measure BIO-2b [PG&E and LEU]: Conduct Focused Surveys for Special-Status Birds, Nesting Raptors, and Other Native Nesting Birds and Implement Protective Buffers

Mitigation Measure BIO-2c [PG&E and LEU]: Conduct Protocol-Level Surveys for Burrowing Owl, Implement Avoidance Measures, and Compensate for Loss of Occupied Burrows

Mitigation Measure BIO-2e [PG&E]: Implement PG&E Valley Elderberry Longhorn Beetle Conservation Program, Memorandum of Understanding, and Incidental Take Authorization Terms and Conditions

Mitigation Measure BIO-2f [PG&E]: Conduct Focused Bat Surveys and Implement Avoidance Measures

Mitigation Measure BIO-2g [PG&E]: Conduct Focused American Badger Surveys and Establish Protective Buffers

Significance after Mitigation

Implementation of Mitigation Measures BIO-2a through BIO-2f would avoid or reduce potential impacts on SJMSCP-covered species by requiring protocol-level surveys prior to project implementation, species-specific avoidance measures and buffers if found in or near the BSA, take permitting when applicable and required, and mitigation and compensation (e.g., required by CDFW and/or USFWS) for unavoidable impacts on species for which take permits may be required (i.e., California tiger salamander, Crotch's bumble bee, valley elderberry longhorn beetle) and burrowing owl, and environmental awareness training for all construction personnel. Survey protocols and exclusion buffers outlined in the APMs, BMPs, and mitigation measures are consistent with SJMSCP incidental take avoidance measures (see Table 3.6-5), and include additional measures to avoid impacts on special-status wildlife, as recommended by CDFW and USFWS. In addition, PG&E is required to comply with the SJVHCP for O&M activities. Therefore, there would be no conflict with the SJMSCP or PG&E SJVHCP, and impacts would be **less than significant**.

Table 3.6-5 Consistency of Mitigation Measures with SJMSCP Incidental Take Avoidance Measures

SJMSCP Incidental Take Avoidance Measures	EIR Mitigation Measures
5.2.4.1 Valley Elderberry Longhorn Beetle In areas with elderberry bushes, as indicated by the *SJMSCP Vegetation Maps* or per a preconstruction survey identification or other sources indicated in Section 5.2.2.3, the following shall occur: A. If elderberry shrubs are present on the project site, a setback of 20 feet from the dripline of each elderberry bush shall be established. B. Brightly colored flags or fencing shall be placed surrounding elderberry shrubs throughout the construction process. C. For all shrubs without evidence of VELB exit holes which cannot be retained on the project site as described in A and B, above, the JPA shall, during preconstruction surveys, count all stems of 1" or greater in diameter at ground level. Compensation for removal of these stems shall be provided by the JPA within SJMSCP Preserves as provided in *SJMSCP Section 5.5.4(B)*. D. For all shrubs with evidence of VELB exit holes, the JPA shall undertake transplanting of elderberry shrubs displaying evidence of VELB occupation to VELB mitigation sites during the dormant period for elderberry shrubs (November 1 - February 15). For elderberry shrubs displaying evidence of VELB occupation which cannot be transplanted, compensation for removal of shrubs shall be as provided in *SJMSCP Section 5.5.4 (C)*.	Mitigation Measure BIO-2e

SJMSCP Incidental Take Avoidance Measures	EIR Mitigation Measures
5.2.4.6 Tiger Salamander, Western Spadefoot Toad - in Association with Projects that Do Not Require a Federal Clean Water Act Section 404 Permit A. Retain known breeding sites. B. In potential California tiger salamander habitat, projects shall survey according to the current protocol approved by the TAC and the Permitting Agencies' representatives on the TAC. If salamanders are detected, Incidental Take Minimization Measures shall be applied. C. If a proposed project intends to eliminate aquatic habitat (including wetlands, ponds, springs and other standing water sources), and create a new, on-site habitat, then the newly created habitat shall be created and filled with water prior to dewatering and destroying the pre-existing habitat. Dewatering and relocation of aquatic habitats on-site should occur when the water source is dry under natural conditions, or otherwise outside of the full breeding season for tiger salamanders (December to June) to allow larvae to metamorphose and migrate to upland habitat. D. If a proposed project intends to eliminate aquatic habitat including wetlands, ponds, springs and other standing water sources, and will not create a new, on-site habitat, then dewatering should occur prior to commencement of construction and other Site Disturbing Activities. Dewatering and relocation of aquatic habitats should occur outside of the time period when adult salamanders are breeding (approximately December to February). E. Apply those other measures that are utilized to minimize impacts and Take of the California tiger salamander that are developed as described in 5.2.4.5 above. Those other measures will address: a) effects to aquatic habitat, including retaining pools and maintaining appropriate pool hydrology to enable successful metamorphosis of larvae to occur, but which does not foster non-native aquatic predators; b) retention of small mammal burrows and other suitable estivation habitat (e.g., underground holes, cracks, or niches) in adjacent uplands; c) maintenance of open habitat between breeding ponds and estivation sites (e.g., roads and other linear barriers can increase mortality or even prevent migrations and dispersal significantly increasing harm to and mortality of salamanders); d) siting replacement wetland habitat, whenever possible, within approximately 1.5 miles of other known breeding sites.	Mitigation Measure BIO-2a
5.2.4.11 Swainson's Hawk The Project Proponent has the option of retaining known or potential Swainson's hawk nest trees (i.e., trees that hawks are known to have nested in within the past three years or trees, such as large oaks, which the hawks prefer for nesting) or removing the nest trees. If the Project Proponent elects to retain a nest tree, and in order to encourage tree retention, the following Incidental Take Minimization Measure shall be implemented during construction activities: If a nest tree becomes occupied during construction activities, then all construction activities shall remain a distance of two times the dripline of the tree, measured from the nest. If the Project Proponent elects to remove a nest tree, then nest trees may be removed between September 1 and February 15, when the nests are unoccupied. These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).	Mitigation Measure BIO-2b
5.2.4.15 Burrowing Owls The presence of ground squirrels and squirrel burrows are attractive to burrowing owls. Burrowing owls may therefore be discouraged from entering or occupying construction areas by discouraging the presence of ground squirrels. To accomplish this, the Project Proponent should prevent ground squirrels from occupying the project site early in the planning process by employing one of the following practices: A. The Project Proponent may plant new vegetation or retain existing vegetation entirely covering the site at a height of approximately 36" above the ground. Vegetation should be retained until construction begins. Vegetation will discourage both ground squirrel and owl use of the site. B. Alternatively, if burrowing owls are not known or suspected on a project site and the area is an unlikely occupation site for red-legged frogs, San Joaquin kit fox, or tiger salamanders: The Project Proponent may disc or plow the entire project site to destroy any ground squirrel burrows. At the same time burrows are destroyed, ground squirrels should be removed through one of the following approved methods to prevent reoccupation of the project site. Detailed descriptions of these methods are	Mitigation Measure BIO-2c

SJMSCP Incidental Take Avoidance Measures	EIR Mitigation Measures
included in Appendix A, *Protecting Endangered Species, Interim Measures for Use of Pesticides in San Joaquin County*, dated March 2000: 1. **Anticoagulants.** Establish bait stations using the approved rodenticide anticoagulants Chlorophacinone or Diphacinone. Rodenticides shall be used in compliance with U.S. Environmental Protection Agency label standards and as directed by the San Joaquin County Agricultural Commissioner. 2. **Zinc Phosphide.** Establish bait stations with non-treated grain 5-7 calendar days in advance of rodenticide application, then apply Zinc Phosphide to bait stations. Rodenticides shall be used in compliance with U.S. Environmental Protection Agency label standards and as directed by the San Joaquin County Agricultural Commissioner. 3. **Fumigants.** Use below-ground gas cartridges or pellets and seal burrows. Approved fumigants include Aluminum Phosphide (Fumitoxin Phostoxin) and gas cartridges sold by the local Agricultural Commissioner's office. NOTE: Crumpled newspaper covered with soil is often an effective seal for burrows when fumigants are used. Fumigants shall be used in compliance with U.S. Environmental Protection Agency label standards and as directed by the San Joaquin County Agricultural Commissioner. 4. **Traps.** For areas with minimal rodent populations, traps may be effective for eliminating rodents. If trapping activities are required, the use of traps shall be consistent with all applicable laws and regulations. If the measures described above were not attempted or were attempted but failed, and burrowing owls are known to occupy the project site, then the following measures shall be implemented: C. During the non-breeding season (September 1 through January 31) burrowing owls occupying the project site should be evicted from the project site by passive relocation as described in the California Department of Fish and Game's Staff Report on Burrowing Owls (Oct 1995). D. During the breeding season (February 1 through August 31) occupied burrows shall not be disturbed and shall be provided with a 75 meter protective buffer until and unless the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC; or unless a qualified biologist approved by the Permitting Agencies verifies through non-invasive means that either: 1) the birds have not begun egg laying, or 2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Once the fledglings are capable of independent survival, the burrow can be destroyed. These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).	
5.2.4.16 Colonial Nesting Birds (Tricolored Blackbird, Black-Crowned Night Heron, Great Blue Heron) Acquisition of colonial nesting sites for these species is a high priority of the SJMSCP. Project Proponents shall be informed of avoidance measures which eliminate compensation requirements for disturbance of colonial nesting areas in project design, as described in Section 5.5.9. If the Project Proponent rejects acquisition and avoidance, pursuant to Section 5.5.9, then the following Incidental Take Minimization Measure shall apply: A setback of 500 feet from colonial nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing. These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).	Mitigation Measure BIO-2b
5.2.4.17 Ground Nesting or Streamside/Lakeside Nesting Birds (Northern Harrier, Horned Lark, Western Grebe, Short-Eared Owl) A setback of 500 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing. These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).	Mitigation Measure BIO-2b

SJMSCP Incidental Take Avoidance Measures	EIR Mitigation Measures
5.2.4.18 Birds Nesting in Isolated Trees or Shrubs Outside of Riparian Areas (Sharp-Shinned Hawk, Yellow Warbler, Loggerhead Shrike A setback of 100 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing. These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).	Mitigation Measure BIO-2b
5.2.4.19 Birds Nesting Along Riparian Corridors (Cooper's Hawk, Yellow-Breasted Chat, Osprey, White-Tailed Kite) A. For white-tailed kites, preconstruction surveys shall investigate all potential nesting trees on the project site (e.g., especially tree tops 15-59 feet above the ground in oak, willow, eucalyptus, cottonwood, or other deciduous trees), during the nesting season (February 15 to September 15) whenever white-tailed kites are noted on site or within the vicinity of the project site during the nesting season. B. For the Cooper's hawk, yellow-breasted chat, osprey and white-tailed kite, a setback of 100 feet from nesting areas shall be established and maintained during the nesting season for the period encompassing nest building and continuing until fledglings leave nests. This setback applies whenever construction or other ground-disturbing activities must begin during the nesting season in the presence of nests which are known to be occupied. Setbacks shall be marked by brightly colored temporary fencing. These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).	Mitigation Measure BIO-2b
5.2.4.20 Bell's Sage Sparrow, Snowy Egret, Prairie Falcon, American White Pelican, Double-Crested Cormorant, White-Faced Ibis, Long-billed Curlew These species either establish nests outside of anticipated development areas or are currently unknown to nest within the county. However, if a nest for one of these species is discovered on a project site, Incidental Take Minimization Measures shall be formulated prior to ground disturbance by the TAC and approved by the JPA with the concurrence of the Permitting Agencies' representatives on the TAC in accordance with the SJMSCP's Adaptive Management Plan (Section 5.9.4). These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).	Mitigation Measure BIO-2b
5.2.4.26 American Badger, Ringtail Cat If occupied dens are located on a project site for either of these species, then dens shall be monitored to determine if occupation is by an adult badger or ringtail only or is a natal den. If the den is occupied by an adult only the den may be destroyed when the adult has moved or is temporarily absent. If the den is a natal den, a buffer zone of 200 feet shall be maintained around the den until the JPA biologist determines that den has been vacated.	Mitigation Measure BIO-2g
5.2.4.28 Bats (All) A. Prior to the nursery season indicated in the following table for these species, nursery sites shall be sealed. B. Seal hibernation sites, prior to the hibernation season (November through March) when hibernation sites are identified on the project site. Alternatively, grating may be installed as described in 5.5.9(E)(1). C. When colonial roosting sites which are located in trees or structures must be removed, removal shall occur outside of the nursery and/or hibernation seasons and shall occur during dusk and/or evening hours after bats have left the roosting site unless otherwise approved pursuant to Section 5.2.3.2.	Mitigation Measure BIO-2f

Impact BIO-7: Create a Substantial Collision or Electrocution Risk for Birds or Bats

PG&E and LEU Project Components

Construction of new 230 kV lines would involve installation of new transmission structures. The new transmission facilities would not be created in areas where none existed previously, and the orientation of the line would generally be similar to existing lines. Operation of these new lines could create direct impacts on avian species from collisions

with these new structures, particularly at night and during inclement weather. Greater sandhill cranes, which could occur in the BSA during the winter, are known to collide with high-voltage power lines (Murphy et al. 2016). Electrocution may occur on transmission and telecommunications lines and certain substation components. These risks occur when there is inadequate vertical and horizontal separation between components, enabling larger birds to make simultaneous contact with their wings or other body parts. Although the chances of electrocution from lines greater than 60 kV are low due to the standard phase-to-phase and phase-to-ground separation distance (APLIC 2006), if energized parts remain uncovered, the risk of electrocution increases. Collision or electrocution could cause direct harm or loss to special-status and common bird species.

Implementation of APMs and BMPs

APM BIO-9, BMP BIO-9, APM BIO-10, and BMP BIO-10 would minimize electrocution risk associated with new transmission lines. These measures require conductors and ground wires to be spaced sufficiently apart, as feasible, so that raptors cannot contact two conductors or one conductor and a ground wire simultaneously, causing electrocution (APLIC 2006). All PG&E transmission and power lines and PG&E switching station and substation facilities for the project would be designed to be avian-safe as appropriate and feasible, following the intent of Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006, 2012).

Although APM BIO-9 and APM BIO-10 would minimize the risk of electrocution from transmission lines and facilities, these APMs do not require PG&E to provide documentation or demonstrate implementation of APLIC standards specifically for the proposed project. Therefore, impacts related to avian electrocution could occur as a result of the project.

Significance before Mitigation

Operation of new transmission lines, power lines, and substation facilities may result in collision and electrocution of avian species that fly into these structures. While APM BIO-9, AMP BIO-10, BMP BIO-9, and BMP BIO-10 would minimize the risk of electrocution from transmission lines and facilities, these APMs and BMPs do not require the applicant to provide documentation or demonstrate implementation of Avian Power Line Interaction Committee (APLIC) standards specifically for the proposed project; therefore, it is not possible to determine their effectiveness. If measures to mitigate collision and electrocution risks are not effectively applied, the project could create a substantial collision or electrocution risk for birds or bats which would be a **significant** impact.

Mitigation Measures

Mitigation Measure BIO-7: [PG&E and LEU] Develop and Implement an Avian Protection Plan

The following mitigation measure shall supersede and replace APM BIO-9, APM BIO-10, BMP BIO-9, and BMP BIO-10.

- PG&E shall implement their avian protection plan, *PG&E's Program to Address Avian Electrocutions, Collisions, and Nesting Birds* (PG&E 2018), including all risk-reduction measures and training and reporting requirements therein. CPUC approval is necessary prior to plan implementation for PG&E's portion of the project.
- LEU must follow the recommendations outlined in Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012 or the most current version). In addition, LEU shall develop and implement an avian protection plan according to Avian Protection Plan Guidelines (APLIC and USFWS 2005). The plan shall include measures to minimize collision and execution risk to avian species during project operation. The plan shall be submitted for review to CDFW and USFWS at least 60 days before construction begins.

Significance after Mitigation

Mitigation Measure BIO-7 would require PG&E to implement their existing avian protection plan and LEU to create and implement an avian protection plan to minimize the project's risk of collision or electrocution for birds or bats. This impact would be reduced to **less than significant** with implementation of this mitigation measure, because the avian protection plans would adhere to APLIC's recommended standards, which are designed to prevent substantial collision and electrocution risk.

3.7 ENERGY

This section discusses the existing energy conditions, including the facilities, services, use, and conservation in the project area and summarizes applicable federal, state, and local regulations. The analysis considers whether the project would result in inefficient, wasteful, and unnecessary consumption of energy and whether the project would conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This section was prepared pursuant to CEQA Guidelines Section 15126 and Appendix F of the CEQA Guidelines, which require that EIRs include a discussion of the potential energy impacts of projects.

Comments pertaining to energy that were received in response to the Notice of Preparation (NOP) included concerns regarding electrical demand, specifically that increasing the size of the transmission lines could result in greater utilization of nonrenewable sources of electricity generation. This is addressed below in Impacts EN-1 and EN-2. See Appendix A for all NOP comments received during the public scoping period.

3.7.1 Environmental Setting

ENERGY FACILITIES AND SERVICES IN THE PROJECT AREA

Electrical service is provided to San Joaquin County by Pacific Gas and Electric (PG&E), Modesto Irrigation District, Lodi Electric Utility (LEU), and the Port of Stockton. PG&E also provides natural gas service within the county. San Joaquin County has 26 power plants generating electricity, most operating on natural gas, with the remaining operating on biomass, hydroelectric, solar, and wind power. Within the proposed project area, PG&E transmits high-voltage electricity to existing substations, where the voltage is stepped down (i.e., voltage is reduced for safe use at the residential-level while also improving the efficiency of electricity delivery) for distribution throughout the area. PG&E provides 60 kilovolt (kV) power to LEU, which steps down the power for distribution to LEU customers in the City of Lodi. The California Energy Commission (CEC) provides data on energy production sources. Table 3.7-1 shows energy production sources for the energy providers in San Joaquin County.

Table 3.7-1 San Joaquin County Energy Providers and Power Sources

2022 Energy Source Mix				
Energy Source	PG&E	Modesto Irrigation District Retail Energy	LEU	Stockton Port Retail Electric Load
Eligible renewable	38.3%	30.1%	31.5%	43.5%
Coal	0.0%	0.0%	0.0%	0.0%
Large hydroelectric	7.6%	17.8%	13.3%	0.0%
Natural gas	4.8%	13.6%	19.6%	0.0%
Nuclear	49.3%	1.8%	0.0%	0.0%
Other or unspecified power[1]	0.0%	36.6%	35.6%	56.5%
Total	100%	100%	100%	100%

Notes: PG&E = Pacific Gas and Electric; LEU = Lodi Electric Utility. Numbers may not sum due to rounding.

[1] "Unspecified power" is defined as electricity from transactions that are not traceable to specific generation sources.

Source: CEC 2023.

EXISTING ENERGY USE

In 2022, residences of San Joaquin County collectively consumed approximately 2,090 gigawatt hours (GWh) of electricity, and nonresidential consumption was approximately 3,680 GWh (CEC 2022). Energy consumption in the

immediate project area is directly correlated with the particular land uses. CEC reported retail sales of 273 million and 110 million gallons of gasoline and diesel, respectively, in San Juaquin County in 2022 (according to the most recent data available) (CEC 2023).

ENERGY CONSERVATION

PG&E sponsors several energy conservation programs that include education, solar energy incentives, electric vehicles (EVs), the fluorescent lighting business program, and a weatherization program for low-income families. These services are intended to reduce energy consumption in homes through the replacement of inefficient appliances and minor housing repairs, making homes more energy efficient. Consumers also receive educational materials that provide energy-saving tips and information. LEU offers energy conservation programs to its customers, including electric rebates and free installation of energy-saving products, such as LED light bulbs, thermostatically controlled shower valves, and advanced smart power strips.

3.7.2 Regulatory Setting

Energy conservation is required by many federal, state, and local statutes and policies. At the federal level, energy standards apply to numerous products (e.g., the US Environmental Protection Agency's [EPA's] EnergyStar® program) and transportation standards (e.g., fuel efficiency). At the state level, Title 24 of the California Code of Regulations (CCR) sets forth energy standards for buildings. Further, the state provides rebates or tax credits for the installation of renewable energy systems, and the Flex Your Power program promotes conservation in multiple areas. At the local level, individual cities and counties establish policies in their general plans and climate action plans related to the energy efficiency of new development and land use planning and to the use of renewable energy sources.

FEDERAL

Energy Policy and Conservation Act, and IE Standards

The Energy Policy and Conservation Act of 1975 established nationwide fuel economy standards to conserve oil. Pursuant to this act, the National Highway Traffic and Safety Administration, part of the US Department of Transportation (DOT), is responsible for revising existing fuel economy standards and establishing new vehicle economy standards.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with the CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the country. EPA calculates a CAFE value for each manufacturer based on the city and highway fuel-economy test results and vehicle sales DOT is authorized to assess penalties for noncompliance based on information generated under the CAFE program.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 is designed to improve vehicle fuel economy and help reduce the United States's dependence on oil. It represents a major step forward in expanding the production of renewable fuels, reducing dependence on oil, and confronting global climate change. The Energy Independence and Security Act of 2007 increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard. The Final Renewable Fuels Standards for 2024 and 2025 requires fuel producers to use at least 32 billion gallons of biofuel in 2024 and 34 billion gallons in 2025 (40 CFR Parts 80 and 1090).

By addressing renewable fuels and the CAFE standards, the Energy Independence and Security Act of 2007 builds upon progress made by the Energy Policy Act of 2005 in setting out a comprehensive national energy strategy for the 21st century.

STATE

State of California Energy Action Plan

CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The current plan is the 2003 *Energy Action Plan* (2008 update), which calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assisting public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs, as well as encouraging urban design that reduces vehicle miles traveled (VMT) and accommodates pedestrian and bicycle access.

Integrated Energy Policy Report

Senate Bill (SB) 1389 (Chapter 568, Statutes of 2002) required CEC to "conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (PRC Section 25301[a]). This work culminated in the preparation of the first Integrated Energy Policy Report (IEPR).

CEC adopts an IEPR every 2 years and an update every other year. The 2023 IEPR, which is the most recent IEPR, was adopted February 2024. The 2023 IEPR provides a summary of priority energy issues currently facing the state and outlines strategies and recommendations to further the state's goal of ensuring reliable, affordable, and environmentally responsible energy sources. Energy topics covered in the report include progress toward statewide renewable energy targets and issues facing future renewable development; efforts to increase energy efficiency in existing and new buildings; progress by utilities in achieving energy efficiency targets and potential; improving coordination among the state's energy agencies; streamlining power plant licensing processes; results of preliminary forecasts of electricity, natural gas, and transportation fuel supply and demand; future energy infrastructure needs; the need for research and development efforts to accelerate the achievement of statewide energy policy goals; and issues facing California's nuclear power plants (CEC 2024).

California Renewables Portfolio Standard

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB 100 of 2018 sets a three-stage compliance period requiring all California utilities, including independently owned utilities, energy service providers, and community choice aggregators, to generate 52 percent of their electricity from renewables by December 31, 2027; 60 percent by December 31, 2030; and 100 percent carbon-free electricity by December 31, 2045. On September 16, 2022, SB 1020 was signed into law. This bill supersedes the goals of SB 100 by requiring that eligible renewable energy resources and zero-carbon resources supply 90 percent of all retail sales of electricity to California end-use customers by December 31, 2035; 95 percent of all retail sales of electricity to California end-use customers by December 31, 2040; 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045; and 100 percent of electricity procured to serve all state agencies by December 31, 2035.

Assembly Bill 32, Senate Bill 32, and Climate Change Scoping Plan and Update

In December 2008, the California Air Resources Board (CARB) adopted its *Climate Change Scoping Plan*, which contains the main strategies for achieving a reduction of approximately 118 million metric tons of carbon dioxide equivalent emissions ($MMTCO_2e$), or approximately 21.7 percent from the state's projected 2020 emission level of 545 $MMTCO_2e$ under a business-as-usual scenario (this is a reduction of 47 $MMTCO_2e$, or almost 10 percent, below 2008 emissions). In May 2014, CARB released and adopted the *First Update to the Climate Change Scoping Plan* to identify the next steps in reaching Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, goals and evaluate the progress made between 2000 and 2012 (CARB 2014). Since the writing of the update, California met the near-term 2020 GHG limit.

In August 2016, SB 32 and AB 197, which serve to extend California's greenhouse gas (GHG) reduction programs beyond 2020, were signed into law. SB 32 amended the Health and Safety Code to include Section 38566, which authorizes CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by December 31, 2030. SB 32 codified the 2030 target established by California Executive Order (EO) B-30-15, which is the next interim step in the State's efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of reducing GHG emissions to at least 80 percent below 1990 emission levels by 2050. Achievement of these goals will have the co-benefit of reducing California's dependency on fossil fuels and making land use development and transportation systems more energy efficient.

California's 2017 Climate Change Scoping Plan, prepared by CARB, outlined the main strategies California will implement to achieve the legislated GHG emission target for 2030. It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste).

On September 16, 2022, the State legislature passed AB 1279, which codified stringent emissions targets for achieving carbon neutrality and an 85 percent reduction below 1990 emissions level by 2045. CARB released the *Final 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on November 16, 2022, also as directed by AB 1279 (CARB 2022). The 2022 Scoping Plan traces the pathway for the State to achieve its carbon neutrality and 85 percent reduction in 1990 emissions goals by 2045 using a combined top-down, bottom-up approach, which employs various scenarios. CARB adopted the 2022 Scoping Plan on December 16, 2022.

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City and County) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Because the LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County General Plan

The 2035 San Joaquin County General Plan includes the following specific implementation programs:

- Prepare and adopt a Sustainability Master Plan.
- Prepare and adopt updated low-impact development standards.
- Prepare a study on the feasibility of developing a waste-to-energy facility.
- Develop and implement a renewable energy/property-assessed clean energy program.
- Remove barriers to renewable energy.
- Develop and adopt an ordinance for solar energy facilities.
- Review energy consumption of county operations.
- Evaluate the feasibility of replacing government automobiles with energy-efficient vehicles.
- Establish industrial design standards.

The San Joaquin County General Plan also includes the following policies related to energy that are relevant to the project:

- **Policy LU-1.1: Compact Growth and Development.** The County shall discourage urban sprawl and promote compact development patterns, mixed-use development, and higher development intensities that conserve agricultural land resources, protect habitat, support transit, reduce vehicle trips, improve air quality, make efficient use of existing infrastructure, encourage healthful, active living, conserve energy and water, and diversify San Joaquin County's housing stock.

- **Policy ED-2.1: General Economic Base Diversification.** The County shall encourage the development of a diversified economic base by continuing to promote agriculture, tourism, and commerce, and by expanding efforts to encourage commercial and industrial development, including the development of energy resources.
- **Policy IS-1.6: Efficient Infrastructure and Facilities**. When performing maintenance, upgrading, or expanding infrastructure and facilities, the County shall use technologies that improve energy efficiency and conserve water, when feasible.

City of Lodi General Plan

The City of Lodi General Plan (Lodi General Plan) identifies goals and policies aimed at energy conservation and increased renewable energy sources. The City of Lodi administers and implements a variety of local energy conservation and waste reduction programs, including low-voltage LED lighting equipment in traffic signals; solar-assisted equipment at all new bus shelters and stops; energy education programs for children and students; standards for photovoltaic panel installations; and lighting, heating, solar, and air conditioning rebate programs for residential and nonresidential customers through the City of Lodi's electric utility. The Lodi General Plan includes the following goals and policies related to energy that are relevant to the project:

- **Policy C-G9:** Conserve energy and reduce per capita energy consumption.
- **Policy C-G11:** Support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.
- **Policy C-P37:** Promote incorporation of energy conservation and weatherization features into existing structures. Update the Zoning Ordinance and make local amendments to the California Building Code, as needed, to allow for the implementation of green building, green construction, and energy efficiency measures.
- **Policy C-P48**: Require all construction equipment to be maintained and tuned to meet appropriate EPA and CARB emission requirements and when new emission control devices or operational modifications are found to be effective, such devices or operational modifications are to be required on construction equipment.

3.7.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

Project construction- and operation-related energy consumption is measured in megawatt-hours (MWh) of electricity, gallons of gasoline, and gallons of diesel fuel. Construction-related fossil fuel use is estimated based on the anticipated construction equipment use, vehicle trips, and helicopter use. The CARB In-Use Off-Road 2021 Diesel Emission Factors model is used to estimate diesel fuel use based on vehicle category and horsepower rating. Refer to Appendix E for details regarding energy use assumptions. The EMFAC2021 Motor Vehicle Emission Factor Model was used to estimate the gasoline and diesel fuel that would be used by on-road vehicles, based on project vehicle miles traveled (VMT) and the following assumptions:

- Workers are assumed to travel in gasoline-fueled passenger vehicles (72 percent light-duty automobiles, 6 percent light-duty trucks class 1, and 21 percent light-duty trucks class 2).
- Vendor deliveries, material transport, and construction support vehicles are assumed to occur in either diesel-fueled heavy-duty trucks or gasoline-fueled light-duty trucks (23 percent light-duty trucks class 1 and 77 percent light-duty trucks class 2).
- Jet fuel use by helicopters was estimated using fuel consumption numbers from the Swiss Federal Office of Aviation methodology, which assumes one landing and takeoff per hour for a twin-engine medium-lift helicopter.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant-proposed measures (APMs) that are incorporated into PG&E's components of the proposed project. Similarly, LEU has developed best management practices (BMPs) that would apply to the LEU components of the proposed project. While the project does not include APMs and BMPs specific to energy, the following APMs and BMPs related to GHGs would indirectly limit energy consumption through the conservation of fuel by limiting vehicle idle times, reducing VMT by encouraging construction workers to carpool, and reducing fossil fuel consumption by utilizing electric equipment where feasible.

PG&E APMs

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

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

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of five consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
- Maintain construction equipment in proper working conditions in accordance with manufacturer specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression or mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

LEU BMPs

BMP GHG-1: LEU Minimize GHG Emissions.

LEU will implement the following to minimize GHG emissions:

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of five consecutive minutes allowed by

California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

- Maintain construction equipment in proper working conditions in accordance with manufacture specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to energy resources under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. An energy-related impact would be significant if implementation of the project would:

- result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources, during project construction or operation; or
- conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

ISSUES NOT DISCUSSED FURTHER

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. All work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance. The modifications to the remote-end PG&E project components would require limited energy investment to construct (i.e., fuel consumed by vehicle trips) and would not change the energy demand or efficiency of the facilities and would not result in wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources; or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact EN-1: Result in Wasteful, Inefficient, or Unnecessary Consumption of Energy

PG&E Project Components

Energy would be consumed during the 34-month construction phase of the PG&E portion of the project through the use of heavy-duty construction equipment, from the transportation of construction materials, and for worker commutes. As shown in Table 3.7-2, an estimated 22,051 gallons of gasoline, 280,915 gallons of diesel, and 11,101 gallons of jet fuel would be consumed during construction of the PG&E portion of the project, accounting for both on-site equipment use and off-site vehicle travel.

Table 3.7-2 Summary of Estimated Fuel Consumption during PG&E Construction and Operation and Maintenance

Project Activity	Gasoline (gallons)	Diesel (gallons)	Jet Fuel (gallons)
Construction	22,051	280,915	11,101
Annual operations & maintenance	186	774	355
Total fuel consumption	**22,237**	**281,689**	**11,456**

Source: Modeling performed by Jacobs Engineering Group in 2023.

This short-term energy expenditure required to construct the project would be nonrecoverable. The energy needs for construction of the PG&E portion of the project would be primarily met through use of fuel for transportation of workers and materials and operation of equipment and would not require additional capacity or increase peak- or base-period demands for electricity. Additionally, construction-related fuel consumption would serve the purpose of improving the state's electric grid and providing reliable power.

Operation and maintenance activities for the PG&E portion of the project would occur infrequently (i.e., once or twice a month) and involve the use of off-site construction equipment, on-road vehicles, and helicopters for activities such as line inspection, line maintenance, and substation maintenance. Operational activities would require the mobilization of a small number of on-road trucks, and occasionally a helicopter, at any given time. As shown in Table 3.7-2, operation of the PG&E portion of the project would result in the consumption of an estimated 186 gallons of gasoline, 774 gallons of diesel, and 355 gallons of jet fuel per year. Fuel consumed during operation would be used for the purpose of maintaining critical electrical infrastructure equipment. For these reasons, construction and operation of the PG&E portion of the project would not result in an inefficient, wasteful, or unnecessary consumption of energy resources.

Implementation of APMs

Fuel would be used for the purpose of maintaining critical electrical infrastructure equipment and would not result in an inefficient, wasteful, or unnecessary consumption of energy resources. Implementation of APM GHG-1 would minimize unnecessary construction vehicle idling time and would reduce energy consumption by ensuring that only the necessary amount of fuel used for heavy equipment is consumed to complete work. Construction practices, such as those identified in APM GHG-1, would further reduce the potential for unnecessary consumption of fuel during construction.

LEU Project Components

The potential for the LEU project components to result in wasteful, inefficient, or unnecessary consumption of energy would be the same as discussed above for the PG&E project components. Energy use would be similarly focused on vehicle fuel consumption necessary to improve the state's electric grid and provide reliable power.

Energy would be consumed during the 13-month construction phase of the LEU portion of the project through the use of heavy-duty construction equipment, from the transportation of construction materials, and for worker commutes, similar to the energy expenditure expected during construction of the PG&E portion of the project. As

shown in Table 3.7-3, an estimated 3,164 gallons of gasoline and 98,640 gallons of diesel would be consumed during construction of the LEU portion of the project, accounting for both on-site equipment use and off-site vehicle travel.

Table 3.7-3 Summary of Estimated Fuel Consumption During LEU Construction and Operation and Maintenance

Project Activity	Gasoline (gallons)	Diesel (gallons)	Jet Fuel (gallons)
Construction	3,164	98,640	-
Annual operations & maintenance	-	357	-
Total fuel consumption	**3,164**	**98,997**	**-**

Source: Modeling performed by Jacobs Engineering Group in 2023.

Implementation of BMPs

Fuel would be used for the purpose of maintaining critical electrical infrastructure equipment and would not result in an inefficient, wasteful, or unnecessary consumption of energy resources. Implementation of BMP GHG-1 would minimize unnecessary construction vehicle idling time and would reduce energy consumption by ensuring that only the necessary amount of fuel used for heavy equipment is consumed to complete work. Construction practices, such as those identified in BMP GHG-1, would further reduce the potential for unnecessary consumption of fuel during construction.

Significance Before Mitigation

As stated above, construction-related fuel consumption would serve the purpose of improving the state's electric grid and providing reliable power, and fuel consumed during operation would be used for the purpose of maintaining critical electrical infrastructure equipment. Construction-related energy consumption would be temporary and would cease upon completion of construction, whereas operation of the project would require minimal fuel use as operational activities would occur infrequently and would typically only require the use of on-road trucks and occasionally a helicopter for maintenance and inspection. Implementation of APM GHG-1 during construction of the PG&E portion of the project and BMP GHG-1 during construction of the LEU portion of the project would ensure that only the necessary amount of fuel used for construction equipment is consumed. For these reasons, construction and operation of the project would not result in inefficient, wasteful, or unnecessary consumption of energy resources. This impact would be **less than significant.**

Mitigation Measures

No mitigation is required for this impact.

Impact EN-2: Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency

PG&E and LEU Project Components

Implementation of the project would align with the goal of the 2022 Scoping Plan to expand the state's electrical grid to meet increasing energy demand while prioritizing reliability. The project would contribute to addressing current and projected voltage issues and thermal overloads on PG&E's 230/60 kV system, as well as forecasted demand growth. The California Independent System Operator (CAISO) reaffirmed the need for a 230 kV reinforcement for the area to address these issues and approved a revised scope for the project that refined the original project components. The proposed project is the solution identified in CAISO's *2017-2018 Final Transmission Plan* (CAISO 2018).

The new PG&E and LEU facilities would more efficiently transmit energy and, as stated above, improve the durability and reliability of the state's electric grid. Furthermore, Appendix D, "Local Actions," of the 2022 Scoping Plan directs local agencies to reduce GHG emissions in several key sectors, including transportation electrification and building decarbonization. By increasing load capacity and reliability, the project would be supporting energy-related GHG reductions in these key areas.

As stated above, the proposed project would improve the reliability and accessibility of electricity in San Joaquin County. This would be consistent with CEC's goals in the IEPR to improve the reliability of the electrical grid. Specifically, the proposed project would reduce San Joaquin County's susceptibility to power losses due to a transmission line failure, overload, or similar event.

While the proposed project would not reduce fossil fuel reliance or specifically increase or encourage renewable energy generation, it would not impede existing or future use of renewable energy sources. As such, the proposed project would not impede progress toward implementation of energy efficiency programs. By improving the delivery efficiency of energy and improving grid reliability, the project would support the goals of the 2022 Scoping Plan, especially those in Appendix D "Local Actions," as well as CEC's goals within the IEPR.

Implementation of APMs and BMPs

No applicable APMs or BMPs are proposed as part of the project.

Significance Before Mitigation

The project would align with the goals of the 2022 Scoping Plan and the IEPR to improve grid reliability and resilience by increasing grid capacity to accommodate additional energy demand. Therefore, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.8 GEOLOGY, SOILS, AND MINERAL RESOURCES

This section describes the existing conditions for geology, soils, and mineral resources in the project area; describes the applicable federal, state, and local regulations addressing geology, soils, and mineral resources; and analyzes the potential environmental impacts associated with implementation of the project.

No comments regarding geology, soils, or mineral resources were received in response to the notice of preparation (NOP). See Appendix A for all NOP comments received during the public scoping period.

3.8.1 Environmental Setting

REGIONAL GEOLOGY

The project area is near the geographic center of California in the San Joaquin Valley, which is the southern portion of the Central Valley of California. The Central Valley also is referred to as the Great Valley Geomorphic Province. It extends for approximately 450 miles from low lying hills near Red Bluff in the north to the San Emigdio and Tehachapi Mountains near Bakersfield in the south. The Central Valley is bounded on the northeast by a volcanic plateau of the Cascade Range; on the east by the Sierra Nevada Range, which rises to a maximum height of more than 14,000 feet above mean sea level; and on the west by the Coast Ranges, including the Diablo Range, which extends into the western margin of Merced County. Elevations in the Central Valley range from slightly below mean sea level to 400 feet above mean sea level at its northern and southern ends. The northern one-third of the valley is known as the Sacramento Valley and the southern two-thirds as the San Joaquin Valley (DOC 2002a; DOC 2002b; Page 1986; Norris and Webb 1990).

The project is located in San Joaquin County, which occupies a central location in California's Central Valley. The southwest corner of the county encompasses small intermittent streams entering the valley from the semi-arid Diablo Range on the west, and the foothills of the Sierra Nevada Range lie along the county's eastern boundary. Some streams terminate on alluvial fans, and others have been dammed to form reservoirs for irrigation. To the east, perennial rivers flow from the more humid, larger drainage areas of the Sierra Nevada and have been dammed to provide irrigation. In the past, runoff from these drainages deposited sand, silt, and clay and built up large alluvial fans along each side of the valley. The larger, more gently sloping fans on the east side of the valley are primarily composed of sediment deposits derived from granitic rock, which have created extensive foothills. Alluvial fans of the Sacramento–San Joaquin River Delta are composed of sediment derived primarily from sedimentary source rock deposits and generally have steeper slopes. The valley floor is composed of alluvial, floodplain, and delta plain deposits from the surrounding ranges.

During the late Mesozoic and Cenozoic periods, the region existed as a lowland or shallow marine embayment. In the late Cenozoic, much of the area was occupied by shallow brackish and freshwater lakes, particularly in the San Joaquin Valley (Page 1986; Norris and Webb 1990).

LOCAL GEOLOGY

Geologic units within the project area are presented on Figure 3.8-1. The following sections describe geologic units, presented in order from youngest to oldest.

Pleistocene to Holocene

Most geologic units in the project area cover the middle to late Pleistocene Epoch (approximately 2 million years ago to 11,700 years ago) and the Holocene Epoch (11,700 years ago to present). These geologic units generally are not lithified. The following geologic formations and units are present in the project area:

- **Alluvium/Colluvium (Qu):** Unnamed late Pleistocene or Holocene alluvium and colluvium consisting of flat, relatively undissected fan, terrace, basin deposits, and small active streams.
- **Modesto Formation:** Late Pleistocene arkosic alluvium sand with minor gravel and silt, forming Mokelumne River alluvial fans, low terraces, and high floodplains. This formation includes the following units:
  - **Qm2:** Upper unit chiefly made of sand, becoming finer grained toward the fan toe, and is probably glacial outwash.
  - **Qm2e:** Upper unit made of arkosic sand that formed low dunes on the Mokelumne River fan and in the Delta. Although it is not well sorted, this unit is probably eolian.
  - **Qm2f:** Lower unit made of foothill-derived alluvial silt, clay, and minor sand following tributaries across lower fans. It consists of abundant volcanic detritus.
  - **Qm1:** Lower unit made of arkosic alluvium forming the Mokelumne River alluvial fan. It is probably glacial outwash.
- **Riverbank Formation:** Middle to late Pleistocene arkosic alluvium sand with silt, forming terraces and alluvial fans along the Mokelumne River. Upper to lower units are as follows:
  - **Qr3:** Upper unit comprises arkosic alluvium forming the Mokelumne River alluvial fan. It is primarily sand and probably glacial outwash.
  - **Qr3f:** Upper unit comprises foothill-derived alluvial sand and silt. It contains abundant volcanic detritus.
  - **Qr2:** Middle unit comprises arkosic alluvium from the middle Pleistocene period forming Mokelumne River terraces and alluvial fan. It is chiefly sand and probably glacial outwash.
  - **Qr2f:** Lower unit comprises foothill-derived alluvial sand and silt. It contains abundant volcanic detritus.
  - **Qr1:** Presumed to be a lower unit consisting of arkosic alluvium, sand and silt, forming terraces and alluvial fans along the Mokelumne River.
- **Turlock Lake Formation (Qt1)**: Early to middle Pleistocene period arkosic alluvium, including sand with some silt and minor gravel (Dawson 2009).

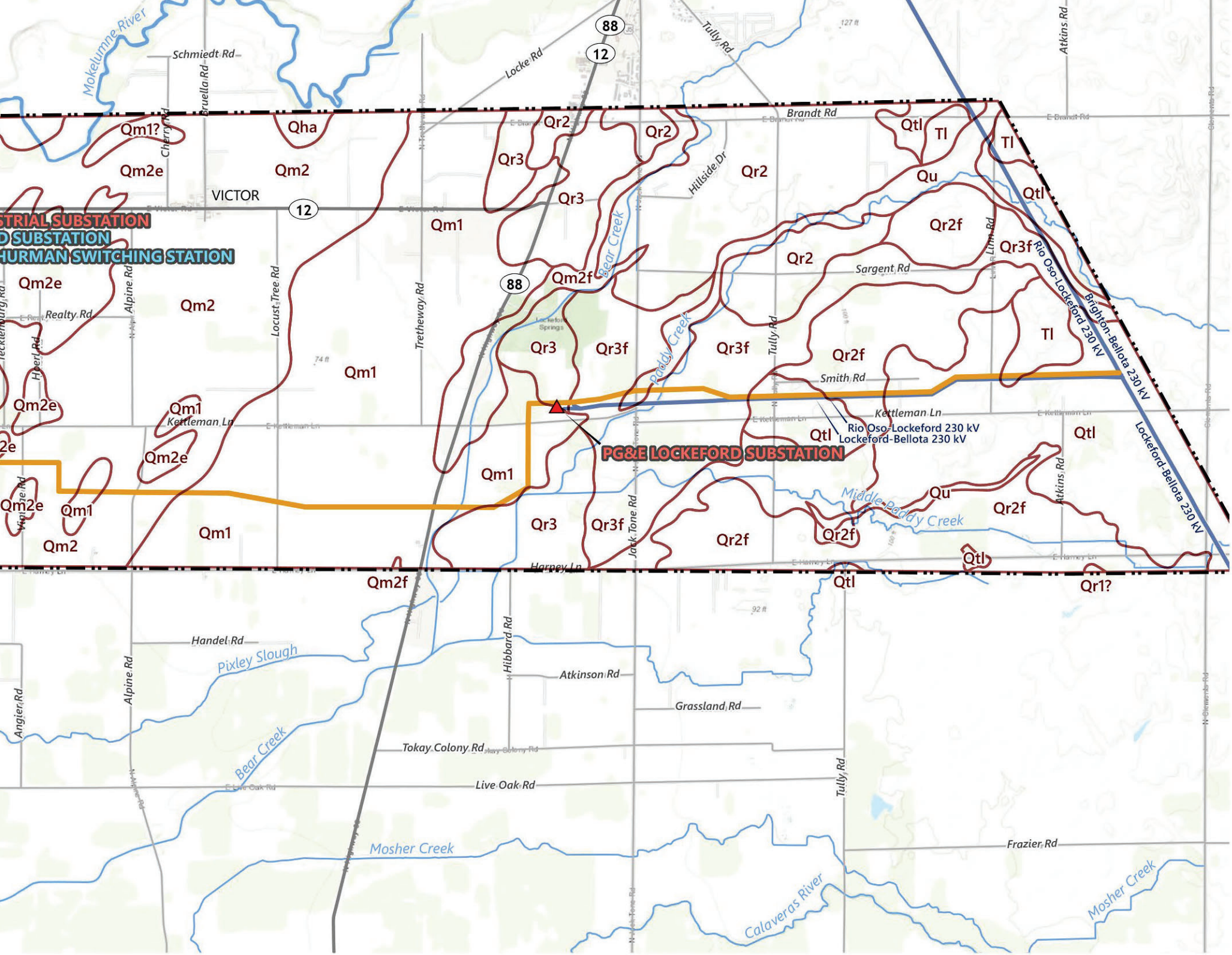
Miocene to Pliocene

Late Miocene period (approximately 12 to 5 million years ago) and Pliocene period (approximately 5 to 2.6 million years ago) rocks are present at or near the surface on the east side of the project area. The following geologic formation is present in the project area:

- **Laguna Formation (Tl):** Pliocene period cobble gravel, sand, and minor silt of mixed metamorphic, granitic, and volcanic sources.

TOPOGRAPHY AND DRAINAGE

The project area ranges in elevation from a low of approximately 60 feet above mean sea level at LEU Industrial Substation at the western extent to a high of approximately 135 feet above mean sea level at the PG&E Brighton-Bellota line at the eastern extent. The surface topography throughout the project area is relatively flat with an overall slope of approximately 0 to 1 percent.


PG&E LOCKEFORD SUBSTATION
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
Rio Oso-Lockeford 230 kV
Brighton-Bellota 230 kV
Lockeford-Bellota 230 kV
VICTOR
Qm1?
Qm2e
Qm2
Qha
Qm1
Qm2f
Qr2
Qr3
Qr3f
Qr2f
Qu
Qtl
Tl
Qr1?
Mokelumne River
Schmiedt Rd
Bruella Rd
Cherry Rd
Locke Rd
Tully Rd
Brandt Rd
Hillside Dr
Bear Creek
Sargent Rd
Alpine Rd
Locust Tree Rd
Tretheway Rd
Realty Rd
Hyer Rd
Kettleman Ln
Paddy Creek
Smith Rd
Middle Paddy Creek
Jack Tone Rd
Atkins Rd
Harney Ln
Handel Rd
Pixley Slough
Hibbard Rd
Atkinson Rd
Grassland Rd
Tokay Colony Rd
Live Oak Rd
Angier Rd
Mosher Creek
Frazier Rd
Calaveras River
88
12

GEOLOGIC HAZARDS

Typical geologic hazards include earthquakes, surface fault rupture, ground shaking, liquefaction, and lateral spreading. Each of these potential hazards as relevant to the project is discussed below.

Faulting and Seismicity

Most earthquakes originate along fault lines. A fault is a fracture in Earth's crust along which rocks on one side are displaced relative to those on the other side due to shear and compressive crustal stresses. Most faults are the result of repeated displacement that may have taken place suddenly, by slow creep, or both (Bryant and Hart 2007). The State of California has a classification system that designates faults as either active, potentially active, or inactive, depending on how recently displacement has occurred along them. The Alquist-Priolo Act requires the establishment of "earthquake fault zones" along known active faults in California. A fault is considered active if it has generated earthquakes accompanied by surface rupture during historical time (approximately the last 200 years) or has shown evidence of fault displacement during the Holocene period (approximately the last 11,000 years) (Bryant and Hart 2007). A fault is considered potentially active if there is evidence of fault displacement during the Quaternary period (approximately the last 1.6 million years). A fault is considered inactive if the most recent documented fault displacement predates the Quaternary period.

No known active faults cross the project area, and none are located within approximately 10 miles of the immediate project vicinity (refer to Figure 3.8-2). Additionally, no known active faults are within San Joaquin County. The closest major fault is the San Andreas Fault, which passes within approximately 80 miles southwest of the western most portion of the project at LEU Industrial Substation. Other major faults include the Greenville Fault (located approximately 37 miles to the southwest), Calaveras Fault (located approximately 51 miles to the southwest), and the Hayward Fault (located approximately 59 miles to the southwest). These active right-lateral, strike-slip faults extend in a northwest-southeast direction to the northwest, west, and southwest of San Joaquin County.

The Foothills Fault system (located approximately 23 miles to the northwest) is a major north-northwest trending group of relatively short, discontinuous normal faults extending along the western Sierra Nevada from Oroville in the north to Fresno in the south. The northern part of the Foothills Fault system ruptured in the 1975 Oroville earthquake. The Bear Mountain Fault extends parallel to the eastern border of San Joaquin County and is the closest member of the Foothills Fault system to the project area. The California Geological Survey (CGS) fault activity map does not indicate evidence of displacement on this portion of the Bear Mountain Fault during the Quaternary period.

The Great Valley fault zone (located approximately 47 miles to the west) is a system of generally blind, west-dipping thrust and reverse faults that are interpreted to form the structural boundary between the eastern Central Valley and Coast Ranges. The Midland Fault is the closest fault in the Great Valley Fault System to the project area.

Surface Fault Rupture

Surface rupture is the surface expression of movement along a fault. Structures built over an active fault can be torn apart if the ground ruptures. The potential for surface rupture is based on the concepts of recency and recurrence. Surface rupture along faults is generally limited to a linear zone a few meters wide. The Alquist-Priolo Act (see Section 3.8.2, "Regulatory Setting," below) was created to prohibit the location of structures designed for human occupancy across, or within 50 feet of, an active fault, thereby reducing the loss of life and property from an earthquake. The project area is not located within an Alquist-Priolo active fault zone (Bryant and Hart 2007), and there is no evidence of active faulting within or near the project area.

Ground Shaking

The intensity of seismic shaking, or strong ground motion, during an earthquake is dependent on the distance and direction from the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions of the surrounding area. Ground shaking could potentially result in the damage or collapse of buildings and other structures.

The project area is not within an active fault zone as defined by the Alquist-Priolo Act. However, the project is in an area that is subject to ground shaking from earthquakes generated on faults associated with the Coast Ranges to the west, in particular the Hayward, San Andreas, and Greenville faults and faults of the Great Valley Fault zone, and faults to the east in the Foothills Fault system. Shaking from an earthquake can result in structural damage and can trigger other geologic hazards, such as liquefaction. Ground shaking is affected by the earthquake magnitude, duration, and distance from the source. Ground conditions also influence effects from strong ground motions. Seismic waves attenuate with distance from their sources, so estimated bedrock accelerations are highest in areas closest to the source. Local soil conditions may amplify or dampen seismic waves as they travel from the underlying bedrock to the ground surface.

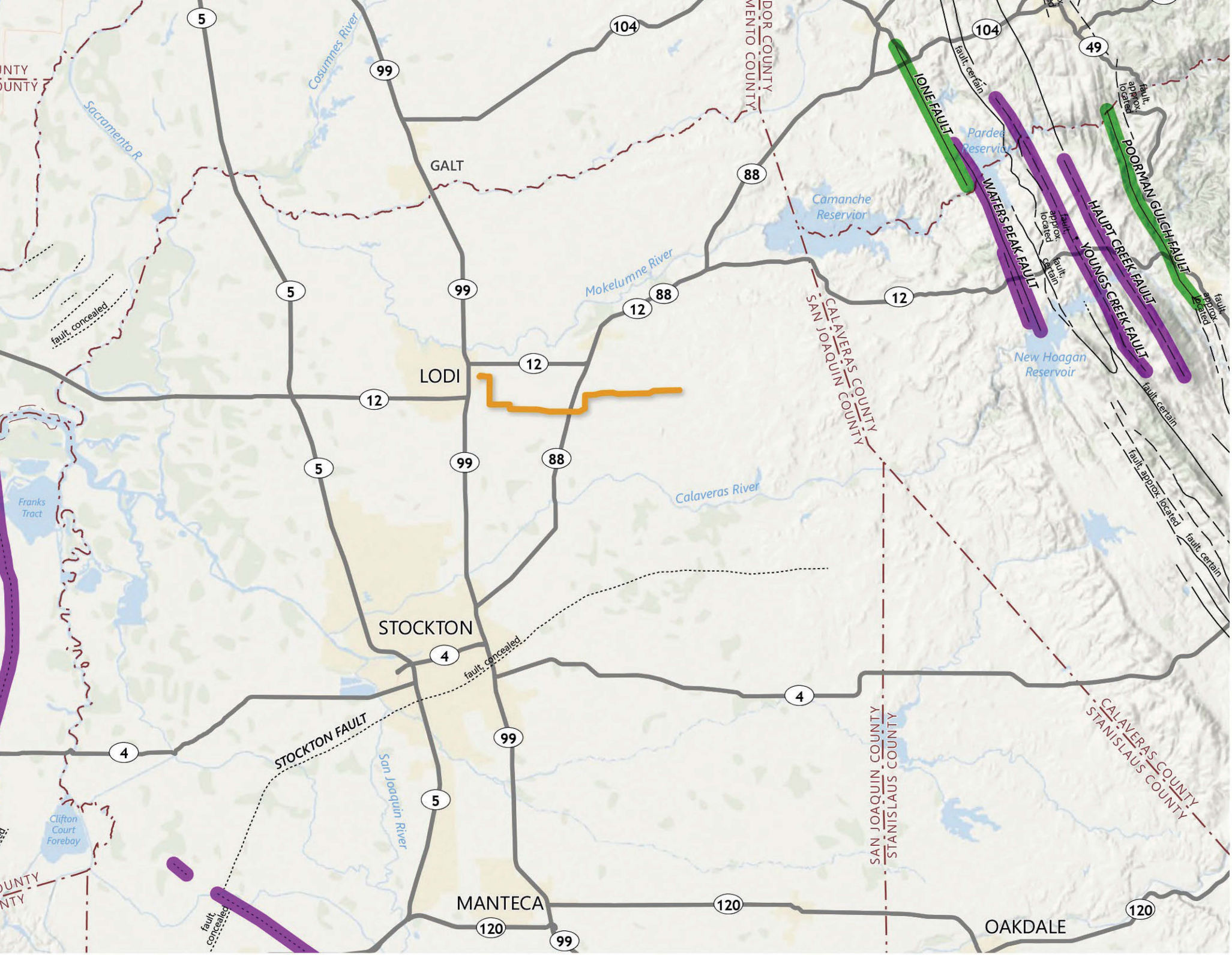
Liquefaction and Lateral Spreading

Liquefaction is a phenomenon in which loose, saturated, granular soil deposits lose a significant portion of their shear strength because of excess pore water pressure buildup. An earthquake typically causes an increase in pore water pressure and subsequent liquefaction. These soils behave like a liquid during seismic shaking and resolidify when shaking stops. The potential for liquefaction is highest in areas with high groundwater and loose, fine, sandy soils at depths of less than 50 feet. Liquefaction may also lead to lateral spreading. Lateral spreading (also known as expansion) is the horizontal movement or spreading of soil toward an "open face," such as a streambank, the open side of fill embankments, or the sides of levees. It often occurs in response to liquefaction of soils in an adjacent area. The potential for failure from lateral spreading is highest in areas where there is a high groundwater table, where there are relatively soft and recent alluvial deposits, and where creek banks are relatively high.

The project area is not within a known area of liquefaction hazard (CGS 2021). Sandy and loamy soils comprise most of the soils underlying the project. The introduction of water to the project area through irrigation or excessive rainfall may increase the potential for liquefaction during seismic events. However, the liquefaction potential of the substation sites in the project area is negligible based on the relatively dense soil types and depth to groundwater at the PG&E Lockeford Substation, PG&E Thurman Switching Station, LEU Industrial Substation, and LEU Guild Substation (Burns & McDonnell 2020; Kleinfelder 2019a; Kleinfelder 2019b).

Mass Wasting and Landslides

Mass wasting refers to the collective group of processes that characterize down-slope movement of rock and unconsolidated sediment overlying bedrock. These processes include landslides, slumps, rockfalls, flows, and creeps. Many factors contribute to the potential for mass wasting, including geologic conditions, as well as the drainage, slope, and vegetation of the site. The project area is relatively flat (0- to 1-percent slope) and is distant from hills, mountains, or slopes. In addition, no landslides have been mapped within or adjacent to the project area (CGS 2015). For these reasons, the project area is not prone to seismic-induced landslides.


GALT
LODI
STOCKTON
MANTECA
OAKDALE
IONE FAULT
WATERS PEAK FAULT
HAUPT CREEK FAULT
YOUNGS CREEK FAULT
POORMAN GULCH FAULT
STOCKTON FAULT
fault, concealed
fault, certain
fault, approx. located
CALAVERAS COUNTY
SAN JOAQUIN COUNTY
STANISLAUS COUNTY
AMADOR COUNTY
SACRAMENTO COUNTY
Cosumnes River
Sacramento R
Mokelumne River
Calaveras River
San Joaquin River
Camanche Reservior
Pardee Reservior
New Hoagan Reservoir
Franks Tract
Clifton Court Forebay
5
99
104
88
12
4
120
49

GROUNDWATER

The project area is entirely within the Eastern San Joaquin Groundwater Subbasin of the San Joaquin Groundwater Basin. The subbasin is west of the Sacramento–San Joaquin River Delta and is bounded by the Sierra Nevada foothills to the east, the San Joaquin River to the west, Dry Creek to the north, and the Stanislaus River to the south (ESJGWA 2022). In the eastern part of the subbasin, groundwater flows from east to west and generally mirrors the eastward-sloping topography of the geologic formations (DWR 2006). In the western part of the subbasin, groundwater flows eastward toward areas with relatively lower groundwater elevation (DWR 2006). Measurements over the past 60 years show a fairly continuous decline in groundwater levels in Eastern San Joaquin County (ESJGWA 2022). Due to the continued overdraft of groundwater within the subbasin, significant groundwater depressions are present east of Stockton, east of Lodi, and south of the project area (ESJGWA 2022, Figure 2-37). The groundwater depression extends to depths greater than 50 feet below mean sea level and has a low percolation rate and consequently slow groundwater recharge in the project area (ESJGWA 2022).

Less than a mile south of the proposed PG&E Switching Station is a groundwater monitoring well that records the groundwater level in the City of Lodi (DWR 2020). The well is 165 feet deep and sits at an elevation of 60 feet. In 2000, the water surface was approximately 68 feet below ground surface. The groundwater depth steadily declined, and in 2013, the surface water was approximately 87 feet below ground surface (DWR 2020). Additionally, a geotechnical investigation of the existing PG&E Lockeford Substation did not encounter regional groundwater; however, perched water, or water that has been blocked from reaching the groundwater table due to geologic features, was discovered at two of the test sites at about 5-feet deep (Kleinfelder 2019a). Please see Section 3.11, "Hydrology and Water Quality," for additional details regarding the groundwater within the project area.

SUBSIDENCE

Land subsidence is the gradual settling or sinking of an area with very little horizontal motion. Subsidence can be induced by both natural and human phenomena. Natural phenomena include shifting of tectonic plates and dissolution of limestone resulting in sinkholes. Subsidence related to human activity includes pumping water, oil, and gas from underground reservoirs; collapse of underground mines; drainage of wetlands; and soil compaction.

Areas in California, including portions of San Joaquin County, have seen subsidence related to over-pumping of groundwater. While as much as 28 feet of subsidence has occurred in portions of the San Joaquin Valley to the south and west of the project area (USGS 2018), little subsidence (during the last 6 years, the annual vertical displacement rate is calculated as -0.2 to -0.1 foot) has been reported in the eastern San Joaquin groundwater basin where the project is located (DWR 2022).

SOIL CONDITIONS

Project Area Soils

Soils in the project area are shown on Figure 3.8-3. The project area surface soils are predominantly mapped as Tokay fine sandy loam, 0- to 2-percent slopes, and Kingdon fine sandy loam, 0- to 2-percent slopes. Smaller portions of the project area surface soils consist of Acampo sandy loam, 0- to 2-percent slopes; Archerdale very fine sandy loam, 0- to 2-percent slopes, overwashed; Cometa sandy loam, 2- to 5-percent slopes; Montpellier-Cometa complex, 5- to 8-percent slopes; San Joaquin loam, thick surface, 0- to 2-percent slopes; San Joaquin sandy loam, 2- to 5-percent slopes; and Tujunga loamy sand, 0- to 2-percent slopes. Soils of the Tokay series are present largely in the western and portions of the central segments of the project area, and the Kingdon series soils are more predominant in the eastern segment and some portions of the central segment (NRCS 2019).

Both the Kingdon and Tokay soil series consist of very deep, well-drained soils formed from granitic rock sources. They are friable, are low in organic matter, are slightly acidic, and have moderately rapid permeability and slow runoff. They have mixed mineralogy and are uniformly sorted with coarse particles.

Expansive Soils

Expansive soils (also known as shrink-swell soils) are soils that contain expansive clay minerals that can absorb significant amounts of water. The presence of these clay minerals makes the soil prone to large changes in volume in response to changes in water content. When an expansive soil becomes wet, water is absorbed, and it increases in volume. As the soil dries, it contracts and decreases in volume. This repeated change in volume over time can produce enough force and stress on buildings, underground utilities, and other structures to damage foundations, pipes, and walls.

According to NRCS soils data, Kingdon and Tokay soil series within the project area do not contain significant amounts of clay, and, therefore, soil expansion is not a concern in these areas. The smaller areas of Archerdale very fine sandy loam, Cometa sandy loam, Montpellier-Cometa complex, and San Joaquin loams contain higher clay content and have high shrink-swell potential.

Erodible Soils

Erosion is the process by which rocks, soil, and other land materials are abraded or worn away from the Earth's surface over time. The rate of erosion depends on many factors, including soil type and geologic parent materials, slope and placement of soils, and human activity. The potential for erosion is highest in loose, unconsolidated soils. The steepness of slopes and absence of vegetation also are factors that increase the natural rates of erosion. Thus, erosion potential is high in steep, unvegetated areas, especially those disturbed by grading or other construction activities.

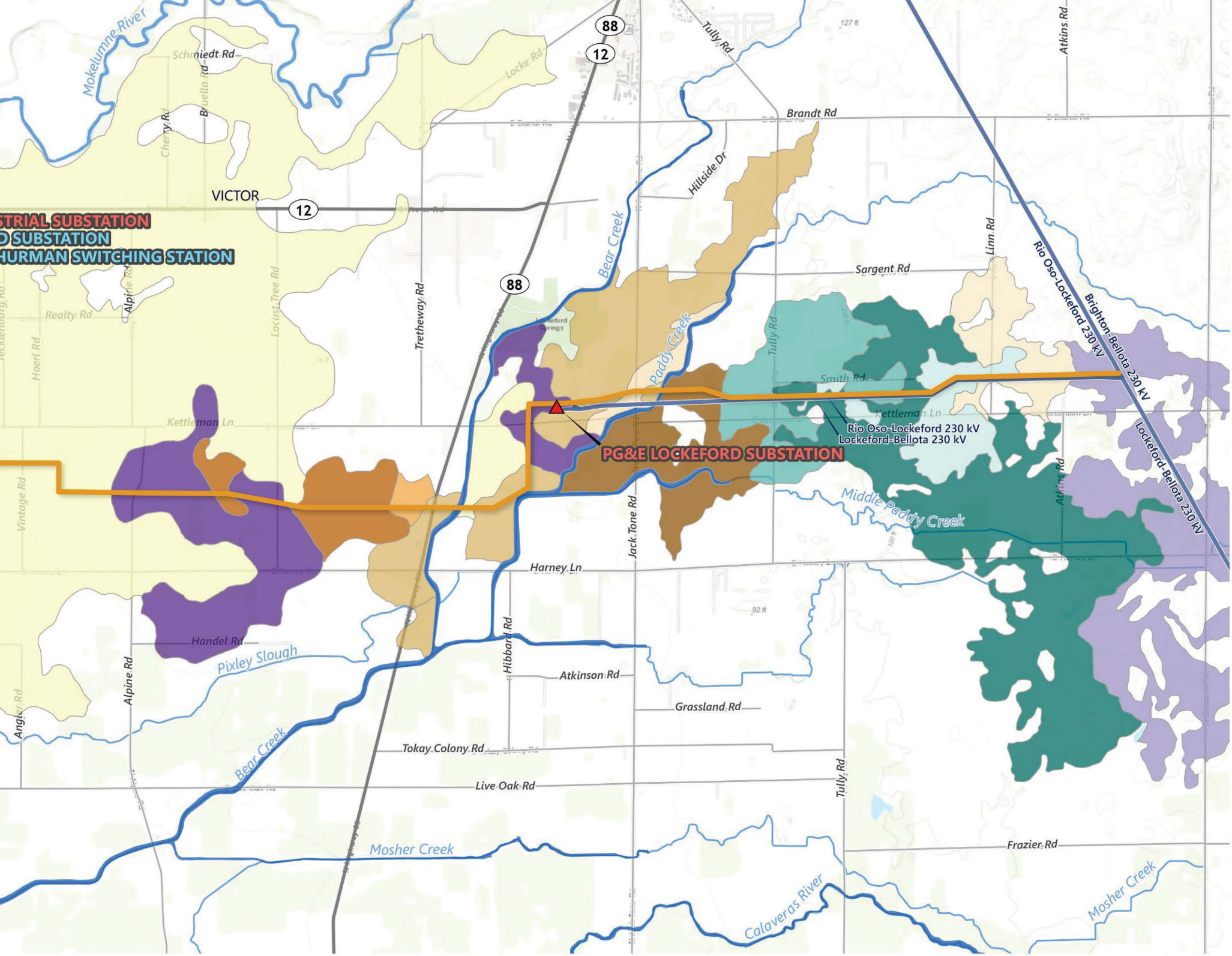
A soil's susceptibility to erosion varies and is a function of its characteristics, such as soil texture, soil structure, topography, amount of vegetative cover, and climate. Erosion from water mainly occurs in loose soils on moderate to steep slopes, particularly during high-intensity storm events. Erosion from wind mainly occurs in dry, loose, and finely granulated soils. Because the topography in the project area is relatively flat, erosion potential is low. The hazard of water erosion is slight for soils across the project area (NRCS 2019).

MINERAL RESOURCES

The California Department of Conservation Division of Mines and Geology developed guidelines for the classification and designation of mineral lands, known as Mineral Resource Zones (MRZs), and retains publications of the Surface Mining and Reclamation Act Mineral Land Classification Project dealing with mineral resources in California.

According to the CGS publication *Special Report 199* (Smith and Clinkenbeard 2012), the project is partially within MRZ-1, specifically, the portion of the project located within the City of Lodi and extending approximately 200 feet east of the city limits. The MRZ-1 designation applies to areas where available geologic information indicates that little likelihood exists for the presence of significant mineral resources. According to the *Lodi General Plan* (City of Lodi 2010), the City of Lodi does not contain significant mineral resources.

The remaining portion of the project in unincorporated San Joaquin County is not within an MRZ. According to the *San Joaquin County General Plan* (San Joaquin County 2016), the mineral resources of San Joaquin County primarily include sand and gravel aggregate, with limited mining of peat, gold, and silver. Existing active mining operations within the county are related to sand and gravel aggregate operations. The closest extraction sites are more than 0.5 miles to the northeast of the project area along the Mokelumne River. No specific mineral resource area or known active sand and gravel aggregate mining operations are within 0.5 miles of the project area.


STRIAL SUBSTATION
D SUBSTATION
HURMAN SWITCHING STATION
PG&E LOCKEFORD SUBSTATION
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
Rio Oso-Lockeford 230 kV
Brighton-Bellota 230 kV
Lockeford-Bellota 230 kV
VICTOR
88
12
Mokelumne River
Schmiedt Rd
Locke Rd
Brandt Rd
Hillside Dr
Bear Creek
Sargent Rd
Linn Rd
Tully Rd
Paddy Creek
Smith Rd
Kettleman Ln
Middle Paddy Creek
Atkins Rd
Tretheway Rd
Jack Tone Rd
Harney Ln
Handel Rd
Pixley Slough
Alpine Rd
Hibbard Rd
Atkinson Rd
Grassland Rd
Tokay Colony Rd
Live Oak Rd
Mosher Creek
Frazier Rd
Calaveras River
Realty Rd
Hoerl Rd
Locust Tree Rd
Vintage Rd
Cherry Rd
Bruella Rd
Alpine Rd
Angler Rd
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92 ft
Exist
Soil
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19010

UNIQUE PALEONTOLOGICAL RESOURCES AND GEOLOGIC FEATURES

Paleontological resources are fossilized remains of plants and animals. These can include vertebrates (animals with backbones), invertebrates (animals without backbones), and microfossils (microscopic plants and animals). The Society of Vertebrate Paleontology defines paleontological resources to be older than recorded history or older than 5,000 years old. A Paleontological Resources Impact Evaluation Report was prepared for the project and evaluated the paleontological resource sensitivity of the project area, relying on published geological mapping and the sensitivity of each geologic unit (see Appendix G). From the end of the Mesozoic Era (Upper Cretaceous Series) into the Cenozoic Era, the deep-sea basin in which the Great Valley Sequence was deposited experienced numerous periods of deposition from various transgressions (local sea level rises) and regressions (local sea level drops) along with localized depositional hiatuses and several unconformities (Bartow 1991). These marine transgressions and regressions resulted in aquatic and terrestrial depositional environments, respectively, with differing associated biota. In the Neogene and Quaternary Periods, depositional environments changed from shallow marine to nonmarine (Galloway et al. 1999), again with differing associated biota. Such geological and ecological changes through time have implications for the possible distribution of paleontological resources in the project area.

Geologic Units and Paleontological Resources

The following setting information is summarized from the Paleontological Resources Impact Evaluation Report prepared for the project (Appendix G) and describes the geologic units within the project area and the potential paleontological resources associated with each unit. The Paleontological Resources Impact Evaluation Report included institutional records searches and a scientific literature review for the study area, which included the proposed alignment and a 0.5-mile buffer on each side (i.e., a total of 1 mile). The Paleontological Resources Impact Evaluation Report is provided as Appendix G of this EIR.

Pleistocene to Holocene

Pleistocene to Holocene geologic formations represent the major Pleistocene formations of the eastern San Joaquin Valley from youngest to oldest: Modesto Formation, Riverbank Formation, and Turlock Lake Formation, as well as the more recent sediments (Qha and Qu). During the Pleistocene, also known as the Ice Age, the Central Valley was teeming with animals. Late Ice Age fauna is known as the Rancholabrean Land Mammal stage. This group includes herbivores such as mammoth, mastodon, camels, bison, llamas, elk, and horses, as well as predators such as the short-faced bear, saber-tooth cat, scimitar cat, dire wolf, and California lion. Middle and early Ice Age fauna is known as the Irvingtonian Land Mammal stage, which includes mammoths, mastodons, and other members of the elephant family; horses; bone-crushing dogs; hyenas; wolves; saber-toothed cats; and bears. Fossils representing these fauna have been found in the San Joaquin Valley.

Alluvium/Colluvium

The alluvium/colluvium represents unnamed Holocene and possibly latest Pleistocene sediment. This formation is widespread across the state of California. It consists of unconsolidated sediment that is generally considered too young to produce significant fossils. Occasionally, significant vertebrate fossils are found in this sediment because it is older than previously thought or because older layers lie close to the surface. No fossil localities associated with this sediment were found within the 1-mile study area. The closest fossil locality within this type of sediment was found approximately 9 miles from the project area.

Modesto Formation

The Modesto Formation geologic units are the youngest Pleistocene geologic units in the project area and are thought to date to the late Ice Age, or the Rancholabrean Land Mammal Age. Modesto Formation sediments are fluvial and, under some circumstances, have been fossiliferous. Fossils are occasionally found in sediment attributed to the Modesto Formation, primarily along major rivers and first-order streams.

Eleven fossil localities are attributed to the Modesto Formation in the University of California Museum of Paleontology (UCMP) database. Only three of these fossil localities are in San Joaquin County. All three of these were found during an expansion of SR 99, approximately 30 miles south of the project area in the City of Stockton (UCMP #s V2016003,

V2016004, and V2016005). In addition, fossils discovered approximately 9 to 11 miles southwest of the project area, in the Lincoln Village neighborhood of Stockton, were not attributed to any formation in the UCMP database but were found in sediment mapped as Modesto Formation at the surface. However, in general, many fossil localities that have been attributed to Modesto Formation are likely to be part of the upper Riverbank Formation, which lies just below the Modesto Formation.

Riverbank Formation

The Riverbank Formation geologic units date from about 450,000 years ago to 150,000 years ago, covering the late Irvingtonian Land Mammal Age as well as the early- and mid-Rancholabrean Land Mammal Age (Dundas et al. 1996). The Riverbank Formation has yielded early Rancholabrean and late Irvingtonian mammalian fossils, including the extinct North American camel, mammoth, ground sloth, and bison. As described above, many fossil localities that have been attributed to the Modesto Formation have been revealed under scrutiny to be from the upper Riverbank Formation. The fossiliferous Riverbank Formation layer is a compound soil with a strongly gleyed (green-gray-blue wetland soil) horizon with a discontinuous hardpan composed of caliche (calcium carbonate cementing the fine-grained alluvium). Similarly, fossil localities attributed to the Riverbank Formation sometimes have been found to be part of the Turlock Lake Formation. However, no fossil localities associated with the Riverbank Formation were found within the 1-mile study area. The closest fossil locality within the Riverbank Formation was found approximately 7 miles from the project area.

Turlock Lake Formation

The Turlock Lake Formation is an early- to mid-Pleistocene geologic unit that corresponds to the Irvingtonian Land Mammal Age, a period not well represented in the fossil record. Since 1993, thousands of vertebrate fossils have been found in the Turlock Lake Formation approximately 20 miles southeast of the project area, at Fairmead Landfill in the City of Chowchilla. Fossils from more than 72 taxa were found.

Fairmead Landfill fossils were found in the upper unit of the Turlock Lake Formation in a large deposit of greenish clay a half meter thick. The discovery occurred 40 feet below ground surface (bgs), under approximately 30 feet of Riverbank Formation sediment, including the middle and upper unit. The fossils were found in the first 10 feet of Turlock Lake Formation sediment.

Outside of the Fairmead Landfill discovery, fossil discoveries in the Turlock Lake Formation are limited. Although there is evidence that some Turlock Lake Formation fossils, including the Fairmead Landfill site, are mistakenly attributed to Riverbank Formation in UCMP, no other vertebrate fossil localities in the Turlock Lake Formation were found for this assessment. Several plant fossil localities are attributed to Turlock Lake Formation, but all are in eastern Fresno County approximately 120 miles from the project area.

Miocene to Pliocene

Late Miocene period (approximately 12 to 5 million years ago) and Pliocene period (approximately 5 to 2.6 million years ago) geologic formations are present at or near the surface on the east side of the project area.

Laguna Formation

The Laguna Formation is a Pliocene period formation dating from 5 to 2.6 million years ago. No fossil localities are attributed to Laguna Formation in UCMP, and no other evidence was found that the Laguna Formation is fossiliferous.

Paleontological Survey Results

The project area extends approximately 9 miles from the east side of the City of Lodi across unincorporated San Joaquin County farmland. This area lies within the Great Valley Geomorphic Province of California (also known as the Central Valley), a relatively flat alluvial plain approximately 400 miles long and approximately 50 miles wide. The Central Valley is a structural trough or basin in which sediments have been accumulating since the Jurassic Period (about 160 million years ago). The project area is within the San Joaquin Valley (the southern half of the Central Valley), just south of the Mokelumne River, a major waterway that flows from the central Sierra Nevada Range into the Sacramento-San Joaquin River Delta. The closest project alignment to the Mokelumne River is approximately 1 mile south of its current channel. Bear Creek, a tributary of the Mokelumne River, flows through the project area.

The project area is mostly farmland dedicated to row crops, except for the western end, which is within an industrial zone of the City of Lodi.

Institutional records searches and scientific literature review were performed for the project area and surrounding areas (Appendix G). No records of fossils or documented fossil collection localities were found within the project area or within approximately 1 mile of the project area. Table 3.8-1 summarizes the paleontological sensitivity of the geologic units in and around the project area.

Table 3.8-1 Paleontological Sensitivity of Geologic Units in and around the Project Area

Geologic Age at Surface	Geologic Unit	Paleontological Sensitivity: PFYC Category	Basis for Sensitivity Rating
Pleistocene to Holocene	Qha: Alluvium (Holocene)	2: low	Holocene age sediment is generally considered too young to contain scientifically significant fossils.
	Qha: Alluvium (Holocene)	2: low	Holocene age sediment is generally considered too young to contain scientifically significant fossils.
	Qu: Alluvium/Colluvium (Holocene/Pleistocene)	2: low	Qu sediment represents Holocene and latest Pleistocene periods. Significant fossils are found occasionally in Qu sediment. However, this geologic unit is relatively widespread at the surface in the San Joaquin Valley, and no fossil localities attributed to this unit were found within approximately 7 miles of the project area. Qu is considered to be of low sensitivity.
	Qm2: Modesto Formation (Pleistocene) Qm2e: Modesto Formation (Pleistocene) Qm2f: Modesto Formation (Pleistocene) Qm1: Modesto Formation (Pleistocene)	2 to 3: low to moderate	The Modesto Formation is the uppermost Pleistocene geologic unit in the project area. Significant fossils are found only occasionally in Modesto Formation. However, at anticipated project excavation depths of 30 feet or more, encountering the upper Riverbank Formation (below the Modesto Formation) is likely because it lies below the Modesto Formation. The Riverbank Formation has moderate sensitivity.
	Qr3: Upper Riverbank Formation (Pleistocene) Qr3f: Upper Riverbank Formation (Pleistocene) Qr2f: Middle Riverbank Formation (Pleistocene) Qr2: Lower Riverbank Formation (Pleistocene) Qr1: Lower Riverbank Formation (Pleistocene)	3: moderate	Riverbank Formation has yielded significant vertebrate fossils of early Rancholabrean or late Irvingtonian age. However, no fossil localities in Riverbank Formation were found for this assessment within approximately 7 miles of the project area. Overall, scientifically significant fossils occur in this formation intermittently and with low predictability outside of major river channels. The Riverbank Formation is determined to have moderate sensitivity.
	Qt_1: Turlock Lake Formation	3: moderate	A significant Irvingtonian Land Mammal Age fossil discovery occurred approximately 20 miles southeast of the study area at Fairmead Landfill. However, evidence of other vertebrate fossil localities in this formation is limited. Several plant fossil localities from this formation were found, but they are all approximately 120 miles from the study area. Turlock Lake Formation has yielded occasional fossils with predictability. At project excavation depths, this formation is determined to have moderate paleontological sensitivity in the study area.
Miocene to Pliocene	Tl: Laguna Formation (Pliocene)	2: low	This formation is not known to be fossiliferous. Accordingly, sensitivity is determined to be low.

PFYC = potential fossil yield classification.

Source: Appendix G.

3.8.2 Regulatory Setting

FEDERAL

National Earthquake Hazards Reduction Act

In October 1977, the US Congress passed the Earthquake Hazards Reduction Act to reduce the risks to life and property from future earthquakes in the United States. To accomplish this, the act established the National Earthquake Hazards Reduction Program (NEHRP). The mission of the NEHRP includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improved building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improved mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency as the lead agency of the program and assigns several planning, coordinating, and reporting responsibilities.

Antiquities Act of 1906

The Antiquities Act of 1906 (Title 16, USC, Sections 431–433) was enacted with the primary goal of protecting cultural resources in the US. This act 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 prior permission of the secretary of the federal department that has jurisdiction over the site. The act also establishes criminal penalties, including fines and imprisonment, for these acts. The Antiquities Act contains a requirement for studies by qualified experts in the subject matter and contains precise stipulations regarding the management/curation of collected materials. Although the Antiquities Act itself and its implementing regulation (43 CFR Section 3) do not specifically mention paleontological resources, "objects of antiquity" has been interpreted to include paleontological resources by the National Parks Service (NPS), the Bureau of Land Management (BLM), the US Forest Service (USFS), and other federal agencies.

STATE

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 (PRC Sections 2621–2630) intends to reduce the risk to life and property from surface fault rupture during earthquakes by regulating construction in active fault corridors and by prohibiting the location of most types of structures intended for human occupancy across the traces of active faults. The act defines criteria for identifying active faults, giving legal support to terms such as active and inactive, and establishes a process for reviewing building proposals in Earthquake Fault Zones. Under the Alquist-Priolo Act, faults are zoned and construction along or across these zones 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 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 (Bryant and Hart 2007). Before a project can be permitted in a designated Alquist-Priolo Earthquake Fault Zone, cities and counties must require a geologic investigation to demonstrate that proposed buildings would not be constructed across active faults. The law addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards.

Seismic Hazards Mapping Act

The intention of the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) is 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 ground shaking, liquefaction, and seismically induced landslides. The act's provisions 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,

and 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.

California Building Code

The California Building Code (CBC) (California Code of Regulations, Title 24) is based on the International Building Code. The CBC has been modified from the International Building Code for California conditions, with more detailed and stringent regulations. Specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design. Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, and Chapter 18A regulates construction on unstable soils, such as expansive soils and areas subject to liquefaction. Appendix J of the CBC regulates grading activities, including drainage and erosion control. The CBC contains a provision that requires completion of a geotechnical investigation, including a preliminary soil report to identify "the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects" (CBC Chapter 18 Section 1803.1.1.1). The geotechnical investigation must include, among other requirements, a record of the soil profile as well as recommendations for foundation type and design criteria that address issues such as (but not limited to) bearing capacity of soils, provisions to mitigate the effects of expansive soils, liquefaction, settlement, and varying soil strength. CBC Chapter 18 Section 1803.1.1.3 states that if a building department, or other appropriate enforcement agency, determines that recommended action(s) presented in the geotechnical investigations are likely to prevent structural damage, the approved recommended action(s) must be made a condition to the building permit.

National Pollutant Discharge Elimination System Construction General Permit

The National Pollutant Discharge Elimination System (NPDES) Program is a federal program that has been delegated to the State of California for implementation through the State Water Resources Control Board and the nine Regional Water Quality Control Boards. In California, NPDES permits are also referred to as waste discharge requirements (WDRs) that regulate discharges to waters of the United States.

Projects that disturb 1 or more acres of soil or projects that disturb less than 1 acre but are part of a larger common plan of development that in total disturbs 1 or more acres are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ (Construction General Permit). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility.

The Construction General Permit requires the development of a stormwater pollution prevention plan (SWPPP) by a certified qualified SWPPP developer. A SWPPP identifies the measures required to minimize the potential discharge of pollutants from the construction site, including sediment, as well as erosion. Measures to reduce erosion include filter fences, fiber rolls, erosion control blankets, mulch (such as wood chips), temporary drainage swales, settling basins, routine application of water to disturbed land areas, covering of stockpiles with plastic or fabric sheeting, and other erosion-control methods.

California Public Resources Code Sections 5097.5 and 30244

PRC Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands. Further, California Penal Code Section 622.5 sets the penalties for the unlawful damage to or removal of paleontological resources.

PRC Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands. Further, California Penal Code Section 622.5 sets the penalties for damage or removal of paleontological resources.

California Surface Mining and Reclamation Act

The California Surface Mining and Reclamation Act of 1975 requires the state geologist to classify land into MRZs according to the known or inferred mineral potential of the land (PRC Sections 2710–2796). The current mineral land classification report for the area, Special Report 199 (Smith and Clinkenbeard 2012), which is an update of predecessor

Special Report 160 (Jensen and Silva 1989), confirms that the mineral land classification categories that were current when Special Report 160 was developed were still valid for the updated report. The MRZ categories applicable to this project are described as follows:

- MRZ-1: Areas where available geologic information indicates that little likelihood exists for the presence of significant mineral resources.
- MRZ-2: Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists. This zone shall be applied to known mineral deposits or where well-developed lines of reasoning, based upon economic-geologic principles and adequate data, demonstrate that the likelihood for occurrence of significant mineral deposits is high.
- MRZ-3: Areas containing known or inferred mineral occurrences of undetermined mineral resource significance.
- MRZ-4: Areas where available information is inadequate to assign any other classification.

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City and County) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Because LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County General Plan

The San Joaquin County General Plan (San Joaquin County 2016) contains the following policies related to geology, soils, and mineral resources that are relevant to the project:

- Policy PHS-3.1: Consider Geologic Hazards for New Development. The County shall consider the risk to human safety and property from seismic and geologic hazards in designating the location and intensity for new development and the conditions under which that development may occur.
- Policy PHS-3.2: Location and Sensitive Land Uses. The County shall not approve any of the following land uses if they are located within one-eighth of a mile of any active fault or on soil that is highly susceptible to liquefaction: facilities necessary for emergency services; major utility lines and facilities; manufacturing plants using or storing hazardous materials; high occupancy structures, such as multifamily residences and large public assembly facilities; and facilities housing dependent populations, such as prisons, schools, and convalescent centers.
- Policy PHS-3.4: Liquefaction Studies. The County shall require proposals for new development in areas determined by the County to have high liquefaction potential to include detailed site-specific liquefaction studies.
- Policy PHS-3.5: Subsidence or Liquefaction. The County shall require that all proposed structures, utilities, or public facilities within County-recognized areas of near-surface subsidence or liquefaction be located and constructed in a manner that minimizes or eliminates potential damage.
- Policy PHS-3.7: Erosion Control. The County shall encourage the planting of vegetation to decrease loss of soil by erosion.

San Joaquin County Code, Title 8 (Building Regulations)

The San Joaquin County Board of Supervisors adopted and enacted the provisions set forth in the 2022 California Building Code, including Chapter 1, Division II, and Appendix Chapters C, I, and J, and incorporates by adoption the 2021 International Building Code as the Building Code of the County of San Joaquin, except those portions of the 2022 California Building Code which are not adopted or which are amended specifically in the County Code.

City of Lodi General Plan

The City of Lodi General Plan (City of Lodi 2010) contains the following policies related to geology, soils, and mineral resources that are relevant to the project:

- **Policy S-P18.** Ensure that all public facilities, such as buildings, water tanks, underground utilities, and berms, are structurally sound and able to withstand seismic activity.
- **Policy S-P20.** Require soils reports for new projects and use the information to determine appropriate permitting requirements, if deemed necessary.
- **Policy S-P21.** Require that geotechnical investigations be prepared for all proposed critical structures (such as police stations, fire stations, emergency equipment, storage buildings, water towers, wastewater lift stations, electrical substations, fuel storage facilities, large public assembly buildings, designated emergency shelters, and buildings three or more stories high) before construction or approval of building permits, if deemed necessary. The investigation shall include estimation of the maximum credible earthquake, maximum ground acceleration, duration, and the potential for ground failure because of liquefaction or differential settling.
- **Policy C-P18.** In the event that archaeological/paleontological resources are discovered during site excavation, the City shall require that grading and construction work on the project site be suspended until the significance of the features can be determined by a qualified archaeologist/paleontologist. The City will require that a qualified archaeologist/paleontologist make recommendations for measures necessary to protect any site determined to contain or constitute an historical resource, a unique archaeological resource, or a unique paleontological resource or to undertake data recovery, excavation, analysis, and curation of archaeologist/paleontologist materials. City staff shall consider such recommendations and implement them where they are feasible in light of project design as previously approved by the City.

City of Lodi Municipal Code, Chapter 15.04 (Building Code)

The City of Lodi adopted the provisions set forth in the 2022 California Building Code, Volumes 1 and 2, including Chapter 1, Division II, Appendix I and J, California Building Code, as the City Building Code. The City's Building Code applies to all matters pertaining to the erection, construction, enlargement, alteration, repair, moving, removal, conversion, demolition, occupancy, equipment, use, height, area, and maintenance of buildings or structures in the city.

3.8.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

The examination of geology, soils, and mineral resources is based on information obtained from reviews of:

- available literature, including documents published by the City of Lodi, the County of San Joaquin, State and federal agencies, and published information addressing geotechnical conditions in the San Joaquin County area;
- applicable elements from the San Joaquin County General Plan and the City of Lodi General Plan and building codes;
- the geotechnical investigation reports prepared for the project (Appendices H1, H2, and H3); and
- the paleontological resource impact evaluation report prepared for the project (Appendix G).

Information obtained from these sources was reviewed and summarized to describe existing conditions and to inform the identification of potential environmental effects, based on the significance criteria presented in this section. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local laws, ordinances, and regulations.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant proposed measures (APMs) that are incorporated into PG&E's components of the proposed project. Similarly, LEU has developed best management practices (BMPs) that would apply to the LEU components of the proposed project. The project includes the following APMs and BMPs related to geology, soils, and mineral resources:

PG&E APMs

- APM AIR-1: PG&E Dust Control During Construction.
  - PG&E will implement measures to control fugitive dust in compliance with the San Joaquin Valley Air Pollution Control District (SJVAPCD) standards. Dust control measures will include the following at a minimum:
  - All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
  - The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
  - Cover all haul trucks entering/leaving the site and trim their loads as necessary.
  - Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
  - All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
  - Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
  - Water and/or cover soil stockpiles daily.
  - Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
  - All vehicle speeds will be limited to 15 miles per hour or less on unpaved areas.
  - Implement dust monitoring in compliance with the standards of the local air district.
  - Halt construction during any periods when wind speeds are in excess of 50 mph.
- APM GEO-1: Appropriate PG&E Design Measures Implementation. Based in the graded and excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft or loose soils are encountered during design studies or construction on PG&E facilities, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered during construction. Such measures may include the following:
  - Locating construction facilities and operation away from areas of soft and loose soil.
  - Overexcavating soft or loose soils and replacing them with nonexpansive engineered fill.
  - Increasing the density and strength of soft or loose soils through mechanical vibration and compaction.
  - Treating soft or loose soils in place with binding or cementing agents.
  - Construction activities in areas where soft or loose soils are encountered may be scheduled for the dry season, as necessary, to allow safe and reliable equipment access.

- **APM HYD-1: Prepare and Implement a SWPPP for PG&E Project Components.** Stormwater discharges associated with project construction activities are regulated under the CGP [Construction General Permit]. Cases in which construction will disturb 1 acre or greater of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. PG&E will comply with all CGP requirements for construction of PG&E project components.

  Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at PG&E project components. Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the CGP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and waste to stormwater. These safety measures will be installed following manufacturer's specifications and according to standard industry practice.

  Erosion and sediment control measures may include the following:

  - Straw wattle, silt fence, or gravel bag berms
  - Trackout control at all entrances and exits
  - Stockpile management
  - Effective dust control measures
  - Good housekeeping measures
  - Stabilization measures, which may include wood mulch, gravel, and/or seeding.

  Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations.

  The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. The plan will be maintained and updated during construction as required by the CGP.

- **APM HYD-3: Project Site Restoration**. As part of the final construction activities, PG&E will restore all removed curbs and gutters, repave, and restore landscaping or vegetation as necessary for its portion of the project.

- **APM PAL-1: Retain a PG&E Qualified Paleontological Principal Investigator.** A PG&E Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all APMs related to paleontological resources are properly implemented. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.

- APM PAL-2: PG&E Workers Environmental Awareness Training. Training on paleontological resources protection will be administered for excavation deeper than 3 feet below ground surface at all PG&E work locations. It may be provided by the PG&E project Paleontologist or Archaeologist as a stand-alone training or it may be included as part of the overall environmental awareness training as required by the project.

  The training will include the following:

  - The types of fossils that could occur at the project site
  - The types of lithologies in which the fossils could be preserved
  - The procedures that should be taken in the event of a fossil discovery
  - Penalties for disturbing paleontological resources

  A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.

- APM PAL-3: Paleontological Resource Monitoring for Select PG&E Construction Activities. A paleontological monitor will be present to monitor for paleontological resources in areas where Riverbank formation or Turlock Lake formation occurs at the surface and excavation is greater than 3 feet deep and, for excavations involving drilling or augering, uses a drill diameter that is larger than 3 feet. The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits, and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record.

- APM PAL-4: PG&E Unanticipated Paleontological Discovery. If significant paleontological resources are discovered during PG&E's construction activities, the following procedures will be followed:

  - Stop work immediately within 100 feet of the fossil find.
  - Contact the designated project inspector and PG&E Cultural Resources Specialist (CRS) immediately.
  - Protect the site from further impacts, including looting, erosion, or other human or natural damage.
  - Arrange for a PG&E Paleontological Principal Investigator to evaluate the discovery. If the discovery is determined to be significant, PG&E will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and PG&E CRS.
  - Curate all fossils discovered in an appropriate repository.
  - A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing, or increasing, the amount of monitoring required.

LEU BMPs

- BMP AIR-1: LEU Dust Control During Construction.

  LEU will implement measures to control fugitive dust in compliance with the San Joaquin Valley Air Pollution Control District (SJVAPCD) standards. Dust control measures will include the following at a minimum:

  - All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
  - The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.

- Cover all haul trucks entering/leaving the site and trim their loads as necessary.
- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.
- Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- All vehicle speeds will be limited to 15 miles per hour or less on unpaved areas.
- Implement dust monitoring in compliance with the standards of the local air district.
- Halt construction during any periods when wind speeds are in excess of 50 mph.

- BMP GEO-1: Appropriate LEU Design Measures Implementation. Based on available references, sands and loamy sands are the primary soil types expected to be encountered in the graded and excavated areas as project construction proceeds. Potentially problematic subsurface conditions may include soft or loose soils. Where soft or loose soils are encountered during design studies or construction on LEU facilities, appropriate measures will be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered during construction. Such measures may include the following:
  - Locating construction facilities and operation away from areas of soft and loose soil.
  - Overexcavating soft or loose soils and replacing them with nonexpansive engineered fill.
  - Increasing the density and strength of soft or loose soils through mechanical vibration and compaction.
  - Treating soft or loose soils in place with binding or cementing agents.
  - Construction activities in areas where soft or loose soils are encountered may be scheduled for the dry season, as necessary, to allow safe and reliable equipment access.
- BMP HYD-1: Prepare and Implement an SWPPP for LEU Project Components. Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb 1 acre or greater of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. LEU will comply with all CGP requirements for construction of LEU project components.

  Following project approval, LEU will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at LEU project components. Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the CGP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and waste to stormwater. These safety measures will be installed following manufacturer's specifications and according to standard industry practice.

Erosion and sediment control measures may include the following:

- Straw wattle, silt fence, or gravel bag berms.
- Trackout control at all entrances and exits.
- Stockpile management.
- Effective dust control measures.
- Good housekeeping measures.
- Stabilization measures, which may include wood mulch, gravel, and/or seeding.

Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations.

The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. The plan will be maintained and updated during construction as required by the CGP.

- BMP HYD-3: Project Site Restoration. As part of the final construction activities, LEU will restore all removed curbs and gutters, repave, and restore landscaping or vegetation as necessary for its portion of the project.
- BMP PAL-1: Retain an LEU Qualified Paleontological Principal Investigator. An LEU Paleontological Principal Investigator who meets the standards set forth by the Society of Vertebrate Paleontology will be retained to ensure that all BMPs related to paleontological resources are properly implemented. The Paleontological Principal Investigator will have a master's degree or Ph.D. in geology or paleontology, have knowledge of the local paleontology, and be familiar with paleontological procedures and techniques.
- BMP PAL-2: LEU Workers Environmental Awareness Training. Training on paleontological resources protection will be administered for excavation deeper than 3 feet below ground surface at all LEU work locations. It may be provided by the LEU project Paleontologist or Archaeologist as a stand-alone training or it may be included as part of the overall environmental awareness training as required by the project.

  The training will include the following:

  - The types of fossils that could occur at the project site.
  - The types of lithologies in which the fossils could be preserved.
  - The procedures that should be taken in the event of a fossil discovery.
  - Penalties for disturbing paleontological resources.

  A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to the City of Lodi.
- BMP PAL-3: Paleontological Resource Monitoring for Select LEU Construction Activities. A paleontological monitor will be present to monitor for paleontological resources in areas where Riverbank formation occurs at the surface and excavation is greater than 3 feet deep and, for excavations involving drilling or augering, uses a drill diameter that is larger than 3 feet. The paleontological monitor will be able to: (1) recognize fossils and paleontological deposits, and deposits that may be paleontologically sensitive; (2) take accurate and detailed field notes, photographs, and locality coordinates; and (3) document project-related ground-disturbing activities, their locations, and other relevant information, including a photographic record.

- BMP PAL-4: LEU Unanticipated Paleontological Discovery. If significant paleontological resources are discovered during LEU's construction activities, the following procedures will be followed:
  - Stop work immediately within 100 feet of the fossil find.
  - Contact the designated project inspector and LEU Cultural Resource Lead immediately.
  - Protect the site from further impacts, including looting, erosion, or other human or natural damage.
  - Arrange for an LEU Paleontological Principal Investigator to evaluate the discovery. If the discovery is determined to be significant, LEU will implement measures to protect and document the paleontological resource. Work may not resume within 100 feet of the find until approved by the paleontologist and LEU Cultural Resource Lead.
  - Curate all fossils discovered in an appropriate repository.
  - A qualified paleontologist will be notified to review the need for paleontological monitoring during subsequent ground-disturbing activities with the potential to affect paleontologically sensitive sediments at that location. The qualified paleontologist will be responsible for the reassessment of paleontological sensitivity upon the receipt of additional information from ongoing excavations, which may result in reducing, or increasing, the amount of monitoring required.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to geology, soils, and mineral resources under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. A geology, soils, and mineral resources impact would be significant if implementation of the proposed project would:

- directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, soil liquefaction, or landslides;
- 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 on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- be located on expansive soil, creating substantial direct or indirect risks to property;
- have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water;
- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;
- 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; or
- 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.

In 2015, the California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 377–378, clarified that CEQA generally does not require a lead agency to consider the impacts of existing environmental conditions on the future occupants or users of a project. However, if a project could exacerbate pre-existing environmental hazards or conditions, the lead agency must analyze the impact of that exacerbated condition on the environment, which may include future occupants and users within the project area.

ISSUES NOT DISCUSSED FURTHER

Surface Fault Rupture

The project area is not located within an Alquist-Priolo active fault zone, and there is no evidence of active faulting within or near the project area. No known active faults cross the existing facilities or proposed project components, and none are located within approximately 10 miles of the immediate project area. The closest active fault is the Greenville Fault, located approximately 40 miles to the southwest of the existing and proposed substations in the City of Lodi. Therefore, surface fault rupture within the project area is not anticipated to occur. Given the substantial distance between the closest active fault and the project area, the proposed project would have no potential to directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault. Therefore, no impact would occur, and this issue is not evaluated further in this EIR.

Strong Seismic Ground Shaking

As previously mentioned, the project area is not located within an Alquist-Priolo active fault zone, and there is no evidence of active faulting within or near the project area. However, the project is in an area that is subject to ground shaking from earthquakes generated on faults associated with the Coast Ranges to the west. The closest active fault is the Greenville Fault, located approximately 40 miles to the southwest of the existing and proposed substations in the City of Lodi. Other active faults include the Calaveras Fault (located approximately 50 miles to the southwest), Hayward Fault (located approximately 60 miles to the southwest), and San Andreas Fault zone (located approximately 80 miles to the southwest). Given the substantial distance between these active faults and the project area, it is not anticipated that the project components would be exposed to strong ground shaking, nor would the project exacerbate their effects. In addition, all new structures associated with the project would be developed in compliance with the most current version of the CBC, which includes requirements to address seismic ground shaking. Specifically, the specific minimum seismic safety and structural design requirements are set forth in Chapter 16 of the CBC. The CBC identifies seismic factors that must be considered in structural design. Furthermore, the project does not include the construction of any habitable structures that could be exposed (including its occupants) to strong ground shaking. Lastly, impact of the environment on a project (such as the impact of existing seismic ground shaking hazards on new project receptors) is not considered to be an impact requiring consideration under CEQA, unless the project could exacerbate an existing environmental hazard. As mentioned, the project would have no potential to exacerbate the effects of strong ground shaking. For these reasons, the project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Therefore, no impact would occur, and this issue is not evaluated further in this EIR.

Landslides

The project area is relatively flat (0- to 1-percent slope) and is distant from hills, mountains, and slopes. Except for creeks and unlined irrigation channel crossings, the proposed transmission line alignment would be located on level ground. In addition, no landslides have been mapped within or adjacent to the project area (CGS 2015). Therefore, the project area is not expected to be prone to seismic-induced landslides, nor would the project exacerbate landslide hazards. Accordingly, the proposed project would have no potential to directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. Therefore, no impact would occur, and this issue is not evaluated further in this EIR.

Subsidence

Although as much as 28 feet of subsidence has occurred in portions of the San Joaquin Valley to the south and west of the project area (USGS 2018), little subsidence (during the last 6 years, the annual vertical displacement rate is calculated as -0.2 to -0.1 foot) has been reported in the eastern San Joaquin groundwater basin where the project is located (DWR 2022). Furthermore, the project does not propose to draw groundwater from the eastern San Joaquin groundwater basin. Therefore, the project would not increase the potential for subsidence during construction or O&M. Accordingly, no impact would occur, and this issue is not evaluated further in this EIR.

Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems

The proposed project involves the construction, operation, and maintenance of electrical infrastructure. The project does not propose the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur, and this issue is not evaluated further in this EIR.

Loss of Mineral Resources

The westernmost portion of the project is in an area identified as MRZ-1, which is an area where there is little likelihood of significant mineral resources, and there are no known mineral resources, active mining claims, or active mining operations within 0.5 mile of the project, either within the City of Lodi or within San Joaquin County. PG&E project components within MRZ-1 include the portions of the three existing PG&E 60 kV lines currently terminating at LEU Industrial Substation; the new PG&E Thurman Switching Station; an extended electrical service line for secondary station power; and approximately 1,550 feet of the western extent of the new PG&E 230 kV transmission line. LEU project components within the MRZ-1 area include the existing LEU Industrial Substation, new Guild Substation, and an existing electrical customer service line. The LEU project components are within 0.5 miles of the city limits. Therefore, loss of availability of a known mineral resource of value to the region and residents of the state would not occur. In addition, the *San Joaquin County General Plan* and the *Lodi General Plan* do not designate any locally important mineral resources within 0.5 miles of the project. Therefore, the project would not result in the loss of availability of a locally important mineral resource recovery site. Therefore, no impact would occur, and this issue is not evaluated further in this EIR.

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. System protection work typically occurs in the control room and employs two workers that do not need construction equipment. The work may also include extending existing fiber telecommunication lines and potentially removing redundant telecommunication equipment within existing fenced station facilities in areas of previous ground disturbance. If the communication equipment is removed from PG&E remote-end substations instead of retired in place, a crew of approximately six workers would use cranes or manlifts and potentially a jack hammer or backhoe to remove the equipment and the top part of foundations. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. These PG&E facilities have existing health and safety plans that address the potential hazard of being onsite during an earthquake. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project components would not result in physical environmental changes that could directly or indirectly cause the risk of loss, injury, or death involving the rupture of a known earthquake fault, strong seismic shaking, seismic-related ground failure, soil liquefaction, or landslides; result in substantial soil erosion or the loss of topsoil; result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse; create substantial direct or indirect risks to property due to location on expansive soil; directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; 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; or 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. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact GEO-1: Directly or Indirectly Cause Potential Substantial Adverse Effects due to Liquefaction

PG&E and LEU Project Components

Construction Activities

According to CGS Earthquake Hazards Zone Application, the project area is not within a known area of liquefaction hazards (CGS 2021). Similarly, the geotechnical reports prepared for the project concluded that the liquefaction potential of the substation sites in the project area is negligible based on the relatively dense soil types and depth to groundwater at the PG&E Lockeford Substation, PG&E Thurman Switching Station, LEU Industrial Substation, and LEU Guild Substation (Burns & McDonnell 2020; Kleinfelder 2019a; Kleinfelder 2019b). However, sandy and loamy soils comprise most of the soils underlying the project area, particularly along the proposed PG&E transmission line route. The introduction of water through irrigation or excessive rainfall along the transmission line areas may increase the potential for liquefaction during seismic events.

All new structures associated with the project would be developed in compliance with the most current version of the CBC, which includes requirements to address unstable soils and liquefaction. Specifically, Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, while Chapter 18A regulates construction on unstable soils, such as expansive soils and areas subject to liquefaction. The CBC contains a provision that requires completion of a geotechnical investigation, including a preliminary soil report to identify "the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects" (CBC Chapter 18 Section 1803.1.1.1). The geotechnical investigation must include, among other requirements, a record of the soil profile as well as recommendations for foundation type and design criteria that address issues such as (but not limited to) bearing capacity of soils, provisions to mitigate the effects of expansive soils, liquefaction, settlement, and varying soil strength. CBC Chapter 18 Section 1803.1.1.3 states that if a building department, or other appropriate enforcement agency, determines that recommended action(s) presented in the geotechnical investigations are likely to prevent structural damage, the approved recommended action(s) must be made a condition to the building permit.

Operation and Maintenance

PG&E's and LEU's proposed O&M activities would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction because any potential hazards associated with liquefaction would be addressed during the project design and construction phases.

Implementation of APMs and BMPs

APM GEO-1 and BMP GEO-1 would require the implementation of appropriate design measures where soft or loose soils are encountered during design studies or construction of PG&E and LEU facilities. These measures could include locating construction activities away from areas of soft and loose soil; increasing the density and strength of soft or loose soils through mechanical vibration and compaction; treating soft or loose soils in place with binding or cementing agents; and scheduling construction activities in areas where soft or loose soils are encountered to occur in the dry season, as necessary. These measures would be implemented to avoid, accommodate, replace, or improve soft or loose soils encountered. The implementation of APM GEO-1 and BMP GEO-1 would support project compliance with the CBC by providing potential methods for addressing liquefaction.

Significance before Mitigation

According to CGS Earthquake Hazards Zone Application, the project area is not within a known area of liquefaction hazards (CGS 2021). Similarly, the geotechnical reports prepared for the project concluded that the liquefaction potential of the substation sites in the project area is negligible based on the relatively dense soil types and depth to groundwater (Burns & McDonnell 2020; Kleinfelder 2019a; Kleinfelder 2019b). However, sandy and loamy soils comprise most of the soils underlying the project area, particularly along the proposed PG&E transmission line route. Compliance with the CBC would ensure that construction of the project components would not directly or indirectly

cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction. Additionally, the implementation of APM GEO-1 and BMP GEO-1 would support project compliance with the CBC by avoiding, accommodating, replacing, and/or improving soft or loose soils encountered to ensure that construction of the project components would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction. Once the project components are operational, PG&E and LEU O&M would not include any activities that would directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact GEO-2: Result in Substantial Erosion or Loss of Topsoil

PG&E and LEU Project Components

Construction Activities

Construction of the PG&E and LEU project components would have the potential to result in erosion from activities such as grading and vegetation clearing. Grading activities would be required for construction of the new PG&E Lockeford Substation, for expansion the existing PG&E Thurman Switching Station, for construction and expansion of the LEU Guild Substation, for improvements at the LEU Industrial Substation, and at specific areas along the PG&E 230 kV transmission line route to create temporary work areas or a level structure area. Minimal grading and vegetation clearing may be required for transmission line structure installation, pull-and-tension site development, temporary access roads, and staging areas.

During construction, the existing network of public and private roads (paved and unpaved) would primarily be used to access stations, structure work areas, pull-and-tension sites, and staging areas. Most structure work areas would be parallel to or adjacent to agricultural, city, or county roads. Therefore, most work areas would be accessed directly from adjacent roads. In some instances, however, modification of existing roads is anticipated to occur on some unpaved agricultural roads, at certain intersections, and during the winter months as needed to improve access. In addition, temporary access routes, including temporary access roads and overland access routes, may also be required, which would require minimal grading and vegetation clearing. Within row crop, orchard, and vineyard settings, temporary access roads and overland access are identified to minimize disruptions to irrigation infrastructure (including irrigation lines, wells, pumps, ditches, and drains). The modifications to existing unpaved roadways and installation of new temporary access routes would have the potential to result in soil erosion and loss of topsoil.

For construction projects larger than 1 acre, regulatory compliance with the NPDES Construction General Permit (Order 2022-0057-DWQ) is required. The total area of temporary ground disturbance for project construction would be 48.15 acres and would include staging areas, installation clearances, and temporary access roads to the structures along the power lines. Therefore, construction of the project would be subject to the NPDES Construction General Permit. As part of the Construction General Permit, PG&E and LEU would be required to prepare and implement a SWPPP, which requires the identification and implementation of erosion and sediment control features (including wind erosion) to reduce the project's potential for soil erosion during construction. Inspection of construction sites before and after storms is also required to identify stormwater discharge from the construction activity and to identify and implement erosion controls, where necessary. Typical measures included in a SWPPP that address erosion and would be implemented for this project include using filter fences, fiber rolls, erosion control blankets, mulch (such as wood chips), temporary drainage swales, settling basins, routine application of water to disturbed land areas, covering of stockpiles with plastic or fabric sheeting, and other erosion-control methods.

Erosion and loss of topsoil during construction of PG&E and LEU project components would be minimized because of the limited areas that would be graded and disturbed, the temporary nature of construction, and the relatively flat work areas. In addition, compliance with the NPDES Construction General Permit, including preparation and implementation of the SWPPP and its associated erosion and sedimentation control measures, would ensure that construction of the project would not result in substantial erosion or the loss of topsoil.

Operation and Maintenance

During PG&E and LEU O&M, runoff rates could increase based on the additional area of semipermeable and impermeable surfaces created by the project components, which could result in erosion offsite. The PG&E project components that would result in additional impervious surfaces include the expanded PG&E Thurman Switching Station, new PG&E Lockeford Substation, and installation of new transmission line poles and pull boxes. The total increase in semipermeable and impermeable surfaces created by the PG&E project components would be 8.14 acres. Overland flows onto these PG&E project components are not expected given the relatively flat terrain.

To address the increase in potential runoff, the PG&E Thurman Switching Station and the PG&E Lockeford Substation sites would include stormwater infiltration infrastructure. The existing drainage and retention basin at PG&E Lockeford Substation would be extended by approximately 2,742 square feet to retain additional drainage from the expanded facilities. The proposed PG&E Thurman Switching Station would include an on-site retention basin. The site drainage system and stormwater detention basin for each station are designed to collect and allow infiltration of the volume of runoff generated by the facility during a 25-year, 24-hour storm event. Similarly, surface runoff from the additional 3.25 acres of impervious area at LEU facilities would be contained in an on-site 231,500-gallon retention basin. These basins would reduce the potential for substantial erosion or the loss of topsoil during O&M.

Implementation of APMs and BMPs

Implementation of APM AIR-1 and BMP AIR-1 would require the implementation of dust control measures during construction that would minimize erosion, including watering or covering exposed surfaces that have the potential to generate dust with coarse rock; applying gravel or nontoxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites; and planting vegetative ground cover in disturbed areas as soon as possible and watering appropriately until vegetation is established. Implementation of APM HYD-1 and BMP HYD-1 would require preparation and implementation of a SWPPP, which would include erosion and sediment control measures during construction. Implementation of APM HYD-3 and BMP HYD-3 would require site restoration at the end of construction to reestablish contours, replace vegetation, or otherwise stabilize areas disturbed during line construction. The implementation of these APMs and BMPs would ensure that construction and operation of the project would not result in substantial erosion or the loss of topsoil.

Significance before Mitigation

Construction of the PG&E and LEU project components would have the potential to result in erosion from activities such as grading and vegetation clearing. In addition, during PG&E and LEU O&M, runoff rates could increase based on the additional area of semipermeable and impermeable surfaces created by the project components, which could result in erosion off-site. However, compliance with existing regulatory requirements and the implementation of APMs and BMPs would ensure that construction and operation of the project would not result in substantial erosion or the loss of topsoil. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact GEO-3: Be Located on a Geologic Unit That Is Unstable, or That Would Become Unstable as a Result of the Project, and Potentially Result in On- or Off-Site Landslide, Lateral Spreading, Subsidence, Liquefaction, or Collapse

As discussed above in "Issues Not Discussed Further," the project is not in an area susceptible to landslides or subsidence, and therefore would not have the potential to exacerbate either of these hazards during construction or O&M. Therefore, the following analysis focuses on the project's potential to result in on- or off-site lateral spreading, liquefaction, and collapse from being located on a geologic unit that is unstable or would become unstable as a result of the project.

PG&E and LEU Project Components

Construction Activities

As discussed under Impact GEO-1, the project area is not within a known area of liquefaction hazards according to the CGS Earthquake Hazards Zone Application (CGS 2021). Similarly, the geotechnical reports prepared for the PG&E and LEU project components concluded that the liquefaction potential of the substation sites in the project area is negligible based on the relatively dense soil types and depth to groundwater at the PG&E Lockeford Substation, PG&E Thurman Switching Station, LEU Industrial Substation, and LEU Guild Substation (Burns & McDonnell 2020; Kleinfelder 2019a; Kleinfelder 2019b). However, sandy and loamy soils comprise most of the soils underlying the project area, which could be susceptible to liquefaction if the soils become saturated. As discussed in Impact GEO-1, the potential for the project to exacerbate liquefaction hazards would be minimized due to compliance with the CBC, which includes requirements to address unstable soils and liquefaction. Specifically, Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, while Chapter 18A regulates construction on unstable soils, such as expansive soils and areas subject to liquefaction. The CBC contains a provision that provides for a preliminary soil report to be prepared to identify "the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects" (CBC Chapter 18 Section 1803.1.1.1). These requirements would similarly address potential hazards associated with lateral spreading and collapsible soils. Therefore, compliance with the CBC would ensure that construction of the project would not result in lateral spreading, liquefaction, or collapse.

Operation and Maintenance

Once the project is operational, PG&E and LEU O&M would not include any activities that would result in on- or off-site lateral spreading, liquefaction, or collapse, as these potential hazards would be addressed during the design and construction phases of the project.

Implementation of APMs and BMPs

APM GEO-1 and BMP GEO-1 would require the implementation of appropriate design measures where soft or loose soils are encountered during design studies or construction of PG&E and LEU facilities. These measures could include locating construction activities away from areas of soft and loose soil; increasing the density and strength of soft or loose soils through mechanical vibration and compaction; treating soft or loose soils in place with binding or cementing agents; and scheduling construction activities in areas where soft or loose soils are encountered to occur in the dry season, as necessary. The implementation of these APMs and BMPs would avoid, accommodate, replace, or improve soft or loose soils encountered to ensure that construction and operation of the project would not result in on- or off-site lateral spreading, liquefaction, or collapse from being located on geologic unit that is unstable or become unstable as a result of the project.

Significance before Mitigation

Although the project area is not within a known area of liquefaction hazards and the geotechnical reports prepared for the project (Burns & McDonnell 2020; Kleinfelder 2019a; Kleinfelder 2019b) conclude that liquefaction potential is considered negligible, sandy and loamy soils comprise most of the soils underlying the project area, which could be susceptible to liquefaction if the soils become saturated. Compliance with the CBC and the implementation of APM GEO-1 and BMP GEO-1 would avoid, accommodate, replace, or improve soft or loose soils encountered to ensure that construction of the project would not result in on- or off-site lateral spreading, liquefaction, or collapse from being located on geologic unit that is unstable or become unstable as a result of the project. Once the project is operational, PG&E and LEU O&M would not include any activities that would exacerbate these hazards. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact GEO-4: Be Located on Expansive Soil, Creating Substantial Direct or Indirect Risks to Life and Property

Expansive soils (also known as shrink-swell soils) are soils that contain expansive clay minerals that can absorb significant amounts of water. The presence of these clay minerals makes the soil prone to large changes in volume in response to changes in water content. When an expansive soil becomes wet, water is absorbed, and it increases in volume. And as the soil dries, it contracts and decreases in volume. This repeated change in volume over time can produce enough force and stress on buildings, underground utilities, and other structures to damage foundations, pipes, and walls.

According to NRCS data, Kingdon and Tokay soil series within the project site do not contain significant amounts of clay, and, therefore, soil expansion is not a concern in these areas. The smaller areas of Archerdale very fine sandy loam, Cometa sandy loam, Montpellier-Cometa complex, and San Joaquin loams contain higher clay content and have high shrink-swell potential.

PG&E and LEU Project Components

Construction Activities

A review of NRCS soil survey data for the project area did not identify expansive soils in the vicinity of the project components (NRCS 2019). Soils in the project area primarily consist of sandy loam, with lesser amounts of gravelly loam and clay. These soil types are located under the existing PG&E Thurman Switching Station and the connecting 12 kV secondary station service, the PG&E transmission line alignment, the PG&E reconfigured 60 kV lines, proposed PG&E Lockeford Substation, existing LEU Industrial Substation, and the proposed LEU Guild Substation.

The PG&E tubular steel poles would be installed to depths of approximately 18 to 30 feet, and the grounding wells installations at PG&E Thurman Switching Station are expected to reach a depth up to 100 feet, which would prevent shifting as a result of soil expansion or collapse. In addition, all new structures associated with the project would be constructed in compliance with the most current version of the CBC, which includes requirements to address expansive soils. Specifically, Chapter 18 of the CBC regulates the excavation of foundations and retaining walls, while Chapter 18A regulates construction on unstable soils, such as expansive soils and areas subject to liquefaction. The CBC contains a provision that requires completion of a geotechnical investigation, including a preliminary soil report to identify "the presence of critically expansive soils or other soil problems which, if not corrected, would lead to structural defects" (CBC Chapter 18 Section 1803.1.1.1). The geotechnical investigation must include, among other requirements, a record of the soil profile as well as recommendations for foundation type and design criteria that address issues such as (but not limited to) bearing capacity of soils, provisions to mitigate the effects of expansive soils, liquefaction, settlement, and varying soil strength. CBC Chapter 18 Section 1803.1.1.3 states that if a building department, or other appropriate enforcement agency, determines that recommended action(s) presented in the geotechnical investigations are likely to prevent structural damage, the approved recommended action(s) must be made a condition to the building permit.

Therefore, compliance with the CBC would ensure that construction of the project components would not create substantial direct or indirect risks to property from being located on expansive soils.

Operations and Maintenance

Once the project components are operational, PG&E and LEU O&M would not include any activities that would create substantial direct or indirect risks to property from being located on expansive soils because any potential hazards associated with expansive soils would be addressed during the design and construction phases of the project.

Implementation of APMs and BMPs

APM GEO-1 and BMP GEO-1 would require the implementation of appropriate design measures where soft or loose soils are encountered during design studies or construction of PG&E facilities. These measures could include locating construction activities away from areas of soft and loose soil; overexcavating soft or loose soils and replacing them with nonexpansive engineered fill; and increasing the density and strength of soft or loose soils through mechanical vibration and compaction. The implementation of these APMs and BMPs would support project compliance with the

CBC by avoiding, accommodating, replacing, and/or improving soft or loose soils encountered to ensure that construction and operation of the project components would not create substantial direct or indirect risks to property from being located on expansive soils.

Significance before Mitigation

A review of NRCS soil survey data for the project area did not identify expansive soils in the vicinity of the project components (NRCS 2019). In addition, compliance with the CBC would ensure that construction of the project components would not create substantial direct or indirect risks to property from being located on expansive soils. Once the project components are operational, PG&E and LEU O&M would not include any activities that would create substantial direct or indirect risks to property from being located on expansive soils. The implementation of APM GEO-1 and BMP GEO-1 would avoid, accommodate, replace, or improve soft or loose soils encountered to further reduce the potential for the project components to result in impacts related to expansive soils.

Compliance with existing regulatory requirements and the implementation of APMs and BMPs would ensure that construction and operation of the project would not create substantial direct or indirect risks to property from being located on expansive soils. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact GEO-5: Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature

There are no unique geologic features within the project area that could be directly or indirectly destroyed by the project. Therefore, the following analysis focuses on the project's potential to directly and indirectly destroy a unique paleontological resource or site.

PG&E Project Components

Construction Activities

Construction of the PG&E project components would occur in areas underlain by geologic units that range from low to moderate paleontological sensitivity. Geologic units in association with the Turlock Lake Formation and Riverbank Formation have a moderate paleontological sensitivity and are present where the PG&E Lockeford Substation would be expanded, the PG&E Rio Oso-Lockeford structure would be relocated, and where the new PG&E 230 kV transmission line would be installed between PG&E Lockeford Substation and PG&E Brighton-Bellota line. Geologic units in association with the Modesto Formation have a low to moderate paleontological sensitivity (sensitivity increases to moderate at a depth of 30 feet) and are present in the project area west of PG&E Lockeford Substation and within the City of Lodi, where the new PG&E Thurman Station and western half of the PG&E 230 kV transmission line alignment would be constructed. None of the proposed PG&E project components would be constructed on geologic units of high paleontological sensitivity according to geologic mapping of the project area (see Figure 2 in Appendix G).

Although no geologic units with high paleontological sensitivity occur at the surface under the project area, there is a potential to encounter geologic units of greater sensitivity at greater depths, as well as a potential (albeit relatively low) for unanticipated fossil discovery in geologic units with low to moderate paleontological sensitivity. Impacts on paleontological resources could occur when earthwork activities, such as grading and excavation, disturb geologic units or formations containing buried fossils.

Ground-disturbing activities for PG&E tubular steel poles and station foundations have the highest likelihood of potentially encountering intact paleontological resources because of the relatively large area of ground disturbance compared to other PG&E project components. Replaced PG&E power poles would be buried to approximately 12.5 feet and the PG&E extended 12 kV service line would be installed to at least 15 feet bgs when crossing under the railroad tracks. Both excavations are unlikely to encounter intact paleontological resources at that depth in the area west of PG&E Lockeford Substation and within the City of Lodi, which has a low to moderate sensitivity (moderate

sensitivity beginning at a depth of 30 feet). However, typical excavations for pole and station foundations are expected to range from approximately 18 to 30 feet in depth. The installation of grounding wells at PG&E Thurman Switching Station are expected to reach a depth up to approximately 100 feet. Therefore, excavation for these project components could extend into the moderately sensitive Modesto Formation. In addition, any ground-disturbing activities at, and east of, PG&E Lockeford Substation would occur in areas where the Riverbank Formation, which has a moderate paleontological sensitivity, is present at the ground surface. Therefore, excavation for structure foundations of the PG&E project components could inadvertently unearth and destroy previously undiscovered, buried paleontological resources.

For the reasons described above, construction of the PG&E project components would have the potential to directly and indirectly destroy a unique paleontological resource or site.

Operation and Maintenance

PG&E O&M would not involve any ground-disturbing activities, nor would it create access to previously undeveloped areas that could contain paleontological resources. As such, PG&E O&M would not have the potential to directly or indirectly result in the destruction of unique paleontological resources or sites.

Implementation of APMs

APM PAL-1 through APM PAL-4 include various requirements for addressing paleontological resources. Implementation of APM PAL-1 would require PG&E to retain a qualified paleontological principal investigator to ensure that all APMs related to paleontological resources are properly implemented. Implementation of APM PAL-2 would require paleontological resources protection training at all PG&E work locations for construction workers involved in excavation deeper than 3 feet bgs. Implementation of APM PAL-3 would require a paleontological monitor to be present to monitor for paleontological resources in areas where Riverbank Formation or Turlock Lake Formation occurs at the surface, excavation is greater than 3 feet bgs and drilling or augering requires a drill diameter larger than 3 feet. Lastly, APM PAL-4 would require implementation of procedures in the event significant paleontological resources are discovered during PG&E's construction activities, including, but not limited to, stopping work immediately within 100 feet of the fossil find, immediately contacting the designated project inspector and PG&E CRS, and protecting the site from further impacts, such as looting, erosion, or other human or natural damage.

LEU Project Components

Construction Activities

Construction of the LEU project components would occur in areas underlain by geologic units that range from low to moderate (moderate sensitivity beginning at a depth of 30 feet) paleontological sensitivity. These geologic units are associated with the Modesto Formation. The LEU project components are not located in areas where the Riverbank Formation occurs at the surface. None of the proposed LEU project components would be constructed on geologic units of high paleontological sensitivity according to geologic mapping of the project area (see Figure 2 in Appendix G).

Although no geologic units with high paleontological sensitivity are present under the project area, there is a potential to encounter geologic units of greater sensitivity at depth, as well as a potential (albeit relatively low) for unanticipated fossil discovery in geologic units with low to moderate paleontological sensitivity. Impacts on paleontological resources could occur when earthwork activities, such as grading and excavation, disturb geologic units or formations containing buried fossils.

Excavation for the LEU Guild Substation expansion has the highest likelihood of potentially encountering intact and significant paleontological resources because of the relatively large area of ground disturbance. The deepest anticipated excavation for the LEU Guild Substation expansion would be for the installation of two dead-end structure piers, which would extend to a depth of approximately 16 feet bgs. Within the LEU Industrial Substation, the deepest anticipated excavation would be for the two new LEU 60 kV monopoles drilled pier foundations and would extend to a depth of approximately 20 feet bgs. The existing LEU 12 kV feeder line would be installed between approximately 4 and 10 feet bgs. As noted above, geologic units in association with the Modesto Formation have a moderate

paleontological sensitivity beginning at a depth of 30 feet within the footprint for the LEU project components. Therefore, because the proposed depths of excavation for substation foundations would not extend greater than 20 feet bgs, which would be within formations that have low paleontological sensitivity, the potential for construction of the LEU project components to inadvertently unearth and destroy previously undiscovered, buried paleontological resources is low.

For the reasons described above, construction of the LEU project components would not have the potential to directly or indirectly destroy a unique paleontological resource or site.

Operation and Maintenance

LEU O&M would not involve any ground-disturbing activities, nor would it create access to previously undeveloped areas that could contain paleontological resources. Therefore, LEU O&M would not have the potential to directly or indirectly result in the destruction of unique paleontological resources or sites.

Implementation of BMPs

BMP PAL-1 through BMP PAL-4 include various requirements for addressing paleontological resources. Implementation of BMP PAL-1 would require LEU to retain a qualified paleontological principal investigator to ensure that all BMPs related to paleontological resources are properly implemented. Implementation of BMP PAL-2 would require paleontological resources protection training at all LEU work locations for construction workers involved in excavation deeper than 3 feet bgs. Implementation of BMP PAL-3 would require a paleontological monitor to be present to monitor for paleontological resources in areas where Riverbank Formation occurs at the surface, excavation is greater than 3 feet bgs, and drilling or augering requires a drill diameter that is larger than 3 feet. Lastly, BMP PAL-4 would require implementation of procedures in the event significant paleontological resources are discovered during LEU's construction activities, including, but not limited to, stopping work immediately within 100 feet of the fossil find, immediately contacting the designated project inspector and LEU CRS, and protecting the site from further impacts, such as looting, erosion, or other human or natural damage.

Significance before Mitigation

The LEU project components would be constructed in an area with low paleontological sensitivity; therefore, they would not have the potential to directly or indirectly destroy a unique paleontological resource or site. Construction of the PG&E project components would occur in areas underlain by geologic units that range from low to moderate paleontological sensitivity. Specifically, geologic units in association with the Modesto Formation have a low to moderate paleontological sensitivity, with moderate sensitivity beginning at a depth of 30 feet. Geologic units in association with the Turlock Lake Formation and Riverbank Formation have a moderate paleontological sensitivity. Excavation and ground-disturbing activities associated with construction of the project would have the potential to encounter paleontological resources. However, potential direct and indirect impacts to paleontological resources resulting from construction would be avoided with the implementation of APM PAL-1 through APM PAL-4 and BMP PAL-1 through BMP PAL-4, which include requirements for protecting paleontological resources. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.9 GREENHOUSE GAS EMISSIONS

This section presents a summary of climate change science and GHG sources in California relevant to the proposed project; a summary of regulations applicable to greenhouse gas (GHG) emissions; quantification of the GHGs associated with implementation of the project and discussion about their contribution to global climate change; and analysis of the project's resiliency to climate change-related risks.

Comments received in response to the notice of preparation (NOP) relevant to GHG include concerns that increasing the transmission capacity of the system could result in higher electricity consumption from non-renewable sources. This issue is discussed under Impact GHG-1, below. Comments received in response to the NOP are provided in Appendix A.

3.9.1 Environmental Setting

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

The Physical Scientific Basis of Greenhouse Gas Emissions and Climate Change

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the atmosphere from space. A portion of the radiation is absorbed by the earth's surface, and a smaller portion of this radiation is reflected toward space. The absorbed radiation is then emitted from the earth as low-frequency infrared radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). SF_6 is a commonly used insulator in electricity transmission and distribution equipment. SF_6 is commonly referred to as a high global warming potential (high-GWP) gas because, for a given amount of mass, it traps substantially more heat than CO_2 (EPA 2024). Global warming potential is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of CO_2. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period (EPA 2024). The GWP for hydrofluorocarbons, perfluorocarbons, and SF_6 can be in the thousands or tens of thousands (EPA 2024). Human-caused emissions of these GHGs in excess of natural ambient concentrations are found to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcing (IPCC 2014).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas most pollutants with localized air quality effects have relatively short atmospheric lifetimes (approximately 1 day), GHGs have long atmospheric lifetimes (1 year to several thousand years). GHGs persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any GHG molecule depends on multiple variables and cannot be determined with any certainty, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent are estimated to be sequestered through ocean and land uptake every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remain stored in the atmosphere (IPCC 2013).

Greenhouse Gas Emissions Sources and Sinks

Emissions of CO_2 are byproducts of fossil fuel combustion. Methane, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices, landfills, and forest fires. Nitrous oxide is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water) and are two of the most common processes for removing CO_2 from the atmosphere.

Effects of Climate Change on the Environment

According to the Intergovernmental Panel on Climate Change (IPCC), which was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme, global average temperature will increase by 3.7 to 4.8 degrees Celsius (°C) (6.7 to 8.6 degrees Fahrenheit [°F]) by the end of the century unless additional efforts to reduce GHG emissions are made (IPCC 2014:10). According to *California's Fourth Climate Change Assessment*, with global GHGs reduced at a moderate rate, California will experience average daily high temperatures that are warmer than the historic average by 2.5°F from 2006 to 2039, by 4.4°F from 2040 to 2069, and by 5.6°F from 2070 to 2100, and if GHG emissions continue at current rates, then California will experience average daily high temperatures that are warmer than the historic average by 2.7°F from 2006 to 2039, by 5.8°F from 2040 to 2069, and by 8.8°F from 2070 to 2100 (OPR et al. 2018).

Since the state's previous climate change assessment was published in 2012, California has experienced several of the most extreme natural events in its recorded history: a severe drought from 2012 to 2016, an almost nonexistent Sierra Nevada winter snowpack in 2014-2015, increasingly large and severe wildfires, and back-to-back years of the warmest average temperatures (OPR et al. 2018). According to California Natural Resource Agency's *Safeguarding California Plan: 2018 Update*, California experienced the driest four-year statewide precipitation on record from 2012 through 2015; the warmest years on average in 2014, 2015, and 2016; and the smallest and second smallest Sierra snowpack on record in 2015 and 2014 (CNRA 2018). According to the National Oceanic and Atmospheric Administration (NOAA) and the National Aeronautics and Space Administration (NASA), 2016, 2017, and 2018 were the hottest recorded years in history (NOAA 2019). In contrast, the northern Sierra Nevada mountains experienced one of the wettest years on record during the 2016-2017 water year (CNRA 2018). The changes in precipitation exacerbate wildfires throughout California through a cycle of high vegetative growth coupled with dry, hot periods, which lowers the moisture content of fuel loads. As a result, the frequency, size, and devastation of forest fires have increased. In November 2018, the Camp Fire completely destroyed the town of Paradise in Butte County and caused 85 fatalities, becoming the state's deadliest fire in recorded history, and the largest fires in the state's history have occurred in the 2018–2020 period. Moreover, changes in the intensity of precipitation events following wildfires can also result in devastating landslides. In January 2018, following the Thomas Fire, 0.5 inches of rain fell in 5 minutes in Santa Barbara causing destructive mudslides formed from the debris and loose soil left behind by the fire. These mudslides resulted in 21 deaths.

As temperatures increase, the amount of precipitation falling as rain rather than snow also increases, which could lead to increased flooding because water that would normally be held in the snowpack of the Sierra Nevada and Cascade Range until spring would flow into the Central Valley during winter rainstorm events. This scenario would place more pressure on California's levee/flood control system (CNRA 2018). Furthermore, in the extreme scenario involving the rapid loss of the Antarctic ice sheet and the glaciers atop Greenland, the sea level along California's coastline is expected to rise 54 inches by 2100 if GHG emissions continue at current rates (OPR et al. 2018).

Temperature increases and changes to historical precipitation patterns will likely affect ecological productivity and stability. Existing habitats may migrate from climatic changes where possible, and habitats and species that lack the ability to retreat will be severely threatened. Altered climate conditions will also facilitate the movement of invasive species to new habitats, thus potentially outcompeting native species. Altered climatic conditions dramatically endanger the survival of arthropods (e.g., insects, spiders), which could have cascading effects throughout ecosystems (Lister and Garcia 2018). Conversely, a warming climate may support the populations of other insects, such as ticks and mosquitos, which transmit diseases harmful to human health, such as the Zika virus, West Nile virus, and Lyme disease (European Commission Joint Research Centre 2018).

Changes in temperature, precipitation patterns, extreme weather events, wildfires, and sea-level rise have the potential to threaten transportation and energy infrastructure, crop production, forests and rangelands, and public health (CNRA 2018; OPR et al. 2018). The effects of climate change will also have an indirect adverse impact on the economy as more severe natural disasters cause expensive physical damage to communities and the state.

Additionally, adjusting to the physical changes associated with climate change can produce mental health impacts, such as depression and anxiety.

GREENHOUSE GAS EMISSION SOURCES

In 2021, emissions from statewide emitting activities were 381.3 million metric tons of CO_2 equivalent ($MMTCO_2e$), 12.6 $MMTCO_2e$ higher than 2020 levels and 49.7 $MMTCO_2e$ below the 2020 GHG Limit of 431 $MMTCO_2e$ set forth by Assembly Bill (AB) 32 (see Section 3.9.2, "Regulatory Setting," for further details regarding GHG reduction goals). In 2014, statewide GHG emissions dropped below the 2020 GHG Limit and have remained below the limit since that time. Per capita GHG emissions in California have dropped from a 2001 peak of 13.8 metric tons per person to 9.7 metric tons per person in 2021, a 30 percent decrease. Overall trends in the AB 32 GHG Inventory also continue to demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product) is declining. The continuation of the downward GHG emissions trend from 2021 to 2022 indicates that the increase in emissions from 2020 to 2021 is likely an anomaly caused by broader economic trends related to the COVID-19 pandemic and associated recovery (CARB 2023).

As discussed previously, GHG emissions are attributable in large part to human activities. The total GHG inventory for California in 2021 was 381.3 $MMTCO_2e$ (CARB 2023). Table 3.9-1 summarizes the statewide GHG inventory for California.

Table 3.9-1 Statewide GHG Emissions by Economic Sector

Sector	Percent
Transportation	39
Industrial	22
Electricity generation (in state)	11
Electricity generation (imports)	5
Agriculture	8
Residential	8
Commercial	6
Not specified	<1

Source: CARB 2023.

As shown in Table 3.9-1, transportation, industry, and electricity generation are the largest GHG emission sectors statewide.

Emissions of CO_2 are byproducts of fossil fuel combustion. Emissions of methane primarily result from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and are largely associated with agricultural practices and landfills. Nitrous oxide is also largely attributable to agricultural practices and soil management. CO_2 sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes for removing CO_2 from the atmosphere.

3.9.2 Regulatory Setting

FEDERAL

Supreme Court Ruling

In *Massachusetts et al. v. Environmental Protection Agency et al.,* 549 US 497 (2007), the Supreme Court of the United States ruled that CO_2 is an air pollutant as defined under the federal Clean Air Act (CAA) and that the US Environmental Protection Agency (EPA) has the authority to regulate GHG emissions. In 2010, EPA started to address GHG emissions from stationary sources through its New Source Review permitting program, including operating permits for "major sources" issued under Title V of the CAA.

Corporate Average Fuel Economy Standards

The National Highway Traffic Safety Administration (NHTSA) regulates vehicle emissions through the Corporate Average Fuel Economy (CAFE) Standards. On April 1, 2022, the secretary of transportation unveiled new CAFE standards for 2024–2026 model year passenger cars and light-duty trucks. These new standards require new vehicles sold in the United States to average at least 40 miles per gallon and apply to all states except those that enforce stricter standards.

STATE

Statewide GHG Emission Targets and Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the state government for approximately two decades. GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32 of 2006) and reducing emissions to 40 percent below 1990 levels by 2030 (Senate Bill [SB] 32 of 2016). Executive Order (EO) S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. This target was superseded by AB 1279, which codifies a goal for carbon neutrality and to reduce emissions by 85 percent below 1990 levels by 2045. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2°C, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected; these targets also pursue efforts to limit the temperature increase even further to 1.5°C (United Nations 2015).

The California Air Resources Board (CARB) adopted the *Final 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan) on December 16, 2022, which traces the state's pathway to achieve its carbon neutrality and an 85-percent reduction in 1990 emissions goal by 2045. It identifies the reductions needed by each GHG emission sector (e.g., transportation [including off-road mobile source emissions], industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste) to achieve these goals.

The state has also passed more detailed legislation addressing GHG emissions associated with transportation, electricity generation, and energy consumption, as summarized below.

Transportation-Related Standards and Regulations

As part of its Advanced Clean Cars (ACC) program, CARB established more stringent GHG emission standards and fuel efficiency standards for fossil fuel–powered on-road vehicles than EPA. The program's initial goal requiring zero-emission vehicle (ZEV) regulation (i.e., battery, fuel cell, and plug-in hybrid electric vehicles [EVs]) to account for up to 15 percent of California's new vehicle sales by 2025 was superseded by EO N-79-20, which directed the state to scale out the sales of internal combustion engines to 100-percent ZEV sales by 2035. The Advanced Clean Cars II (ACC II) Program was adopted by CARB in August 2022 and provides the regulatory framework for ensuring the sales requirement goal of EO N-79-20 to ultimately reach 100-percent ZEV sales in the state by 2035.

EO B-48-18, signed into law in January 2018, requires all state entities to work with the private sector to have at least 5 million ZEVs on the road by 2030, as well as 200 hydrogen-fueling stations and 250,000 EV-charging stations installed by 2025. It specifies that 10,000 of these charging stations must be direct-current fast chargers.

CARB adopted the Low Carbon Fuel Standard (LCFS) in 2007 to reduce the carbon intensity (CI) of California's transportation fuels. Low-CI fuels emit less CO_2 than other fossil fuel–based fuels, such as gasoline and diesel. The LCFS applies to fuels used by on-road motor vehicles and off-road vehicles, including construction equipment (Wade, pers. comm., 2017).

Legislation Associated with Electricity Generation

Legislation for Carbon-Free Electricity

SB 100 of 2018 sets a three-stage compliance period requiring all California utilities, including independently owned utilities, energy service providers, and community choice aggregators, to generate 52 percent of their electricity from renewables by December 31, 2027; 60 percent by December 31, 2030; and 100 percent carbon-free electricity by December 31, 2045. On September 16, 2022, SB 1020 was signed into law. This bill supersedes the goals of SB 100 by requiring that eligible renewable energy resources and zero-carbon resources supply 90 percent of all retail sales of electricity to California end-use customers by December 31, 2035; 95 percent of all retail sales of electricity to California end-use customers by December 31, 2040; 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045; and 100 percent of electricity procured to serve all state agencies by December 31, 2035.

Legislation for Electricity Transmission Infrastructure

In 2007, CARB approved the reduction of SF6 emissions from electricity transmission and distribution equipment as an early action measure under the Global Warming Solutions Act of 2006 (AB 32). CARB's "Regulation for Reducing Sulfur Hexafluoride Emissions" (Sections 95340–95346, Title 17, CCR) took effect in 2011 and contains general prohibitions on the use, sale possession, and release of sulfur hexafluoride in California, but does not apply to electrical equipment. CARB's "Regulation for Reducing Greenhouse Gas Emissions from Gas Insulated Equipment" (Sections 95350–95359.1, Title 17, CCR) requires switchgear owners to reduce their emission rates, reaching a 1 percent emission rate by 2020, and requires all regulated entities to submit an annual report of the previous year's activities and emissions to CARB by June 1 of each year. The regulation applies to all owners of SF6-insulated switchgear. In 2022, CARB finalized regulatory amendments to phase out use of SF6 in gas-insulated equipment (GIE) starting in 2025. The phaseout schedule limits the GIE owners' ability to acquire new SF6 GIE without an approved SF6 phaseout exemption. Annual emission limits have also been updated from rate-based to mass-based (EPA 2024).

CARB Early Action Measures

On October 25, 2007, CARB approved a list of early action measures as part of the 2008 Scoping Plan (CARB 2008) to address climate change emissions as set forth in AB 32. The early actions include three specific greenhouse gas control rules. These measure were required to be adopted and enforced before January 1, 2010. The report divides early actions into three categories:

- Group 1 - GHG rules for immediate adoption and implementation,
- Group 2 - Several additional GHG measures under development, and
- Group 3 - Air pollution controls with potential climate co-benefits.

Of the nine total early action measures, those listed below are relevant to the project:

- 2009 – Tire Inflation Program,
- 2009 – Low Carbon Fuel Standard, and
- 2010 – Regulation for Reducing SF_6 Emissions from Gas Insulated Switchgear.

REGIONAL

San Joaquin Valley Air Pollution Control District

Local air districts act under state law and their discretionary requirements apply to PG&E and LEU projects. San Joaquin Valley Air Pollution Control District (SJVAPCD) is the primary agency responsible for addressing air quality concerns in San Joaquin County. SJVAPCD recommends methods for analyzing project-generated GHGs in CEQA analyses and offers multiple potential GHG reduction measures for land use development projects. SJVAPCD published its *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* in 2009, which it incorporated into its 2015 *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI) (SJVAPCD 2015). SJVAPCD developed a three-tiered approach to establish thresholds of significance, including a numerical threshold and two qualitative thresholds, which include implementation of SJVAPCD-adopted best performance standards (BPS) and consistency with a CEQA-backed, adopted climate action plan (CAP). These thresholds provide a uniform scale to measure the significance of GHG emissions from land use and stationary source projects in compliance with CEQA and AB 32. SJVAPCD's goals in developing GHG thresholds include ease of implementation, use of standard analysis tools, and emissions mitigation consistent with AB 32. SJVAPCD's guidance also requires quantification of GHG emissions for any project in which an EIR is prepared. However, since the passage of SB 32 and AB 1279, which mandate a statewide emissions target of 40 percent below 1990 levels by 2030 and an 85-percent reduction below 1990 levels and carbon neutrality by 2045, respectively, SJVAPCD has not developed new numerical thresholds in compliance with this target.

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City and County) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Because LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County General Plan

The 2035 General Plan for San Joaquin County (San Joaquin County General Plan) was adopted in December of 2016. The San Joaquin County General Plan provides a framework for the county's physical, economic, and social development and environmental resources preservation and addresses all geographic areas in the unincorporated county. The San Joaquin County General Plan presents policies and goals to inform short- and long-term decision making up to the year 2035. The San Joaquin County General Plan includes the following policies related to GHGs and climate change that are relevant to the project:

- Policy PHS-6.2: Community GHG Reduction Targets. The County shall reduce community greenhouse gas emissions by 15 percent below 2005 levels by 2020 and shall strive to reduce GHG emissions by 40 percent and 80 percent below reduced 2020 levels by 2035 and 2050, respectively.
- ED-2.1: General Economic Base Diversification. The County shall encourage the development of a diversified economic base by continuing to promote agriculture, tourism, and commerce, and by expanding efforts to encourage commercial and industrial development, including the development of energy resources.

City of Lodi

City of Lodi General Plan

The City of Lodi General Plan (Lodi General Plan) was adopted in April of 2010 and governs all actions related to the City of Lodi's physical development. The Lodi General Plan includes the following goals and policies related to GHGs and climate change that are relevant to the project:

- Policy C-P37: Promote incorporation of energy conservation and weatherization features into existing structures. Update the Zoning Ordinance and make local amendments to the California Building Code, as needed, to allow for the implementation of green building, green construction, and energy efficiency measures.
- Policy C-P48: Require all construction equipment to be maintained and tuned to meet appropriate EPA and CARB emission requirements and when new emission control devices or operational modifications are found to be effective, such devices or operational modifications are to be required on construction equipment.

City of Lodi Climate Action Plan

The City of Lodi adopted its Climate Action Plan (CAP) in 2014, which quantified the City's GHG emissions and established action steps toward achieving a local emissions reduction target. Because the Lodi CAP primarily focuses on GHG emissions from land use development projects and does not address construction-related GHG emissions from electrical infrastructure projects, and the Lodi CAP is not used in this analysis.

3.9.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

The issue of global climate change is inherently cumulative, as the GHG emissions of individual projects cannot be shown to have any material effect on global climate. Thus, the project's impact on climate change is addressed as a cumulative impact.

CEQA Guidelines Section 15064.4 provides guidance to lead agencies for determining the significance of impacts from GHG emissions. Section 15064.4(a) provides that a lead agency will make a good-faith effort based, to the extent possible, on scientific and factual data to describe, calculate, or estimate the amount of GHG emissions resulting from a project. Section 15064.4(a) further provides that a lead agency will have the discretion to determine, within the context of a particular project, whether to quantify GHG emissions from a project or rely on qualitative analysis or performance-based standards. Pursuant to the CEQA Guidelines in Section 15064.4(a), the analysis presented herein quantifies GHG emissions resulting from the project, and describes, calculates, and estimates those emissions. CEQA Guidelines Section 15064.4(b) provides that when assessing the significance of impacts from GHG emissions, a lead agency should focus the analysis on the incremental contribution of the project's emissions to the effects of climate change and consider an appropriate timeframe for the project. The lead agency's analysis should reasonably reflect evolving scientific knowledge and state regulatory schemes and consider (1) the extent to which the project may increase or reduce GHG emissions compared with existing conditions, (2) whether the project's GHG emissions exceed a threshold of significance that the lead agency determines applies to the project, and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The analysis of the potential impacts from the project's GHG emissions follows this approach.

Construction and Operation Emissions

Construction emissions of GHG from off-road construction equipment and fugitive dust for the PG&E portion of the project were estimated using the methodologies and emission factors described in the CalEEMod User's Guide (CAPCOA 2022). On-road vehicle emission factors were obtained from EMFAC2021 (CARB 2022a). Helicopter emissions were estimated using emissions factors obtained from the Swiss Federal Office of Civil Aviation (FOCA 2009). Projected construction emissions were estimated for each year based on the anticipated project schedule and activities at each of the project construction sites. While the construction activities would occur in 2026 to 2029, equipment and vehicle emission factors of 2016 were used for all construction years to be conservative.

Detailed construction emissions calculations for the PG&E sites are presented in Appendix D1, along with the assumptions employed. GHG emissions from personnel and materials transport related to replacement of system protection devices at the remote end stations were included in the model of project emissions.

Long-term operational emissions of GHG from the PG&E portions of the project were also evaluated. These emissions would result of the operation and maintenance (O&M) activities and projected leakage from sulfur hexafluoride- (SF_6)

insulated circuit breakers. Operation emissions from PG&E portion of the project were estimated for the O&M activities in 2030 and beyond using the same methodology as discussed previously, with 2030 emission factors. Construction and operation emissions calculations for the PG&E portion of the project are provided in Appendix D1.

Construction- and operations-related emissions of GHG from the LEU portion of the project were modeled using CalEEMod (Version 2020.4.0). Operational modeling included the anticipated SF_6 leakage from SF_6-insulated circuit breakers. As discussed above, CARB has adopted the *Regulation for Reducing Greenhouse Gas Emissions from Gas Insulated Switchgear* (Sections 95350–95359.1, Title 17, CCR), which requires that the companywide SF_6 emission rate not exceed 1 percent by 2020. Since 1998, PG&E has implemented a programmatic plan to inventory, track, and recycle SF_6 inputs, and inventory and monitor systemwide SF_6 leakage rates to facilitate timely replacement of leaking breakers. In consideration of these reductions, as well as the requirements of applicant-proposed measure (APM) GHG-2, which requires that the breakers at PG&E Thurman Switching Station and PG&E Lockeford Substation have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF_6. SF_6 leakage emissions were modeled to reflect the maximum SF_6 leakage rate of 0.5 percent in APM GHG-2. Similarly, BMP GHG-2 (discussed in greater detail below) requires that breakers at LEU Guild Substation have a manufacturer's guaranteed maximum leakage rate of 0.5 percent per year or less for SF_6. Therefore, SF_6 leakage from the LEU portion of the project was also modeled to reflect a maximum leakage rate of 0.5 percent per year. GHG emission calculations for the construction and operation of the LEU portion in the project are included in Appendix D2. GHG emission calculations in this document were based on reasonable worst-case estimates of emissions to present a comprehensive analysis.

Applicable Threshold

In California, some counties, cities, and air districts have developed guidance and thresholds for determining the significance of GHG emissions that occur within their jurisdiction. CPUC is the CEQA lead agency for the project and is, therefore, responsible for determining whether an impact would be considered significant.

The CEQA Guidelines do not provide numeric or quantitative thresholds of significance for evaluating GHG emissions. Instead, they leave the determination of the significance threshold up to the lead agency and give it the discretion to consider thresholds previously adopted or recommended by other public agencies or experts, provided that the lead agency's decision is supported by substantial evidence (CEQA Guidelines Sections 15064.7[b] and 15064.7[c]).

Courts have ruled that although there are various potential thresholds and methodologies for evaluating project-level GHG emissions consistent with CEQA, use of statewide emission reduction goals is a permissible criterion of significance where substantial evidence and reasoned explanation are provided to close the analytical gap between the level of effort required at one scale (state level) and the level of effort required at another scale (e.g., a project level). The plan to achieve these statewide emission reduction goals is the 2022 Scoping Plan.

The 2022 Scoping Plan assesses progress toward the state's statutory 2030 target, outlining different scenarios for achieving statewide carbon neutrality by 2045. The 2022 Scoping Plan identifies GHG reductions strategies and actions for several sectors, which include the energy, transportation, industrial, and natural lands sectors. Specifically, the 2022 Scoping Plan states that much of California's success to date in reducing GHGs is due to decarbonization of the electricity sector through the implementation of the Renewable Portfolio Standard (RPS), SB 100, and the Cap-and-Trade Program (CARB 2022b). The 2022 Scoping Plan also identifies that climate change is causing a significant strain on the state's energy system and that action must be taken to improve the resilience and reliability of the state's energy grid through actions such as increasing grid capacity to accommodate increased demand, transitioning to renewable energy systems, updating components of existing energy facilities, and adding an increased number of efficient energy storage and transmission systems. Because the project involves additions and improvements to the electrical grid, consistency with the goals of the 2022 Scoping Plan is an appropriate threshold for this analysis.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed APMs that are incorporated into PG&E's components of the proposed project. Similarly, LEU has developed BMPs that would apply to the LEU components of the proposed project. The project includes the following APMs and BMPs related to GHGs.

PG&E APMs

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

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

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of five consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
- Maintain construction equipment in proper working conditions in accordance with manufacture specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression or mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

APM GHG-2: PG&E Minimize SF_6 Emissions.

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

- PG&E will employ standard best practices during PG&E operations.
- Comply with the Regulation for Reducing Greenhouse Gas Emissions from Gas Insulated Switchgear, sections 95350 to 95359.1, title 17, CCR.
- Maintain substation breakers in accordance with PG&E's maintenance standards.

LEU BMPs

BMP GHG-1: LEU Minimize GHG Emissions.

LEU will implement the following to minimize GHG emissions:

- Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of five consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

- Maintain construction equipment in proper working conditions in accordance with manufacture specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression or mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

BMP GHG-2: LEU Minimize SF_6 Emissions.

LEU will implement the following to minimize SF_6 emissions:

LEU will employ standard best practices during LEU operations.

- Comply with the Regulation for Reducing Greenhouse Gas Emissions from Gas Insulated Switchgear, sections 95350 to 95359.1, title 17, CCR.
- Maintain substation breakers in accordance with LEU's maintenance standards.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to transportation under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments. implementation of the project would result in a significant impact related to GHG emissions if it would:

- conflict with goals of the 2022 Scoping Plan.

ISSUES NOT DISCUSSED FURTHER

All issues related to GHGs are discussed in the analysis below.

IMPACT ANALYSIS

Impact GHG-1: Generate Greenhouse Gas Emissions, Either Directly or Indirectly, That May Have a Significant Impact on the Environment or Conflict with an Applicable Plan, Policy or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

As stated above, because the project involves additions and improvements to the electrical grid, the threshold utilized for this analysis is consistency with the goals of the 2022 Scoping Plan. Therefore, GHG emissions associated with project construction and operation are quantified and disclosed only for informational purposes.

PG&E Project Components

Construction Activities

Emissions of GHG resulting from construction of the PG&E portion of the project were estimated for the 34-month construction period. GHG emissions would result from the use of off-road equipment (e.g., excavators, a helicopter,

and augers), material delivery trips (e.g., gravel for filling, electrical poles, and equipment for substations), and on-road vehicle trips associated with worker commute trips as well as line trucks and boom trucks.

It is recognized by multiple air quality planning agencies in their respective CEQA guidance documents that construction-related GHG emissions from projects occur over a relatively short-term period of time and contribute a relatively small portion of the overall lifetime project GHG emissions. (SCAQMD 2008: 3-9, BAAQMD 2022: 6-7). To provide a more comprehensive assessment of cumulative GHG emissions-related effects, as detailed in Section 3.9.1 "Environmental Setting," above, this analysis utilizes the method of amortizing (averaging annually) a project's construction emissions over the total life of the project, as endorsed by the South Coast Air Quality Management District (SCAQMD). This approach accounts for the persistence of GHG emissions in the environment (in other words, the temporary emission sources result in emissions that persist over many years), and also ensures that any potential mitigation measures account for construction GHG emissions as part of the total emissions considered and mitigated.

Therefore, the proposed project's construction related emissions were quantified for total construction emissions and amortized over 30 years (i.e., the typical lifetime of a project as identified by SCAQMD) (SCAQMD 2008). Table 3.9-2 summarizes the estimated GHG emissions per year of construction of the PG&E portion of the project, the total GHG emissions generated during the construction phase of the project, and the amortized construction-related GHG emissions.

Table 3.9-2 Estimated Greenhouse Gas Emissions Associated with Construction of the Project

Construction Year	Annual Emissions ($MTCO_2e$/year)
PG&E[1]	
2026	1,256
2027	1,918
2028	342
2029	4
Total PG&E construction emissions	*3,520*
Amortized PG&E construction emissions	*117*
LEU[2]	
2027	472
2028	31
Total LEU construction emissions	*503*
Amortized LEU construction emissions	*17*
Total Project	
Total construction emissions	***4,023***
Amortized construction emissions	***134***

Notes: = metric tons of carbon dioxide equivalent.

[1]Source: Appendix D1. Modeling performed by Jacobs Engineering Group in 2023.

[2] Source: Appendix D2. Modeling performed by Jacobs Engineering Group in 2023.

As stated above, to provide a more comprehensive assessment of cumulative GHG emissions-related effects, total construction emissions were summed and amortized over a 30-year project life[1] and added to operational emissions, which are discussed below. As mentioned above, project-level GHG emissions are inherently cumulative; therefore, the construction emissions associated with construction of the project listed in Table 3.9-2 are considered as part of the GHG emissions for the proposed project lifecycle, including GHG emissions during operation.

[1] As explained in Section 2.6.12, "Operations and Maintenance," of this EIR, the expected life span of the project is 75 years. Modeling assuming a 30-year life span results in a higher, more conservative per-year amortization assumption.

Operation and Maintenance

New circuit breakers insulated with SF_6 gas would be installed at PG&E Lockeford Substation and PG&E Thurman Switching Station. Sources of operational GHG emissions from the PG&E portion of the project would include occasional (i.e., once or twice a month) O&M activities, which would involve the use of off-site construction equipment, on-road vehicles, and helicopters for activities such as line inspection, line maintenance, and substation maintenance. Operational GHG emissions could also result from the potential leakage of SF_6 from the PG&E Lockeford Substation and the Thurman Switching Station. Estimated GHG emissions for the PG&E operation are shown in Table 3.9-3.

Table 3.9-3 Estimated Greenhouse Gas Emissions Associated with Operation of the Project

Source	Emissions ($MTCO_2e$/Year)
PG&E[1]	
PG&E operation and maintenance emissions	12
PG&E SF_6 leakage	80
Total PG&E operational GHG emissions	*92*
PG&E construction GHG emissions - amortized	*117*
Total PG&E GHG emissions	*209*
LEU[2]	
LEU operation and maintenance emissions	456
LEU SF_6 leakage	29
Total LEU operational GHG emissions	*484*
Total LEU construction GHG emissions - amortized	*17*
Total LEU GHG emissions	*501*
Total Project	
Total operation and maintenance emissions	468
Total SF_6 leakage	109
Total operational GHG emissions[3]	*576*
Construction GHG emissions - amortized	*134*
Total project GHG emissions	***710***

Notes: $MTCO_2e$ = metric tons of carbon dioxide equivalent; SF_6 = sulfur hexafluoride.

[1] Source: Appendix D1. Modeling performed by Jacobs Engineering Group in 2023.

[2] Source: Appendix D2. Modeling performed by Jacobs Engineering Group in 2023.

[3] GHG emissions incorporated the SF6 leakage rate of 0.5 percent in APM GHG-2 and BMP GHG-2.

Source: Modeling performed by Jacobs Engineering Group in 2023.

As shown in Table 3.9-3, the PG&E portion of the project would result in approximately 92 $MTCO_2e$/year during operation. Annual GHG emissions from the PG&E portion of the project, including the amortized construction emissions and the annual operation emissions, would be 209 $MTCO_2e$/year.

Implementation of APMs

Implementation of APM GHG-1 would reduce construction-related GHG emissions by implementing on-site actions, such as limiting construction vehicle idling time as far as possible below the maximum of 5 consecutive minutes allowed by California law; holding briefings to construction crews on vehicle use as part of pre-construction conferences, which include discussion of a "common sense" approach to vehicle use; minimizing construction equipment exhaust by using low-emission or electric construction equipment where feasible; and minimizing welding and cutting by using compression of mechanical applications where practical and within standards; and encouraging the recycling of construction waste where feasible. Notably, GHG emissions reductions associated with

implementation of APM AIR-1 and APM AIR-2 could further reduce GHG emissions associated with construction of the PG&E portion of the project. However, this potential reduction is not quantifiable and is not included in the emission estimates.

Implementation of APM GHG-2 would reduce SF6 emissions in compliance with the Regulation for Reducing Greenhouse Gas Emissions from Gas Insulated Switchgear, which requires switchgear owners to reduce their emission rates.

LEU Project Components

Construction Activities

Emissions of GHG resulting from construction of the LEU portion of the project were estimated for the 13-month construction period. Construction activities and equipment associated with the LEU portion of the project would be similar to those described above for the PG&E portion of the project and would therefore result in similar sources of GHG emissions. The proposed project's construction related emissions were quantified for total construction emissions and amortized over 30 years. Table 3.9-2 above summarizes the estimated GHG emissions per year of construction of the LEU portion of the project, the total GHG emissions generated during the construction phase of the project, and the amortized construction-related GHG emissions.

Approximately 503 $MTCO_2e$ could be generated during the LEU's 2-year construction period. As stated above, to provide a more comprehensive assessment of cumulative GHG emissions-related effects, total construction emissions were summed and amortized over a 30-year project life and added to operational emissions, which are discussed below. As mentioned above, project-level GHG emissions are inherently cumulative; therefore, the construction emissions associated with construction of the LEU portion of the project listed in Table 3.9-2, above, are considered as part of the GHG emissions for the proposed project lifecycle, including GHG emissions during operation.

Operation and Maintenance

GHG emissions from operation of the LEU portion of the project would primarily be generated from electricity usage at the new or modified facilities, while other sources such as monthly inspections (vehicle usage), and SF_6 leakage from circuit breakers at LEU Guild Substation would also result in GHG emissions. Table 3.9-3 above summarizes the annual operational GHG emissions from the LEU portion of the project and includes the amortized construction emissions. The LEU portion of the project would emit 484.49 $MTCO_2e$ per year during operation. Detailed CalEEMod operational emissions calculations are included in Appendix D2. Emission calculations of operations SF_6 emissions are also shown in Appendix D2.

Table 3.9-3 shows that the LEU portion of the project would result in approximately 484 $MTCO_2e$/year during operation. Annual GHG emissions from the LEU portion of the project, including the amortized construction emissions and the annual operation emissions, would be 501 $MTCO_2e$/year In addition, implementation of BMP GHG-1 would further reduce or minimize the LEU emissions.

Implementation of BMPs

Implementation of BMP GHG-1 would reduce construction-related GHG emissions by implementing on-site actions such as limiting construction vehicle idling time as far as possible below the maximum of 5 consecutive minutes allowed by California law, holding briefings to construction crews on vehicle use as part of pre-construction conferences which include discussion of a "common sense" approach to vehicle use, minimizing construction equipment exhaust by using low-emission or electric construction equipment where feasible, and minimize welding and cutting by using compression of mechanical applications where practical and within standards and encouraging the recycling of construction waste where feasible.

Implementation of BMP GHG-2 would reduce GHG emissions through compliance with the Regulation for Reducing Greenhouse Gas Emissions from Gas Insulated Switchgear, which requires switchgear owners to reduce their emission rates.

Summary

Total construction- and operation-related GHG emissions from the PG&E and LEU portions of the project, including amortized construction emissions, are summarized below above in Tables 3.9-2 and 3.9-3, respectively. Tables 3.9-6 and 3.9-7, respectively.

Implementation of APM GHG-1 and BMP-1 would reduce construction-related GHG emissions. Emission reductions attributable to these APMs and BMPs are considered in the annual emissions reported in Table 3.9-2. Implementation of APM GHG-2 and BMP GHG-2 would reduce SF6 emissions during operations, as reported in Table 3.9-3.

Consistency with 2022 Scoping Plan

As noted above, the project has been evaluated for consistency with the goals of the 2022 Scoping Plan. The ultimate objective of the 2022 Scoping Plan is to achieve the state's goals of reducing GHG emissions by 85 percent below 1990 levels and achieving carbon neutrality by 2045. According to the 2022 Scoping Plan, as of 2022, California experienced three straight years of energy reliability challenges. This included a multi-day extreme heat event across the western United States with temperatures up to 20 degrees above normal in California, which resulted in rotating grid outages in August 2020. In 2021, heat waves prompted a Grid Warning, and the onset of emergency conditions and wildfire caused the loss of one transmission line, reducing import capability by 3,000 megawatts (MW) into the California Independent System Operator (CAISO) balancing authority area. From August 31 through September 9, 2022, a 10-day extreme heat event resulted in a sustained period of high peak loads in the CAISO system, averaging 47,000 MW and maxing at an all-time record of over 52,000 MW on September 6. Because of the increasing stress placed on California's energy grid related to the effects of climate change, the 2022 Scoping Plan identifies a clean, affordable, and reliable electricity grid as one of six "key sectors" targeted for GHG reductions. Further, of these six key sectors, the 2022 Scoping Plan identifies the electricity sector as one of the largest contributors of GHGs in the state and presents some of the largest opportunities for GHG reductions. To support the reduction of GHG emissions from the electricity sector, the 2022 Scoping Plan states that clean energy production and distribution (i.e., electricity transmission infrastructure) would need to grow "at unprecedented rates" to ensure reliability, affordability, and resiliency in California's electricity sector (CARB 2022b).

To further demonstrate the urgency of implementing GHG-reducing actions, the 2022 Scoping Plan includes an Uncertainty Analysis which utilizes a "Reference Scenario" that quantifies the increase in GHG emissions that could result from two scenarios – a 5-year delay in renewable capacity and a 5-year delay in transportation electrification. GHG emissions from these two scenarios are compared to a Reference Scenario of California's projected GHG emissions in 2030. The Reference Scenario is the assessment of current trends and expected performance of policies identified in the 2017 Scoping Plan, as of February 2022. Notably, the Uncertainty Analysis focuses on progress in achieving the 2030 target of at least 40 percent below 1990 levels by 2030 and does not include an assessment of the uncertainty faced in implementing the Scoping Plan scenario for achieving carbon neutrality by 2045. Of the two scenarios, the "delayed renewable capacity" scenario is identified as having the potential to result in the greatest amount of GHG emissions. The Uncertainty Analysis finds that a five-year delay in the statewide implementation of increased renewable capacity and electricity transmission infrastructure would increase emissions by 8 percent in 2030 (25 $MMTCO_2e$) relative to the Reference Scenario, which estimates emissions in 2030 to be 324 $MMTCO_2e$. The analysis concludes that this would jeopardize the state's ability to achieve the 2030 target.

As described in Section 2.3, "Project Background, Purpose, and Need," implementation of the project would involve shifting the LEU load, approximately 148 MW, from the existing PG&E 60 kV system to a new PG&E 230 kV source. Moving the LEU load to the PG&E 230 kV source would reduce demand on the PG&E 60 kV system, which would provide greater reliability to other existing PG&E customers in northern San Joaquin County. Therefore, the project would serve the purpose of improving the resilience and reliability of the Northern San Joaquin electrical grid, and ultimately the state's electrical grid. By increasing the reliability of the project area's power system, existing electricity customers would have access to safe and reliable electricity. This reliable electricity source would be capable of supporting additional electrification of customer operations, which would support the state's overarching goals of mobile source electrification and building decarbonization, leading to reduced GHG emissions from the transition away from fossil fuels. This would be consistent with the goal of the 2022 Scoping Plan to expand clean energy production and distribution infrastructure to ensure reliability, affordability, and resiliency in California's electricity sector. Additionally, implementation of the project would aid in addressing the "delayed renewable capacity" scenario

in the Uncertainty Analysis included in the 2022 Scoping Plan by increasing the transmission capacity of the state's grid, allowing for increased generation and distribution of renewable energy. This would be consistent with short-term goal of the 2022 Scoping Plan to achieve the 2030 target of GHG emissions at least 40 percent below 1990 levels by 2030.

Furthermore, Appendix D, "Local Actions," of the 2022 Scoping Plan directs local agencies to reduce GHG emissions in several key sectors including transportation electrification and building decarbonization. By increasing load capacity and reliability, the project would be supporting the reduction of GHG emissions in these key areas. Additionally, the project would improve the electric transmission infrastructure in the region and therefore support both existing and future renewable electric generation (e.g., wind, solar, hydro, and thermal). Given that these are goals identified for the energy sector in the 2022 Scoping Plan, the project would be consistent with the reduction goals of the 2022 Scoping Plan. The project would align with the goals of the 2022 Scoping Plan to improve grid reliability and resilience by increasing grid capacity to accommodate additional energy demand, the transition to renewable energy systems, updated existing energy facilities, and an increased number of efficient energy storage and transmission systems. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.10 HAZARDS AND HAZARDOUS MATERIALS

California Health and Safety Code Section 25501 defines the term "hazardous material" as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment. Hazardous materials are hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment. In addition to hazardous materials, this section addresses potential safety hazards attributable to the proposed project.

One comment on the notice of preparation (NOP) was received regarding hazards and hazardous materials. The commenter expressed concern for safety related to falling electrical lines. This issue is addressed in the impact analysis below. See Appendix A for all NOP comments received during the public scoping period.

3.10.1 Environmental Setting

HAZARDOUS MATERIALS

Hazardous Sites

A report summarizing regulatory agency database listings was reviewed to screen for nearby hazardous sites and recognized environmental conditions that may exist within the project area (EDR 2022). In addition, a Phase I environmental site assessment (ESA) was performed on 17.19 acres (APN 04931009 and the adjacent APN 04931008) in the City of Lodi at and adjacent to the proposed PG&E switching station site (ERM 2022). The Phase I ESA was conducted in accordance with the scope and limitations of ASTM International Standard E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. While there are several former hazardous material contamination sites near the project area, all known sites have been fully remediated. The locations of these sites are shown in Figure 3.10-1 and described below.

- Delta Packing Company, located at 5950 East Kettleman Lane, is a closed leaking underground storage tank (LUST). No further action is needed.
- Lodi Metal Tech, Inc., located at 213 South Kelly Street, is a closed LUST. No further action is needed.
- Lodi Ready Mix, located at 851 East Lodi Avenue (approximately 0.20 miles west of LEU Industrial Substation), is a closed LUST. No further action is needed.
- Lodi Lumber Company, located at 1025 Industrial Way (approximately 0.21 miles south of the proposed PG&E Thurman Switching Station), is a closed LUST. No further action is needed.
- Central California Traction Company, located at 305 South Guild Avenue (between the existing PG&E Industrial Tap and PG&E Lockeford-Industrial 60 kilovolt (kV) lines when immediately east of South Guild Avenue), is a Clean Program Site (or Spills, Leaks, Investigations, and Cleanup site). Cleanup has been completed, and the case is closed as of March 17, 2023.
- B&G Industries, located at 100 South Cluff Avenue, has been identified as an open site; however, the site has remained inactive since June 2, 1991, all wastes have been removed, and the entire site is paved and fenced (SWRCB 2024).

Agricultural Chemicals

Agricultural and farming operations in the project area use agricultural chemicals, including pesticides and herbicides, as a standard practice. Continuous spraying of crops over many years can potentially result in a residual buildup of pesticides in farm soils. Residual concentrations of pesticides, including substances no longer used, may be present in soil because of historic agricultural application and storage.

HAZARDS

Airports and Airstrips

There are no active public airports or private airstrips within 2 miles of the project area (see Figure 3.10-1). The *San Joaquin County Airport Land Use Compatibility Plan* (San Joaquin County 2018) identifies three public airports near the City of Lodi: (1) Lodi Airpark, which is located approximately 4.3 miles southwest of the 230 kV alignment; (2) Lodi Airport, which is located approximately 5.0 miles northwest of LEU Industrial Substation; and (3) Kingdon Airpark, which is located approximately 6.3 miles southwest of LEU Industrial Substation. The project area is not within the land use compatibility zones of these airports. In addition to the public airports, there is a private airstrip, Wallom Field, located approximately 2.75 miles south of the 230 kV alignment. There are no land use plans associated with Wallom Field.

Wildland Fire Hazards

Although all of California is subject to some degree of wildfire hazard, specific features make certain areas more hazardous. The California Department of Forestry and Fire Protection (CAL FIRE) is required by law to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors (Public Resources Code Sections 4201–4204 and Government Code Sections 51175–51189). Factors that increase an area's susceptibility to fire hazards include slope, vegetation type and condition, and atmospheric conditions. When development spreads into less populated areas, it increases the number of people living in areas prone to wildfire.

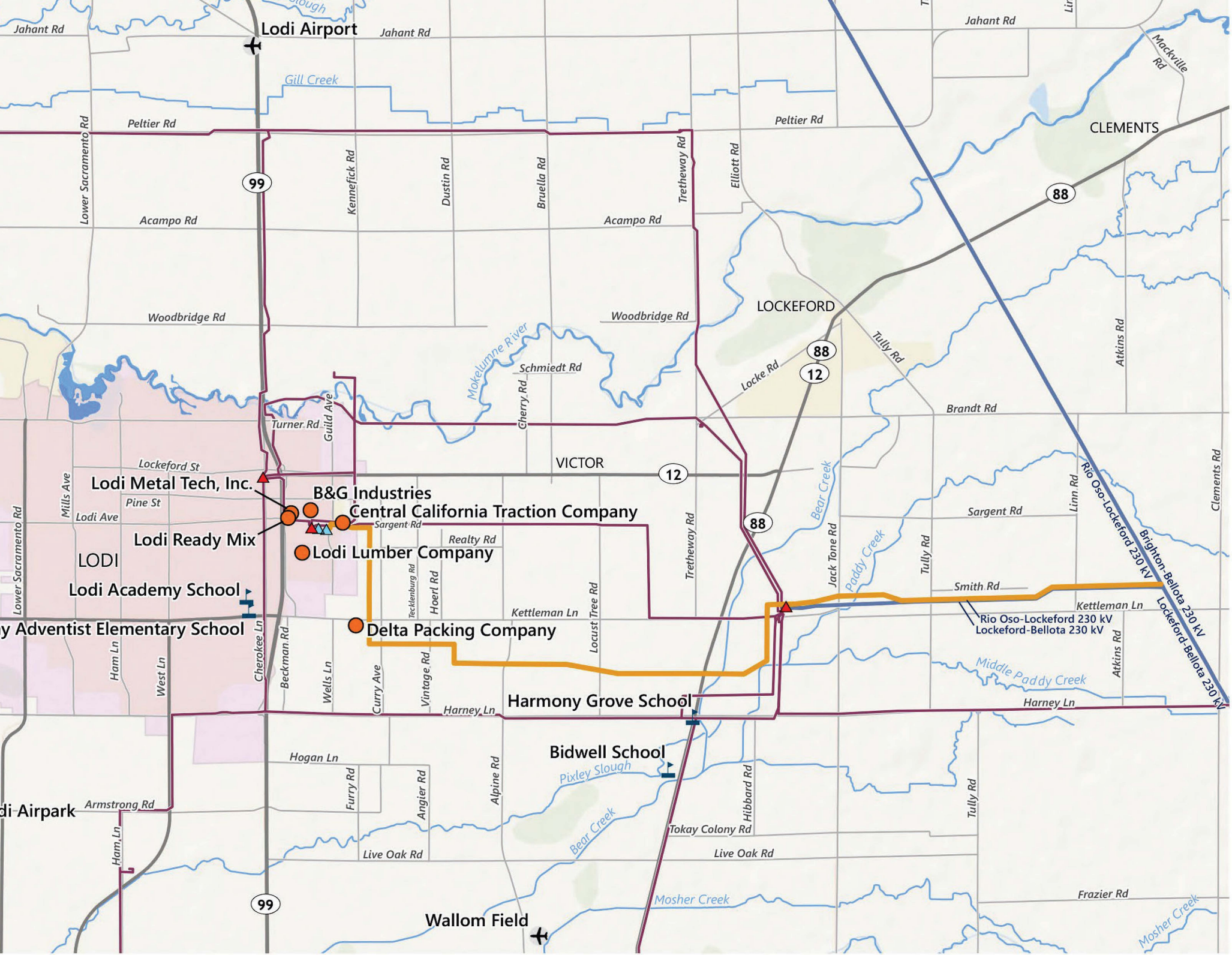
As described further in Section 3.18, "Wildfire," the CAL FIRE Hazard Severity Zone maps identify federal responsibility areas (FRAs), state responsibility areas, and local responsibility areas for preventing or suppressing fires. Within state responsibility areas, the director of CAL FIRE has designated areas as moderate, high, and very high fire hazard severity zones based on factors such as potential fuel sources, terrain, weather, fire behavior characteristics, burn probabilities, and the likelihood of vegetation exposure. Within local responsibility areas, CAL FIRE has recommended the locations of very high Fire Hazard Severity Zones (FHSZs) that may or may not be adopted by local governing agencies. The CAL FIRE maps also show FRAs and fire hazard designations within those federal areas. The CPUC has also adopted fire hazard mapping, most recently with its High Fire-Threat Map in 2021, which designates fire-threat areas that require enhanced fire safety (CPUC 2021).

Project Area Fire Hazard

The project area is not an area of high fire hazard. According to the CAL FIRE maps, all project components in San Joaquin County are located entirely within local responsibility areas and are not in an identified severity zone (CAL FIRE 2024; SJC GIS 2023). The project components are also located outside any mapped fire hazard zones on CPUC's High Fire-Threat Map. For the main project components within northern San Joaquin County, the nearest CPUC-designated Tier 3 Extreme fire zone is located approximately 42.5 miles northeast of the easternmost extent of the project area (CPUC 2021).

Facilities Potentially Susceptible to Induced Current

Existing infrastructure that may be susceptible to induced current is metallic in nature. This may include the existing Union Pacific Railroad/Central California Traction Company tracks and other linear metallic infrastructure. In addition, the Lodi Water Facility is located immediately south of the LEU Guild Substation. This facility is operated by the City of Lodi Public Works Department and includes a booster pump station and a 1-million-gallon steel water storage tank.


Lodi Airport
Jahant Rd
Gill Creek
Peltier Rd
Lower Sacramento Rd
99
Kennefick Rd
Dustin Rd
Bruella Rd
Tretheway Rd
Elliott Rd
Acampo Rd
Woodbridge Rd
Mokelumne River
Schmiedt Rd
Cherry Rd
Guild Ave
Turner Rd
Locke Rd
LOCKEFORD
CLEMENTS
VICTOR
88
12
Brandt Rd
Tully Rd
Atkins Rd
Mackville Rd
Lockeford St
Mills Ave
Pine St
Lodi Ave
Lodi Metal Tech, Inc.
B&G Industries
Central California Traction Company
Sargent Rd
Realty Rd
Lodi Ready Mix
Lodi Lumber Company
LODI
Lodi Academy School
Adventist Elementary School
Delta Packing Company
Bear Creek
Jack Tone Rd
Paddy Creek
Linn Rd
Clements Rd
Rio Oso-Lockeford 230 kV
Brighton-Bellota 230 kV
Lockeford-Bellota 230 kV
Smith Rd
Kettleman Ln
Middle Paddy Creek
Harney Ln
Harmony Grove School
Bidwell School
Pixley Slough
Hogan Ln
Armstrong Rd
Airpark
Ham Ln
West Ln
Cherokee Ln
Beckman Rd
Wells Ln
Curry Ave
Vintage Rd
Tecklenburg Rd
Hoerl Rd
Locust Tree Rd
Furry Rd
Angier Rd
Alpine Rd
Hibbard Rd
Tokay Colony Rd
Live Oak Rd
Mosher Creek
Frazier Rd
Wallom Field

SENSITIVE RECEPTORS

Schools

Children are particularly susceptible to long-term effects of exposure to emissions of hazardous materials. Therefore, locations where children spend extended periods of time, such as schools, require extra care concerning hazardous air emissions and accidental release associated with the handling of extremely hazardous materials, substances, and wastes. No existing or proposed schools are within 0.25 miles of the project area (see Figure 3.10-1). The nearest schools and their approximate distances from the project area are:

- Harmony Grove School, approximately 5.4 miles southeast of the proposed substation and 0.7 miles south of the transmission line alignment;
- Lodi Seventh Day Adventist Elementary School, approximately 1.2 miles southwest of the proposed substation and 1.6 miles west of the transmission line alignment;
- Bidwell School, approximately 5.5 miles southeast of the proposed substation and 1.5 miles south of the transmission line alignment; and
- Lodi Academy School, approximately 1.5 miles southwest of the proposed substation and 1.9 miles northwest of the transmission line alignment.

3.10.2 Regulatory Setting

FEDERAL

Resource Conservation and Recovery Act

In California, the Resource Conservation and Recovery Act (RCRA) program (42 USC Section 6901 et seq.) is administered by the California Environmental Protection Agency (CalEPA) and California Department of Toxic Substances Control (DTSC), per direction of the U.S. Environmental Protection Agency (EPA), which regulates hazardous waste from the time the waste is generated until its final disposal ("cradle to grave").

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC Chapter 103) and associated Superfund Amendments provide EPA with the authority to identify hazardous sites, to require site remediation, and to recover the costs of site remediation from polluters. CERCLA also enabled the revision of the National Oil and Hazardous Substances Pollution Contingency Plan, also known as the National Contingency Plan (NCP). The NCP provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants.

Spill Prevention, Control, and Countermeasure Rule

The purpose of the Spill Prevention, Control, and Countermeasure (SPCC) rule (40 Code of Federal Regulations [CFR] Parts 112.1–112.7) is to help facilities prevent the discharge of oil into navigable waters or adjoining shorelines. The SPCC rule requires facilities to develop, maintain, and implement an oil spill prevention plan, called an SPCC Plan. These plans help facilities prevent oil spills, as well as control a spill should one occur. The SPCC rule requires the owner or operator of a facility that uses or stores more than a specified quantity of potentially hazardous oil to prepare and implement an SPCC Plan. The plan must be maintained at the location of the facility that is normally attended for at least 4 hours per day.

Federal Water Pollution Control Act

EPA designates hazardous substances under the Federal Water Pollution Control Act (40 CFR Chapter I, Subchapter D, Parts 116 and 117) and determines quantities of designated hazardous substances that must be reported (40 CFR Part 116) or that may be discharged into waters of the United States (40 CFR Part 117).

Toxic Substances Control Act

The Toxic Substances Control Act of 1976 (15 US Code [USC] Section 2601 et seq.) regulates the manufacturing, inventory, and disposition of industrial chemicals, including hazardous materials.

Superfund Amendments and Reauthorization Act

The Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499; USC Title 42, Chapter 116), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.

In California, both federal and state community right-to-know laws are coordinated through the Governor's Office of Emergency Services. The federal law encourages emergency planning efforts at the state and local levels to provide local governments and the public with information about potential chemical hazards in their communities. Because of the community right-to-know laws, information is collected from facilities that handle (e.g., produce, use, store) hazardous materials above certain quantities. The provisions of EPCRA apply to four major categories:

- emergency planning,
- emergency release notification,
- reporting of hazardous chemical storage, and
- inventory of toxic chemical releases.

Federal Hazardous Materials Transportation Law

The US Department of Transportation regulates the transport of hazardous materials between states and is responsible for protecting the public from dangers associated with such transport. The federal hazardous materials transportation law, 49 USC 5101 et seq. (formerly the Hazardous Materials Transportation Act 49 USC 1801 et seq.), is the basic statute regulating transport of hazardous materials in the United States. There are registration requirements for individuals that offer and accept hazardous wastes, and hazardous materials must be properly classed, described, packaged, marked, and labeled. Hazardous materials transport regulations are enforced by the Federal Highway Administration, the US Coast Guard, the Federal Railroad Administration, and the Federal Aviation Administration.

Transformer Oil Transport and Recycling

Title 49 CFR Part 130 applies to the transport of transformer oil (mineral oil) when shipped in containers of 3,500 gallons or more. According to 49 CFR Part 130, containers used for the transportation of oil subject to this part must be designed, constructed, maintained, closed, and loaded such that under conditions normally incident to transportation, there will be no release of oil to the environment. In addition, a response plan must be developed pursuant to 49 CFR Part 130 requirements. Standards for recycling used transformer oil are established in 40 CFR Part 279.

Title 29 Worker Safety Regulations

The federal Occupational Safety and Health Administration (OSHA) is the agency responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials and those required for excavation and trenching. The Hazard Communication Standard (CFR Title 29, Part 1910) requires that workers be informed of the hazards associated with the materials they handle. Workers must be trained in safe handling of hazardous materials, use of emergency response equipment, and building emergency response plans and procedures. Containers must be labeled appropriately, and material safety data sheets must be available in the workplace.

Federal Aviation Administration Regulations

The Federal Aviation Administration (FAA) regulates the safe use and preservation of navigable airspace. FAA must be notified of any structures located in the airspace of an airport as defined in 14 CFR Section 77.9(b)(1), (2), and (3), or new structures taller than 200 feet in height, to confirm that the proposed structures would not pose a threat to safety.

The Airport Land Use Commission (ALUC) adopted 14 CFR Part 77, Objects Affecting Navigable Airspace, using imaginary surfaces to determine height restrictions for natural and artificial objects. These federal regulations govern project design. However, FAA regulations relating to objects affecting navigable airspace contained in 14 CFR 77, Subpart C, do not apply to a pole, pole line, distribution or transmission tower, or tower line or substation of a public utility.

STATE

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) (CCR Title 27) was mandated by the state of California in 1993. The Unified Program was created to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for six hazardous materials programs. The program has the following six elements:

- Hazardous Waste Generators and Hazardous Waste On-Site Treatment,
- Underground Storage Tanks (USTs),
- Aboveground Petroleum Storage Act,
- Hazardous Materials Release Response Plans and Inventories,
- California Accidental Release Prevention, and
- Uniform Fire Code Hazardous Materials Management Plans and Hazardous Materials Inventory Statements.

At the local level, implementation of a Unified Program is accomplished by identifying a Certified Unified Program Agency (CUPA) that coordinates all of these activities to streamline the process for local businesses. The San Joaquin County Environmental Health Department (SJCEHD) is approved by CalEPA as the CUPA for San Joaquin County.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined under this act as raw or unused materials that are part of a process or manufacturing step.

The corresponding state law is Chapter 6.95 of the California Health and Safety Code (Hazardous Materials Release Response Plans and Inventory). The California Health and Safety Code (Section 25503.5) requires a business plan for emergency response for facilities that store hazardous materials in excess of 55 gallons (liquid), 500 pounds (solid), or 200 cubic 30 feet (gas). Under this law, qualifying businesses are required to prepare a hazardous materials business plan (HMBP), which includes hazardous materials and hazardous waste management procedures and emergency response procedures, including emergency spill cleanup supplies and equipment.

CalEPA oversees the implementation of the HMBP program at the state level. CUPAs and participating agencies implement the program at the local level and are responsible for enforcement and administration in their respective jurisdictions. When the applicant begins to use hazardous materials at levels that reach applicable state or federal thresholds, the plan is submitted to the administering agency. The oil used in transformers is managed as hazardous waste until tests show it is not hazardous (Health and Safety Code section 25250.4).

Government Code Section 65962.5: Cortese List

DTSC, a division of the CalEPA, has primary regulatory responsibility over hazardous materials in California, working in conjunction with EPA to enforce and implement hazardous materials laws and regulations. As required by Section 65962.5 of the California Government Code, DTSC maintains a hazardous waste and substances site list for the state, known as the Cortese List. The Cortese List includes all hazardous waste facilities subject to corrective action; land designated as hazardous waste property or border zone property; information received by DTSC about hazardous waste disposals on public land; sites listed pursuant to Section 25356 of the Health and Safety Code 41 (removal and remedial action sites); and sites included in the Abandoned Site Assessment Program. The Cortese List includes the State Water Resource Control Board's (SWRCB's) Geotracker database, solid waste disposal sites list, Cease and Desist Orders and Cleanup and Abatement Orders list; and DTSC's EnviroStor database and hazardous waste sites.

Transport of Hazardous Materials and Hazardous Materials Emergency Response Plan

The State of California has adopted US Department of Transportation regulations for the movement of hazardous materials originating within the state and passing through the state; state regulations are contained in 26 California Code of Regulations (CCR). State agencies with primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers to transport hazardous waste on public roads.

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local governments and private agencies. Response to hazardous materials incidents is one part of the plan. The plan is managed by the Governor's Office of Emergency Services, which coordinates the responses of other agencies in the project area.

Porter-Cologne Water Quality Control Act

Through the Porter-Cologne Water Quality Act and the National Pollutant Discharge Elimination System (NPDES) program, regional water quality control boards (RWQCBs) have the authority to require proper management of hazardous materials during project construction. California's RWQCBs require a Construction Activities Storm Water General Permit (Order 2009-12 0009-DWQ) for stormwater discharges associated with any construction activity, including clearing, grading, excavation reconstruction, and dredge and fill activities, that results in the disturbance of at least 1 acre of total land area. The applicant is required to apply for coverage under the NPDES Construction General Permit and prepare a stormwater pollution prevention plan (SWPPP) for the water board's review and approval. Dischargers are required to eliminate or reduce non-stormwater discharges to storm sewer systems and other waters. A SWPPP must be developed and implemented for each site covered by the permit. The SWPPP must include best management plans (BMPs) designed to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the BMPs must address source control and, if necessary, pollutant control. For a detailed description of the Porter-Cologne Water Quality Act, the NPDES program, and the role of the Central Valley RWQCB, see Section 3.11, "Hydrology and Water Quality."

Hazardous Waste Fee Health and Safety Code

The Hazardous Waste Fee Health and Safety Code (Chapter 6.5, Section 25143 et seq.) provides definition and guidance on wood waste and its disposal. Wood waste is defined in part as poles, crossarms, pilings, and fence posts that have been previously treated with a preservative.

Wood waste materials removed from electric, gas, or telephone service are exempt from the requirements for disposal provided certain conditions are met:

- The wood waste is not subject to regulation as a hazardous waste under a federal act and it is disposed of in a composite-lined portion of a municipal solid waste landfill that meets the requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code.

- The solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code.

California Occupational Safety and Health Administration Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are typically more stringent than federal OSHA regulations and are presented in Title 8 of the CCR. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices. Cal/OSHA enforces regulations on hazard communication programs and mandates specific training and information requirements. These requirements include procedures for identifying and labeling hazardous substances, providing hazard information about hazardous substances and their handling, and preparing health and safety plans to protect workers and employees at hazardous waste sites. Furthermore, as required by Cal/OSHA's Hazard Communication Standard (29 CFR 1910.1200[g]), employers must make material safety data sheets (SDSs) available to employees and document employee information and training programs.

Cal/OSHA regulations on electrical safety are grouped by electrical voltage. Regulations for low voltage (i.e., up to 600 volts) are provided in Sections 2299–2599 of the CCR and the regulations for high voltage (i.e., above 600 volts) are in Sections 2700–2989. Section 1518 addresses the safety requirements for the protection of workers and others from electric shock in construction.

California Fire Code

The California Fire Code 2010 (CCR Title 24, Part 9) is based on the International Fire Code from the International Code Council and contains consensus standards related to establishing good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, and dangerous conditions in new or existing buildings, structures, and premises.

California Public Resources Code

The California Public Resources Code (PRC) provides regulations to enhance safety with regard to the operation and management of electrical transmission lines. The PRC includes fire safety regulations that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment that has an internal combustion engine; specify the requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided on-site for various types of work in fire-prone areas.

Specifically, Sections 4292 and 4293 of the PRC address vegetation management in transmission line corridors as follows:

- PRC Section 4292: This section requires the clearing of flammable vegetation around specific structures that support certain connectors or types of electrical apparatus. An approximately 10-foot radius around such structures must remain clear of vegetation for the entirety of the fire season.
- PRC Section 4293: This section requires specific clearance between conductors and vegetation. As the line voltage increases, the clearance radius also increases. In addition, some trees must be removed if they pose the potential to fall on an electrical transmission line and cause damage.

CPUC General Order 95: Rules for Overhead Electric Line Construction

General Order (GO) 95 regulates the design, construction, operation, and maintenance of overhead electric lines in California. This order includes safety standards such as minimum conductor ground clearance, electric line inspection requirements, and vegetation clearance requirements. Rule 35 (Tree Trimming) defines minimum vegetation clearances around power lines and requires 10 feet of radial clearances for any conductor of a line operating at more than 110,000 volts and less than 300,000 volts. This rule also requires that utility providers remove dead, rotten, and diseased trees that overhang or lean toward a span of an electric line. Rule 31.2 (Inspection of Lines) requires that lines be inspected frequently to ensure that they are in good condition and that lines temporarily out of service be inspected and maintained to prevent a hazard.

CPUC General Order 128: Rules for Construction of Underground Electric Supply and Communication Systems

GO 128 establishes requirements for the construction, operation, and maintenance of all underground electric supply and communications systems under CPUC jurisdiction to ensure safe design and operation of underground electrical facilities, including design and inspection criteria.

CPUC General Order 166: Standards for Operation, Reliability, and Safety during Emergencies and Disasters

GO 166 applies to all electric utilities subject to the jurisdiction of the CPUC and addresses electric service reliability and safety. The purpose of this order is to ensure that jurisdictional electric utilities are prepared for emergencies and disasters to minimize damage and inconvenience to the public that may occur as a result of electric system failures, major outages, or hazards posed by damage to electric distribution facilities. Investigations required by this order are conducted following every major outage, pursuant to and consistent with Public Utilities Code Section 364(c) and CPUC policy.

LOCAL

Because the CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City and County) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Because LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin Valley Air Pollution Control District Asbestos Regulation

The San Joaquin Valley Air Pollution Control District (SJVAPCD) regulates asbestos-containing materials (ACMs) for demolition and renovations of regulated facilities. SJVAPCD considers demolition to include the removal of any structural load-bearing member from a facility, or the separation of a structure from its foundation prior to relocation.

An Asbestos Notification Form is required for the following projects:

- Any regulated demolition, regardless of whether asbestos is present.
- Any regulated renovation in which the following will be disturbed:
  - 160 square feet or more of regulated ACM, or
  - 260 linear feet or more of regulated asbestos-containing pipe insulation.
- A Demolition Permit Release Form must be signed by SJVAPCD for all demolitions before obtaining a building department demolition permit.

San Joaquin County Local Hazard Mitigation Plan

The San Joaquin County Local Hazard Mitigation Plan (LHMP), adopted in April of 2023, provides strategies for the County and other local jurisdictions to identify and implement mitigation actions for reducing damages from various natural and technological disasters. The LHMP outlines a process for assessing and analyzing hazards to which San Joaquin County is most vulnerable. The process improves the county's resilience by performing a hazard risk assessment, using available tools to complete a capabilities assessment, and then identifying mitigation actions for these hazards. The LHMP analyzes the risk posed to people and property by natural hazards and considers mitigation actions that the County could implement before such events to reduce the risk to life and safety and the risk of property damage and service disruption caused by these natural hazards (San Joaquin County 2023).

San Joaquin County Environmental Health Department

Under the CUPA Program, SJCEHD enforces state regulations governing hazardous materials storage, hazardous waste generators, hazardous waste treatment, and hazardous substance USTs. SJCEHD assists businesses in preparing

HMBP. SJCEHD performs oversight of investigation and cleanup activities at soil and groundwater contaminated sites under a contract with the SWRCB.

San Joaquin County Airport Land Use Compatibility Plan

The 2009 San Joaquin County Airport Land Use Plan (ALUP), as amended in 2018, establishes Airport Land Use Zones for each airport in the plan. The zones are based on 14 CFR Part 77 airspace standards. Within each zone, the airport land use guidelines control both the heights of structures and the types of land use. The plan also includes intensity restrictions that limit the number of people who may congregate in a specific area. The ALUP provides guidelines and land use restrictions to ensure that no new land use resulting in a hazard to aircraft or to the health or safety of people on the ground is permitted within any part of an airport's area of influence. These guidelines also ensure that lands needed for airport facilities and airport-related land uses are reserved for those uses. These restrictions are meant to both reduce risk to people on the ground in the event of an aircraft accident and to minimize hazards to aircraft flight.

San Joaquin County General Plan

The San Joaquin County General Plan (San Joaquin County 2016) contains the following policies that are relevant to the project:

- **Policy PHS-1.10: Emergency Vehicles Access.** The County shall require all new developments to provide, and existing developments to maintain, adequate primary and alternative access for emergency vehicles.
- **Policy PHS-7.1: Minimize Hazardous Materials and Wastes.** The County shall discourage the use of hazardous materials and the creation of hazardous wastes.
- **Policy PHS-7.2: Avoid Contamination of Resources.** The County shall strive to ensure that hazardous materials and wastes do not contaminate air, water, or soil resources.
- **Policy PHS-7.3: Control Hazardous Materials.** The County shall require the use, storage, and disposal of hazardous materials and wastes to comply with local, State, and Federal safety standards.
- **Policy PHS-7.4: County Hazardous Waste Management Plan.** The County shall maintain and implement the County Hazardous Waste Management Plan.
- **Policy PHS-7.5: Locate Hazardous Materials Away from Population Areas.** To the extent feasible, the County shall require proposed activities and land uses that use, store, or dispose of hazardous materials or wastes to be located away from existing and planned populated areas.
- **Policy PHS-7.6: Require Hazardous Materials Management Plans.** The County shall require businesses that use or store materials and wastes on-site to prepare Hazardous Materials Management Plans (Business Plans) that map and inventory all hazardous materials and contain contingency plans for accidents, designate an individual or individuals as emergency coordinator(s), and ensure that all employees understand the potential for accidents and the appropriate response. Plans must follow the requirements for Federal, State, and/or local defined special flood hazard areas.
- **Policy PHS-7.7: County Hazardous Materials Area Plan.** The County shall maintain and implement the County Hazardous Materials Area Plan for emergency response to a release or threatened release of hazardous material within the unincorporated county.
- **Policy PHS-7.8: Consistency with Hazardous Waste Management Plan.** The County shall require all new development to be consistent with the County Hazardous Waste Management Plan (CHWMP). Any proposed hazardous waste facility, or expansion of an existing hazardous waste facility, shall be consistent with the CHWMP.
- **Policy PHS-7.11: Hazardous Materials Transportation Routes.** The County shall continue to maintain route designations for hazardous materials transport within San Joaquin County.
- **Policy PHS-7.13: Hazardous Waste Disposal Facilities.** The County shall provide areas for hazardous waste disposal facilities sufficient to meet the needs of county residents and businesses.

- **Policy PHS-8.4: Compliance with Federal Aviation Administration (FAA) Regulations.** The County shall require development within airport approach and departure zones to be in compliance with FAA Regulations that address objects affecting navigable airspace.
- **Policy PHS-8.6: Transmission Tower and Lines.** The County shall not approve any radio, television, power, or related transmission towers and lines that may conflict with aircraft operations.
- **Policy PHS-9.2: Airport Noise Compatibility Criteria.** The County shall require new development within airport areas of influence be consistent with the Airport Noise Compatibility Criteria in the Airport Land Use Compatibility Plan.

City of Lodi Fire Department

The Fire Department provides a wide range of emergency and nonemergency services, including hazardous materials response, public education, and related safety services. The department conducts Uniform Fire Code inspections of hazardous facilities.

City of Lodi General Plan

The City of Lodi General Plan (City of Lodi 2010) contains the following policies that are relevant to the project:

- **Policy S-G1:** Ensure a high level of public health and safety.
- **Policy S-G2:** Prevent loss of lives, injury, illness, and property damage due to flooding, hazardous materials, seismic and geological hazards, and fire.
- **Policy S-G3:** Protect the public from disasters and provide guidance and response in the event [of] a disaster or emergency.
- **Policy S-G4:** Minimize vulnerability of infrastructure and water supply and distribution systems.
- **Policy S-P12:** Require that all fuel and chemical storage tanks are appropriately constructed; include spill containment areas to prevent seismic damage, leakage, fire, and explosion; and are structurally or spatially separated from sensitive land uses, such as residential neighborhoods, schools, hospitals, and places of public assembly.
- **Policy S-P13:** Ensure compatibility between hazardous material users and surrounding land use through the development review process. Separate hazardous waste facilities from incompatible uses including, but not limited to, schools, daycares, hospitals, public gathering areas, and high-density residential housing through development standards and the review process.
- **Policy S-P14:** Consider the potential for the production, use, storage, and transport of hazardous materials in approving new development. Provide for reasonable controls on such hazardous materials. Ensure that the proponents of applicable new development projects address hazardous materials concerns through the preparation of Phase I or Phase II hazardous materials studies, as necessary, for each identified site as part of the design phase for each project. Require projects to implement federal or State cleanup standards outlined in the studies during construction.
- **Policy S-P15:** Regulate the production, use, storage, and transport of hazardous materials to protect the health of Lodi residents. Cooperate with the County and Lodi Fire Department in the identification of hazardous material users, development of an inspection process, and implementation of the City's Hazardous Waste Management and Hazardous Materials Area plans. Require, as appropriate, a hazardous materials inventory for project sites, including an assessment of materials and operations for any development applications, as a component of the development environmental review process or business license review/ building permit review.
- **Policy S-P17:** Continue to follow the County Comprehensive Airport Land Use Plan for guidelines on land use compatibility near airports, land use restrictions, and to ensure public safety.
- **Policy S-P19:** Continue to mark underground utilities and abide by federal safe-digging practices during construction.

- **Policy S-24:** Require new development to include grading and erosion control plans prepared by a qualified engineer or land surveyor.
- **Policy S-25:** Maintain a vegetation management program to ensure clearing of dry brush areas. Conduct management activities in a manner consistent with all applicable environmental regulations.
- **Policy S-28:** Ensure that major access and evacuation corridors are available and unobstructed in case of major emergency or disaster. Continue to identify appropriate road standards, including minimum road widths and turnouts to provide adequate emergency access and evacuation routes.

3.10.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

The following evaluation is based on review publicly available information and the *Phase I Environmental Site Assessment Report* prepared by Environmental Resources Management (ERM 2022).

Proposed project construction and operation were evaluated against the information gathered from these sources to assess potential changes in the nature, extent, and presence of hazardous conditions with the implementation of the proposed project that may create a significant hazard to the public or environment.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant-proposed measures (APMs) that are incorporated into PG&E's components of the proposed project. Similarly, LEU has developed BMPs that would apply to the LEU components of the proposed project. The project includes the following APMs and BMPs related to hazards and hazardous materials.

PG&E APMs

- **APM HAZ-1. PG&E Development and Implementation of Hazardous Material and Emergency Response Procedures.** PG&E will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction and, as appropriate, during the O&M [Operations and Maintenance] phase. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the SWPPP (APM HYD-1). If required, a site-specific SPCC Plan and an HMBP will be developed before the operation of the expanded PG&E Lockeford Substation and new PG&E Thurman Switching Station (APM HYD-4).
- **APM HAZ-2. PG&E Emergency Spill Supplies and Equipment.** Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill at PG&E's project components. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.
- **APM HAZ-3. PG&E Shock Hazard Safety Measures.** All authorized personnel working on site, during either construction or O&M, will be trained according to PG&E standards. To minimize potential exposure of the public to electric shock hazards, a 9-foot-tall chain-link fence topped with 1 foot of barbed wire (total height of approximately 10 feet) will be installed around the perimeter of the expanded PG&E Lockeford Substation and the new PG&E Thurman Switching Station before the new electric equipment is energized.
- **APM HAZ-4. PG&E Worker Environmental Awareness Training Program.** A PG&E WEAP [worker environmental awareness training program] will be developed and implemented prior to construction. The WEAP training will be administered to communicate environmental concerns and appropriate work practices to all construction field personnel before they begin work on the project. The training program will emphasize site specific physical

conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper implementation of best practices and measures. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.

- **APM HAZ-5. PG&E Potentially Contaminated Soil or Groundwater.** Soil or groundwater occurring at PG&E project components that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during excavation activities will be segregated and tested if pre-characterization has not occurred. If the soil or groundwater is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. The presence of known or suspected contaminated soil or groundwater will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.
- **APM WFR-1. PG&E Construction Fire Prevention Plan.** A project-specific Construction Fire Prevention Plan for construction of the project will be prepared prior to initiation of construction by PG&E. The PG&E plan will be provided to the CPUC and the local fire agencies with jurisdiction over the areas where the project is located at least 90 days prior to the initiation of construction activities in areas designated as very high or high FHSZs. Plan reviewers also will include federal, state, or local agencies with jurisdiction over areas where the project is located. The final plan will be approved by the CPUC at least 30 days prior to the initiation of construction activities. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:
  - The purpose and applicability of the plan;
    - Incorporation of the requirements in PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work;
    - Responsibilities and duties for compliance;
    - Preparedness training and drills;
  - Procedures for fire reporting, response, and prevention that include:
    - Identification of daily site-specific risk conditions;
    - The tools and equipment needed on vehicles and on hand at sites;
    - Reiteration of fire prevention and safety considerations during tailboard meetings;
    - Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity;
    - Coordination procedures with federal, state, and local fire officials;
    - Crew training, including the construction fire prevention practices described in APM WFR-2;
    - Method(s) for verifying that all plan protocols and requirements are being followed;
    - A project Fire Marshal or similar qualified person will be responsible for training project personnel and enforcing all provisions of the PG&E Construction Fire Prevention Plan, as well as performing other duties related to fire detection, prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.
- **APM WRF-2. PG&E Fire Prevention Practices.** PG&E will implement the following fire prevention practices at active construction sites and during maintenance activities:
  - Existing PG&E personnel conducting maintenance on the project are trained on the PG&E Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work and will follow the standard in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including National Weather Service (NWS) events, and PG&E's work restrictions and fire mitigation required for elevated PG&E Utility fire potential index (FPI) ratings (R4, R5, or R5-Plus).

- Construction personnel will be trained in fire-safe actions, including PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work, Wildfire Prevention Contract Requirements, and the project's PG&E Construction Fire Prevention Plan concerning initial attack, firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- All construction personnel will carry a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and define immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers will be updated as needed and redistributed to all construction personnel prior to the day the information change goes into effect.
- PG&E will coordinate with the applicable local fire departments prior to construction activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities as part of the PG&E Construction Fire Prevention Plan review.
- Construction personnel will have fire suppression equipment on all construction vehicles and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
- All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each work site. All fires will be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.
- While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
- PG&E General Requirements for wildfire mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from a fire index area (FIA) when the nearest FIA has an elevated FPI rating (R4, R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations would apply.
- At PG&E's Clayton Hill Repeater Station, which is within an FIA, during Red-Flag Warning and Fire Weather Watch events, as issued by the NWS, and elevated PG&E Utility FPI rating (R4, R5, or R5-Plus), all construction activities will refer to the current PG&E Standard TD-1464S and related requirements such as PG&E Wildfire Prevention Contract Requirements, Attachment 1—Wildfire Mitigation Matrix, and Attachment 2—Wildfire Risk Checklist Fire Mitigations. With increased potential fire risk of R4, additional water resources are required and a working fire watch is assigned to be able to continue work as long as the weather conditions are evaluated to ensure it remains safe to continue work.

For R5 and R5-Plus ratings, mitigation beyond R1 to R4 levels includes a dedicated fire watch at the jobsite, a trailer-mounted water tank or alternative water delivery method at the jobsite, and modifying the fuel sources surrounding the jobsite. All planned work is suspended during an R5-Plus fire rating. During all emergency work being performed for an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, pole, and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions.

LEU BMPs

- **BMP HAZ-1. LEU Development and Implementation of Hazardous Material and Emergency Response Procedures.** LEU will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction and, as appropriate, during the O&M phase. Construction procedures that will be implemented include worker training

appropriate to the worker's role, and containment and spill control practices in accordance with the SWPPP (BMP HYD-1). A site-specific SPCC Plan and an HMBP will be developed before the operation of the new LEU Guild Substation (BMP HYD-4).

- BMP HAZ-2. LEU Emergency Spill Supplies and Equipment. Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill at LEU's project components. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.
- BMP HAZ-3. LEU Shock Hazard Safety Measures. All authorized personnel working on site, during either construction or O&M, will be trained according to LEU standards. To minimize potential exposure of the public to electric shock hazards, an 8-foot-tall chain-link fence topped with 1 to 2 feet of barbed wire (up to approximately 10 feet in height) will be installed around the perimeter of the new LEU Guild Substation before the new electric equipment is energized.
- BMP HAZ-4. LEU Worker Environmental Awareness Training Program. An LEU WEAP will be developed and implemented prior to construction. The WEAP training will administered to communicate environmental concerns and appropriate work practices to all construction field personnel before they begin work on the project. The training program will emphasize site specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper implementation of best practices and measures. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to the City of Lodi.
- BMP HAZ-5. LEU Potentially Contaminated Soil or Groundwater. Soil or groundwater occurring at LEU project components that is suspected of being contaminated (based on existing analytical data or visual, olfactory, or other evidence) and is removed during excavation activities will be segregated and tested if pre-characterization has not occurred. If the soil or groundwater is contaminated above hazardous levels, it will be contained and disposed of offsite at a licensed waste facility. The presence of known or suspected contaminated soil or groundwater will require testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations.
- BMP WRF-1. LEU Construction Fire Prevention Plan. A project-specific Construction Fire Prevention Plan for construction of the project will be prepared prior to initiation of construction by LEU. The plan will be provided to the City of Lodi Fire Department, which has jurisdiction over the area where LEU's project activities are located, none of which are within very high or high FHSZs. The plans will be provided to the department at least 90 days prior to the initiation of construction activities for review and approval. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:
  - The purpose and applicability of the plan;
  - Incorporation of the requirements in LEU's current Wildfire Mitigation Plan (WMP)
  - Responsibilities and duties for compliance;
  - Preparedness training and drills;
  - Procedures for fire reporting, response, and prevention that include:
    - Identification of daily site-specific risk conditions
    - The tools and equipment needed on vehicles and on hand at sites
    - Reiteration of fire prevention and safety considerations during tailboard meetings
    - Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity

- Coordination procedures with federal, state, and local fire officials
- Crew training, including the construction fire prevention practices described in BMP WFR-2
- Method(s) for verifying that all plan protocols and requirements are being followed

A project Fire Marshal or similar qualified person will be responsible for training project personnel and enforcing all provisions of the LEU Construction Fire Prevention Plan, as well as performing other duties related to fire detection, prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.

- **BMP WRF-2. LEU Fire Prevention Practices.** LEU will implement the following fire prevention practices at active construction sites and during maintenance activities:
  - Existing LEU personnel conducting maintenance on the project are trained on the LEU WMP and will follow the plan in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and LEU's work restrictions and fire mitigation required for elevated fire potential.
  - Construction personnel will be trained in fire-safe actions, including the LEU project Construction Fire Prevention Plan, initial attack firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
  - All construction personnel will carry a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and define immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers will be updated as needed and redistributed to all construction personnel prior to the day the information change goes into effect.
  - LEU will coordinate with the City of Lodi Fire Department prior to construction activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities as part of the LEU Construction Fire Prevention Plan review.
  - Construction personnel will have fire suppression equipment on all construction vehicles and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
  - All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each work site. All fires will be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.
  - While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
  - The risk for potential fire hazards associated with the construction of the new substation is low because the setting has no known potential wildfire risk. Given the surrounding settings of urban development, LEU does not expect any restrictions to be used for "high-risk days." LEU will continue to comply with its 2021 WMP, as updated yearly.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to hazards and hazardous materials under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. An impact related to hazards and hazardous materials would be significant if implementation of the project would:

- create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- for a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard or excessive noise for people residing or working in the project area;
- create a significant hazard to air traffic from the installation of new power lines and structures;
- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires;
- create a significant hazard to the public or the environment through the transport of heavy materials using helicopters; or
- expose workers or the public to excessive shock hazards.

ISSUES NOT DISCUSSED FURTHER

Hazardous Emissions or Hazardous Materials, Substances, or Wastes within 0.25 Mile of an Existing or Proposed School

As described above in Section 3.10.1, "Environmental Setting," no existing or proposed schools are located within 0.25 mile of the project area. Therefore, implementing the proposed project would not result in hazardous materials being located within 0.25 mile of existing or proposed schools. No impact would occur, and this issue is not discussed further.

Hazards Related to Proximity to Existing Sites of Known Contamination

As described above, none of the PG&E or LEU project components would be located on a site that is included on a list of hazardous materials sites compiled pursuant to GC Section 65962.5. All known sites of historic contamination located proximate to the project area have been fully remediated and no active Superfund or state response sites are known to exist within 0.25 mile of the project area. Therefore, there is no potential to create a significant hazard to the public or the environment through reasonably foreseeable upset of existing contamination during construction or operation of the project. No impact would occur, and this issue is not discussed further.

Safety Hazard or Excessive Noise Related to Proximity to an Airport

No active airports are located within 2 miles of the project area, and the project is not within an adopted Airport Land Use Compatibility Plan. Lodi Airpark is located approximately 4.3 miles southwest of the project area, the Lodi Airport is located approximately 5.0 miles southwest of the project area, and Kingdom Airpark is located approximately 6.3 miles southwest of the project area. The closest private airport is Wallom Field, located approximately 2.75 miles south of the project area. Therefore, the project would not result in a safety hazard or excessive noise for people residing on or working near the project area. No impact would occur, and this issue is not discussed further.

Hazards to Air Traffic from the Installation of New Power Lines and Structures

While PG&E does not anticipate structures at or above 200 feet, PG&E has coordinated with the FAA and submitted a Notice of Proposed Construction or Alteration, pursuant to Title 14 CFR, Section 77, for each expected new 230 kV structure. The new PG&E microwave tower within PG&E Thurman Switching Station would be approximately 125-150 feet aboveground and the 230 kV monopoles are expected to be between approximately 140 and 145 feet aboveground. The FAA has made a determination of No Hazard to Air Navigation and has determined there is no need for any marking or lighting on the expected structures (Jacobs Engineering Group 2023). Furthermore, PG&E would coordinate with nearby airports regarding helicopter flight plans for construction and maintenance activities.

LEU project components are expected to be up to approximately 65 feet aboveground (two new 60 kV poles within existing LEU Industrial Substation). This height is lower than the typical 200-foot aboveground threshold for FAA required marker ball, lighting, or similar requirements for structures exceeding 200 feet in height aboveground.

Based on structure height and the FAA determination of No Hazard to Air Navigation, the project would not result in hazards related to air traffic. No impact would occur, and this issue is not discussed further.

Hazards Related to the Transport of Heavy Materials Using Helicopters

A light-duty helicopter (Hughes MD 500 or equivalent) is expected to be used both to support construction survey staking and as part of the conductor stringing activities during construction. A light-duty helicopter (Hughes MD 500 or equivalent) has a load capacity of approximately 1,200 pounds.

The use of helicopters to lift and transport structure components, materials, or equipment would not occur. Helicopters would only be used to pull a small sock line during stringing activities. O&M of the project may also require inspections and routine patrols and transmission structure insulator washing via helicopter; however, helicopters would not be required to transport heavy materials for O&M activities.

Because helicopters are not proposed for lifting and transporting components, materials, or equipment, no hazard to the public or environment would result from helicopters transporting heavy materials. No impact would occur, and this issue is not discussed further.

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. The remote-end substations are existing, fenced substations with restricted entrance. As described further in Impact HAZ-5, below, construction of PG&E project components would comply with federal and state regulations and standards. To reduce shock hazards and avoid electrocution of workers or the public, PG&E would comply with the provisions found in Cal/OSHA Title 8 of the CCR, particularly the electrical health and safety regulations found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2700–2989, which are relevant to high-voltage work. Implementation of the proposed upgrades at the remote end facilities would not expose workers or the public to excessive shock hazards. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project components would not result in physical environmental changes that could create a new significant hazard to the public or the environment through either the routine transport, use, or disposal of hazardous materials or reasonably foreseeable upset and/or accident conditions; emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school; or impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Although the Clayton Hill Repeater Station is within an area with known wildfire potential, as described in Chapter 2, "Project Description," PG&E would follow construction fire prevention and response procedures, which are consistent with applicable regulation and best practice innovations, during construction. None of the four remote-end substations are located on documented hazardous materials sites. Additionally, all remote-end substations are

located more than 2 miles from any public airport or public use airport and would not conflict with air traffic. Furthermore, there will be no increase in structure height at the remote-end substations as a result of the proposed changes. Helicopters are not proposed for lifting and transporting components, materials, or equipment to the remote end facilities; therefore, no hazard to the public or environment would result from helicopters transporting heavy materials. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact HAZ-1: Create a Risk to the Public or the Environment from the Routine Use, Transport, Storage, and Disposal of Hazardous Materials

Construction and operation of the project would require the use of potentially hazardous materials. The following discussion addresses the potential for the routine transport, use, and disposal of hazardous materials to create a significant hazard to the public or the environment and includes discussion of the potential for upset or accident conditions to occur as a result of routine use.

PG&E Project Components

Construction Activities

Construction of the project would require the use of motorized heavy equipment (including trucks, cranes, backhoes, and air compressors) that would use an estimated 330,555 gallons of hazardous materials, such as fuels, lubricants, antifreeze, transmission fluid, and cleaning solvents (Jacobs Engineering Group 2023). Table 3.10-1 identifies the total volume of hazardous materials expected to be used on-site during the entire construction period, calculated based on the anticipated use of equipment and vehicles. These hazardous liquid materials would not be stored on-site at this volume. As hazardous liquid materials (e.g., fuel) are needed, they would be obtained by construction vehicles at a gas station, and other materials, such as hydraulic fluids/liquids, would be ordered at volumes that are appropriate for storage on a maintenance truck and dispensed at one or more staging areas during a routine maintenance activity. It is not anticipated that pesticides or herbicides would be needed during construction activities.

Table 3.10-1 Types, Uses, and Volumes of Hazardous Materials—PG&E Construction

Hazardous Material	Use	Approximate Volume (gallons)
Diesel	Engine fuel	280,915
Gasoline	Engine fuel	22,051
Jet fuel	Fuel	11,101
Hydraulic fluids/lubricants	Engine and equipment lubrication and powering of hydraulic equipment	15,703
Other construction fluids (solvents)	Cleaning and lubricating hardware	785

Notes: Hydraulic fluids and lubricants volumes are anticipated to be 5 percent of total fuel volumes. Other construction fluids volumes are anticipated to be 5 percent of hydraulic fluids and lubricants volumes.

Source: Jacobs Engineering Group 2023.

Materials would be transported to the work sites in accordance with US Department of Transportation standards (49 USC 5101 et seq.), which include registration requirements for individuals that offer and accept hazardous wastes and require that hazardous materials be properly classed, described, packaged, marked, and labeled, and used in designated construction areas. Additionally, Caltrans would be responsible for enforcing state regulations on state highways and responding to hazardous materials transportation emergencies. This includes enforcing regulations related to container types used and licensed hazardous waste haulers to transport hazardous waste on public roads.

An SPCC Plan or an HMBP is not expected to be required based on the estimated volume of hazardous materials use and storage. If larger volumes of hazardous materials are required on-site, an SPCC Plan or an HMBP would be

developed in accordance with 40 CFR Parts 112.1–112.7 and Health and Safety Code Section 25507, respectively. These plans would identify preventative actions to avoid the potential of a spill and emergency response procedures to follow in the event of an accidental release to prevent or minimize harm to public health and safety and the environment from the release or threatened release of hazardous materials. When not in use, hazardous materials would be properly stored to prevent drainage or accidents as instructed by SDSs that would be provided to on-site personnel in case of emergency, pursuant to 29 CFR 1910.1200(g).

Cal/OSHA also has regulations related to the use of hazardous materials, including requirements for safety training, availability of safety equipment, hazardous materials exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces the hazard communication program regulations, which include provisions for identifying and labeling hazardous materials, describing the hazards of chemicals, and documenting employee-training programs (California Department of Industrial Relations 2023). Additionally, because the project would disturb more than 1 acre of land, it also would be subject to the NPDES Construction General Permit. As described in Section 3.11, "Hydrology and Water Quality," this permit requires preparation and implementation of a SWPPP, which includes protocols for proper storage and disposal of hazardous materials.

Operation and Maintenance

Monthly maintenance activities at PG&E Lockeford Substation and PG&E Thurman Switching Station may include use of hazardous materials, including oils, paints, and solvents used for routine maintenance. The materials would be handled in accordance with the existing PG&E Lockeford Substation HMBP and SPCC. Hazardous materials that require an HMBP or SPCC would not be stored at the PG&E Thurman Switching Station.

The HMBP would address the potential release of hazardous materials in upset or accident conditions and would provide the framework for crews to follow to protect the public, crews, infrastructure, and environmental resources from exposure to hazardous materials. As explained above, the HMBP would be developed and implemented in accordance with Section 25507 of the Health and Safety Code, under the oversight of SJCEHD. All PG&E crews would be required to be familiar with the procedures outlined in the plan. Additionally, all materials used during O&M would be applied, stored, and disposed of consistent with manufacturer recommendations and in accordance with applicable regulations. Implementation of the PG&E Lockeford Substation HMBP and SPCC would address potential hazards related to the transport, use, and storage of limited amounts of potentially hazardous materials during operation.

Implementation of APMs

Implementation of APM HAZ-1 would reinforce PG&E's commitment to ensure that materials would be handled in accordance with the existing PG&E Lockeford Substation HMBP and SPCC, which would be updated to include the expanded PG&E Lockeford Substation, and other standard safety practices. Additionally, implementation of APM HAZ-2 and APM HAZ-4 would require construction crews to be trained in safe handling of hazardous materials prior to the initiation of construction, which would reduce the risk to the environment, the public, or site workers due to exposure to potentially hazardous materials during construction. Construction procedures would include worker training appropriate to the worker's role and containment and spill control practices in accordance with the SWPPP. In the event of an accidental release of hazardous material caused by an upset or accident, implementation of APMs HAZ-1, HAZ-2, and HAZ-4 would minimize the effects of an accidental spill.

Implementation of the aforementioned APMs would provide crews with knowledge, preparation, technique, and materials to avoid exposing the public, project crews, and environmental resources to hazardous materials. Additionally, these measures include having spill kits in all active work areas to prevent materials from draining onto the ground or into drainage areas in the event of a spill. Furthermore, oil-absorbent material, tarps, and storage drums would be available on the project site during construction and would be used to contain and control any minor releases of oil. PG&E would also follow its existing worker training programs, and the PG&E station sites would be fenced to prevent public access.

LEU Project Components

Construction Activities

The potential for construction of the LEU project components to substantially increase adverse effects related to use, storage, and transport of hazardous materials would be the same as discussed above for the PG&E project components. Construction of the LEU project components would require the use of similar hazardous materials, although in lesser quantities (Table 3.10-2).

Table 3.10-2 Types, Uses, and Volumes of Hazardous Materials–LEU Construction

Hazardous Material	Use	Approximate Volume (gallons)
Diesel	Engine fuel	98,640
Gasoline	Engine fuel	3,164
Hydraulic fluids/lubricants	Engine and equipment lubrication and powering of hydraulic equipment	5,090
Other construction fluids (solvents)	Cleaning and lubricating hardware	255

Notes: Hydraulic fluids and lubricants volumes are anticipated to be 5 percent of total fuel volumes. Other construction fluids volumes are anticipated to be 5 percent of hydraulic fluids and lubricants volumes.

Source: City of Lodi 2022, as cited in Jacobs Engineering Group 2023.

Operation and Maintenance

The potential for O&M of the LEU project components to substantially increase adverse effects related to use, storage, and transport of hazardous materials would be the same as discussed above for the PG&E project components. As described above, HMBPs and SPCCs would be prepared for facilities that store potentially hazardous materials used for routine maintenance, including oils, paints, and solvents. However, the expanded LEU Industrial Substation and the new LEU Guild Substation would also include installation of transformers that rely on mineral oil as a cooling and insulating medium.

The existing HMBP and SPCC Plan for the LEU Industrial Substation would be updated to reflect the modifications performed as part of the project. Transformers and circuit breakers at the LEU Industrial Substation use mineral oil as a dielectric fluid coolant and stabilizer and do not contain polychlorinated biphenyls (PCBs). Use of PCBs is not anticipated with project implementation. In fact, older circuit breakers at the LEU Industrial Substation would be replaced as part of the project with newer equipment that is not compatible with PCB-containing coolant. The substation upgrade would allow LEU to maintain conformance with the Institute of Electrical and Electronic Engineers' safety standards.

New HMBP and SPCC plans would be prepared for the proposed LEU Guild Substation. The two LEU Guild Substation transformers would require a maximum amount of approximately 17,000 gallons of mineral oil each, for a total of approximately 34,000 gallons. The mineral oil would be used, stored, and disposed of in accordance with state guidelines and LEU policy. The mineral oil would be utility grade, low-volatility mineral oil. An SPCC plan would be required, based on the anticipated volume of dielectric fluid/mineral oil in excess of 1,320 gallons to be used at the new LEU Guild Substation, in accordance with CFR Title 40, Parts 112.1–112.7, and would address the project spill prevention and containment design measures and practices. LEU Guild Substation would be constructed with secondary containment design in accordance with SPCC requirements for oil containment in the event of a spill. A concrete secondary containment basin would provide mineral oil containment for the transformer and would be designed to allow sufficient freeboard to include the oil volume of the transformer plus the precipitation from a 25-year, 24-hour storm event. The secondary oil containment would be integrated in the proposed percolation-type retention basin. An oil-water separator structure would separate spilled oil from the stormwater before the stormwater drains into the retention basin. The oil-water separator would be visually inspected periodically for any contamination. The oil would form a separate layer that can be removed by skimmers, pumps, or other similar methods. The effluent oil from the oil-water separator would be discharged to the sanitary sewer system.

Implementation of BMPs

Implementation of BMP HAZ-1 would reinforce LEU's commitment to ensure that materials would be handled in accordance with the existing LEU Industrial Substation HMBP and SPCC, which would be updated to include the project components, and other standard safety practices. Additionally, implementation of BMP HAZ-2 and BMP HAZ-4 would require construction crews to be trained in safe handling of hazardous materials prior to the initiation of construction, which would reduce the risk to the environment, the public, or site workers due to exposure to potentially hazardous materials during construction. Construction procedures would include worker training appropriate to the worker's role and containment and spill control practices in accordance with the SWPPP. In the event of an accidental release of hazardous material caused by an upset or accident, implementation of BMPs HAZ-1, HAZ-2, and HAZ-4 would minimize the effects of an accidental spill.

Implementation of the aforementioned BMPs would provide crews with knowledge, preparation, technique, and materials to avoid exposing the public, project crews, and environmental resources to hazardous materials. Additionally, these measures include having spill kits in all active work areas to prevent materials from draining onto the ground or into drainage areas in the event of a spill. Furthermore, oil-absorbent material, tarps, and storage drums would be available on the project site during construction and would be used to contain and control any minor releases of oil. LEU would also follow its existing worker training programs, and the LEU station sites would be fenced to prevent public access.

Significance before Mitigation

Construction of the project would require the use of motorized heavy equipment that would use potentially hazardous materials. APMs and BMPs are incorporated into the project to train workers and prepare for an accidental spill. Current and updated HMBPs and SPCCs to address the potential release of hazardous materials in upset or accident conditions would be implemented. Implementation of these policies would protect the public, crews, and the environment from hazardous materials during construction and O&M.

The project would involve the use, transport, storage, and disposal of hazardous materials; the risks of which would be reduced through compliance with applicable federal, state, and local regulations and implementation of the APMs and BMPs described above. As a result, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact HAZ-2: Create a Risk to Human Health and the Environment through Reasonably Foreseeable Upset and Accident Conditions Involving the Release of Hazardous Materials

As described in Chapter 2, "Project Description," the project may generate hazardous waste due to planned replacement of existing structures. In addition, construction of the project could unearth hazardous materials associated with existing or former use of properties in the project area. Based on the history of agricultural use in the area, it is reasonably foreseeable that ground disturbance associated with pole foundations could result in exposure of residual soil contamination associated with pesticide use or unrecorded historical UST sites. However, exposure to residues from the application of fertilizers, herbicides, and pesticides would not pose a potential concern during project operation because the facilities would be unmanned.

PG&E Project Components

PG&E activities would include removal of an existing dead-end lattice steel tower (RO1, which is the structure immediately east of the PG&E Lockeford Substation that is shared by the PG&E Rio Oso–Lockeford 230 kV line and PG&E Lockeford-Bellota 230 kV line). An asbestos survey would occur before the removal of the existing PG&E RO1 tower as part of the SJVAPCD demolition notification. Known or assumed asbestos material would be tested and disposed of as required by local regulations. Material from the tower (approximately 13 cubic yards) is expected to be disposed of as hazardous waste at Kettleman Hills Landfill or Buttonwillow Landfill.

Treated wood waste removed from the project area during construction would be managed under the utility exemption of the California Hazardous Waste Fee Health and Safety Code. Treated wood waste would be transported

off-site and would be collected in project-specific containers either at a PG&E service center that is designated as a PG&E consolidation site or the project's primary staging area. When the containers are filled, the waste would be transported to an appropriate licensed Class I or Class II landfill or the composite-lined portion of a solid waste landfill. The transport and disposal of hazardous waste and the treated wood waste would not pose a substantial hazard to the environment or the public because hazardous materials would be transported, used, and disposed of in accordance with the procedures described in Impact HAZ-1.

If underground or aboveground storage tanks are found to be located along the PG&E transmission line route or other PG&E portions of the project and the project design cannot be adjusted to avoid disturbance, the tanks would be removed prior to project construction or segregated from the work area and not disturbed. If it is determined that removal of tanks is necessary, a separate work plan describing the proper decommissioning and removal of the tanks and removal of any associated impacted soil would be prepared and submitted to the CUPA prior to removal.

As discussed above, federal, state, and local regulations have been established to address the handling and disposal of hazardous materials during construction activities. Potential impacts would be minimized through compliance with these regulatory requirements, which prescribe specific methods of materials characterization, handling, and disposal. Nonetheless, there is a potential for soil-disturbing activities to encounter soils that have been contaminated by damaged transformers, leaking USTs, past agricultural practices, or other means. Disturbance of contaminated soil could result in the release of hazardous materials that could create a risk to human health and the environment. Groundwater is not expected to be encountered during construction.

Implementation of APMs

In accordance with APM HAZ-5, if potentially contaminated soil is encountered during soil-disturbing activities (based on existing analytical data or visual, olfactory, or other indicators, such as sheen, odor, or soil discoloration), it would be stockpiled separately to be tested under the supervision of personnel that meet state and federal regulatory qualifications. If the soil is contaminated above hazardous levels, it would be contained and disposed of offsite at a licensed waste facility.

LEU Project Components

The potential for hazards to result from construction of LEU components is the same as discussed above for the PG&E project components. There would be no large volumes of known hazardous waste used for or resulting from project construction. Minor volumes of hazardous waste would be disposed of using the appropriate methods of handling and transportation, with disposal at a certified hazardous waste disposal facility. Treated wood waste is not expected to be encountered in the LEU portion of the project.

As described above, transformers and circuit breakers at the LEU Industrial Substation use mineral oil as a dielectric fluid coolant and stabilizer. This equipment does not contain PCB, and soil contamination from leaking equipment is not anticipated. No stained soils, distressed vegetation, or odors were noted during the site visit conducted for the Phase I ESA (ERM 2022). Although there are no areas of documented contamination, past uses of the properties in the project area may have generated localized areas of undocumented contamination. There is low potential to encounter hazardous materials during construction of the LEU project components.

Implementation of BMPs

In accordance with BMP HAZ-5, if potentially contaminated soil is encountered during soil-disturbing activities (based on existing analytical data or visual, olfactory, or other indicators such as sheen, odor, and soil discoloration), it would be stockpiled separately to be tested under the supervision of personnel that meet state and federal regulatory qualifications. If the soil is contaminated above hazardous levels, it would be contained and disposed of off-site at a licensed waste facility.

Significance before Mitigation

Past uses of the properties in the project area may have generated localized areas of undocumented contamination. Implementation of the APMs and BMPs described above would reduce the potential for disturbance of contaminated soil or groundwater to result in a significant hazard to the public or the environment. As a result, the impact on the

public and the environment from exposure to these unknown hazardous materials and other hazards during construction, or from accidental release of hazardous materials during construction or operation of the project would be **less than significant.**

Mitigation Measures

No mitigation is required.

Impact HAZ-3: Impair or Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

PG&E and LEU Project Components

The San Joaquin County OES Emergency Operations Plan establishes the County's incident management structure and overall operational concepts and provides a flexible platform for planning and response to hazards, incidents, events, and emergencies (San Joaquin County Office of Emergency Services 2024). Emergency access would not be directly affected during construction of PG&E and LEU project components because streets would remain open to emergency vehicles throughout construction. Although lane closures may be required, at least one lane would remain open to provide access for emergency vehicles and evacuation. If road closures are necessary, they would occur in accordance with regulations and would not impede emergency response. In addition, any lane closures would be temporary and short term, and these closures would be coordinated with Caltrans and local jurisdictions to reduce the potential temporary and short-term effects on emergency access. During an evacuation event, construction activities would allow for efficient evacuation of the public and project personnel. As a result, the project would not impair the implementation of or physically interfere with an adopted emergency response or evacuation plan.

Implementation of APMs/BMPs

No APMs or BMPs related to emergency plans are proposed as part of the project.

Significance before Mitigation

The project would not conflict with the San Joaquin County OES Emergency Operations Plan. The project would establish electrical infrastructure and would not interfere with incident management structure or operational concepts. As a result, the impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact HAZ-4: Expose People or Structures to a Significant Risk of Loss, Injury, or Death from Wildland Fires

PG&E Project Components

Construction Activities

The PG&E project components in San Joaquin County are not located in areas that are prone to wildland fires and are located outside of any mapped fire hazard zones on CPUC's High Fire-Threat Map, which was adopted by CPUC for the purpose of enhancing fire regulations for the development of a utility in a High Fire-Threat District (CPUC 2021). The project area is relatively flat and developed for agricultural and residential uses. The primary risk for potential fire hazards would be associated with the use of vehicles and equipment during construction that could generate heat or sparks that could ignite dry vegetation and cause a fire.

PG&E would follow its construction fire prevention and response procedures. Procedures are updated per regulation and best practice innovations. The procedures include fire prevention and suppression methods training and briefing for construction workers. A daily tailgate topic on fire prevention and response specific to the work area would also be presented. Procedures for minimizing potential ignition, including vegetation clearing, parking requirements and restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors,

and hot work restrictions are included in worker training. Work restrictions are implemented during Red Flag Warnings (which are issued by the National Weather Service when forecasts indicate that a combination of high temperatures, very low humidity, and strong winds could create an environment that is conducive to dangerous fires) and High to Extreme Fire Danger days (based on the US Forest Service's National Fire Danger Rating System). During days with increased wildfire risk potential, procedures may include storage of fire suppression tools and backpack pumps with water within approximately 30 feet of work activities or larger water sources, including water storage tanks or water trucks that would be used in case of a fire. Additional procedures may include assigning personnel to conduct a "fire watch" or "fire patrol" to ensure that risk mitigation and fire preparedness measures are implemented, to report a fire immediately and to coordinate with emergency response personnel in the event of a fire.

Operation and Maintenance

The addition and expansion of electrified substation and new power lines could increase wildfire risk above baseline conditions. With any electrified equipment, there is potential for accidental ignition of nearby vegetation, particularly during high fire hazard conditions/times of the year. However, as noted above, the project area is generally in agricultural use and is not designated very high or high FHSZ.

The risk for potential fire hazards associated with O&M of the new and modified PG&E facilities is low given that facilities are engineered and would operate according to current standards to avoid wildfire risk. In accordance with GO 95, PG&E would be required to maintain acceptable clearances around substations and between the power lines and any nearby trees or other vegetation to minimize the risk of the energized lines igniting wildfires. PG&E would continue to comply with its 2023–2025 WMP, as updated annually (PG&E 2024). The 2023–2025 WMP deploys a comprehensive and multifaceted wildfire safety strategy, utilizing programs and actions that have proven effective at reducing wildfire risk and expanding innovative programs and actions initiated in prior years. The 2023–2025 WMP includes expanding enhanced power line safety settings to all risk areas, continuing aggressive vegetative management practices, improving situational awareness through maximizing the use of cameras, and utilizing Public Safety Power Shutoff protocols for data-driven targeted events. Electrical equipment has been reengineered with settings to rapidly and automatically shut off power if an object comes into contact with a distribution line until PG&E can inspect the line to ensure there is no wildfire ignition risk. In addition, because the project would be operated remotely with no staff typically present on-site, a wildfire not caused by the project but affecting the project facilities would be unlikely to expose additional people to injury or death due to their presence in the project area. Although the substation and power line facilities could be damaged by exposure to such a wildfire, adherence to defensible space requirements would reduce the potential for damage.

Implementation of APMs

During construction, PG&E would implement APM WFR-1 and APM WFR-2, which would require workers to be trained in fire prevention practices and carry emergency fire suppression equipment during construction and maintenance. Through APM WFR-1, a Construction Fire Prevention Plan would be required prior to construction of the project, which would include procedures for fire reporting, response, and prevention to further reduce the wildland fire risk in the project area. The PG&E plan would be approved by CPUC and the local fire agencies with jurisdiction over the areas where the project is located at least 30 days prior to the initiation of construction activities in areas designated as very high or high FHSZs. APM WFR-2 identifies construction fire prevention and response procedures that would be implemented during construction. Procedures are updated per regulation and best practice innovations. The procedures include fire prevention and suppression methods training and briefing for construction workers. Procedures for minimizing potential ignition, including vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions would be included in worker training.

The project area has a low risk of wildland fire based on mapping conducted by CAL FIRE and CPUC. Implementation of APM WFR-1 and APM WFR-2 would further reduce wildland fire risk in the project area during construction and operation.

LEU Project Components

Construction Activities

The proposed LEU project components occur on existing and disturbed industrial use lands. The potential for construction of the LEU project components to expose people or structures to an increased wildfire risk would be the same as discussed above for the PG&E project components.

Operation and Maintenance

The risk for potential fire hazards associated with O&M of the new and modified LEU facilities is low given that facilities are engineered and would operate according to current standards to avoid wildfire risk. LEU would continue to comply with its 2023 WMP, as updated annually (City of Lodi 2023). The 2023 WMP utilizes programs, practices, and measures in-place, which effectively reduces the possibility of originating or becoming a contributing source for ignition of a wildfire. The 2023 WMP includes weather monitoring, vegetation management pursuant to PRC Sections 4292 and 4293, and periodic system maintenance and inspections.

Implementation of BMPs

During construction, LEU would implement BMP WFR-1 and BMP WFR-2, which would require workers to be trained in fire prevention practices and carry emergency fire suppression equipment during construction and maintenance. Through BMP WFR-1, a Construction Fire Prevention Plan would be required prior to construction of the project, which would include procedures for fire reporting, response, and prevention to further reduce the wildland fire risk in the project area. BMP WFR-2 identifies construction fire prevention and response procedures that would be implemented during construction. Procedures are updated per regulation and best practice innovations. The procedures include fire prevention and suppression methods training and briefing for construction workers. Procedures for minimizing potential ignition, including vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions would be included in worker training.

The project area has a low risk of wildland fire. Implementation of BMP WFR-1 and BMP WFR-2 would further reduce wildland fire risk in the project area during construction and operation because these measures address the increased risk of fire ignition associated with introduction of workers and equipment into the area during construction and operation.

Significance before Mitigation

The project is generally located in an area with a low wildland fire risk. Construction and operation of the project in accordance with established procedures and regulations would limit the potential for routine activities to generate fire ignition risk. As a result, the risk of loss, injury, or death from wildland fires during construction and operation would be **less than significant**.

Mitigation Measures

No mitigation is required.

Impact HAZ-5: Expose Workers or the Public to Excessive Shock Hazards

PG&E Project Components

Construction Activities

The construction of PG&E project components would comply with federal and state regulations and standards. All authorized personnel working on-site during construction would be trained according to OSHA safety standards (OSHA 2015), which are based on applicable federal, state, and local safety regulations. To reduce shock hazards and avoid electrocution of workers or the public, PG&E would comply with the provisions found in Cal/OSHA Title 8 of the CCR, particularly the electrical health and safety regulations found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2700–2989, which are relevant to high-voltage work.

Construction of the project would include mechanisms intended to protect the public from accidents or failure of project components. Guard structures would be installed on the sides of roadways and potentially in other public areas to provide protection in the event of a dropped cable. Shoring would be installed at trenching and excavation sites. Further, the public would not be permitted near construction activities through the use of fencing, signage, and traffic control.

Operation and Maintenance

Existing infrastructure that may be susceptible to induced current is metallic in nature and, for the new PG&E Thurman Switching Station and expanded PG&E Lockeford Substation, would be located within a station fence. A ground study would be performed to evaluate fault current conditions and a ground grid would be designed that meets industry safety standards (i.e., Institute of Electrical and Electronics Engineers [IEEE] 80 guidelines) for shock hazards inside and around the modified PG&E Lockeford Substation and new PG&E Thurman Switching Station. PG&E's power lines and station facilities are designed and constructed with grounding devices, which can include copper ground grid, grounding the exterior fence, nonconductive fence panels, and ground wells. In the event of a lightning strike on a power line, this safety feature ensures that the strike is discharged to appropriate ground.

To minimize potential exposure of the public to electric shock hazards, a 9-foot chain-link fence topped with 1-foot of barbed wire would extend around the perimeter of the proposed PG&E Thurman Switching Station and the expanded PG&E Lockeford Substation, thereby restricting site access. The pedestrian and vehicle entrance into the stations would be gated and monitored remotely; thus, access would be restricted to only authorized personnel. Warning signs would be posted around the perimeter of the stations' fences and gates to alert the public of potential electrical hazards.

As an electric utility subject to CPUC jurisdiction, PG&E would be required to demonstrate compliance with all applicable design standards, including GO 95, which requires that lines be inspected frequently to ensure that they are in good condition and that lines temporarily out of service be inspected and maintained to prevent a hazard, and GO 128, which is specific to the design, maintenance, and inspection of underground lines. Safety during emergencies and disasters would be ensured through compliance with GO 166 and associated investigations in the event of an outage.

As described in Chapter 2, "Project Description," PG&E would review parallel metal infrastructure, such as pipelines and railroads, as part of final design of the CPUC-approved transmission line route. Typical design considerations include arranging the conductor phasing to minimize induction or adding a grounded conductor (a fourth wire on a short arm) under the three conductor phases along the side of the parallel metal infrastructure, which generates a counter-electromotive force opposing the original field.

During O&M facilities inspections, station perimeter fencing would be examined, and repairs would be made as necessary. Because the station facilities are unstaffed, the project facilities would be remotely monitored by PG&E 24 hours a day, 7 days a week. If equipment malfunctions, existing PG&E O&M personnel would be available to be dispatched to the site to investigate the problem and take appropriate corrective action. PG&E has qualified operations personnel who are trained to avoid and minimize arc flash situations and are provided the appropriate arc flash personal protective equipment (for example, fire-resistant clothing, gloves, and insulated tools). Proper PPE would be required when anyone is in the facility. PG&E uses high-speed relay equipment that evaluates electrical fault locations and opens circuit breakers to de-energize the line in milliseconds. These established monitoring and maintenance practices would substantially reduce the potential for hazards to the public or the environment caused by a system accident or failure.

Implementation of APMs

The project has been designed to reduce the risk of shock hazards in compliance with existing regulations; a 9-foot-tall chain-link fence topped with 1 foot of barbed wire would be constructed around the substations and all authorized personnel would be trained according to PG&E standards. This is reinforced by APM HAZ-3, which stipulates that the fencing would be installed around the perimeter of the expanded PG&E Lockeford Substation and the new PG&E Thurman Switching Station before the new electric equipment is energized, further reducing potential exposure of the public to electric shock hazards.

LEU Project Components

Construction Activities

The potential for construction of the LEU project components to substantially increase exposure to workers or the public to excessive shock hazards would be the same as discussed above for the PG&E project components.

Operation and Maintenance

The potential for hazards to result from O&M of LEU components is the same as discussed above for PG&E.

The Lodi Water Facility, which is adjacent to the south side of LEU Guild Substation, could be susceptible to induced current. During final design, a ground study would be completed using a computer-aided ground-modeling program to evaluate fault current conditions and a ground grid would be designed to lower the ground potential rise (GPR) to meet the IEEE 80 Guidelines for step and touch voltages inside and around the substation to reduce shock and electrocution hazards. Some possible designs include the use of copper ground grid, isolation fence panels, grounding the exterior fence, ground wells, and insulating rock layers. Along with reducing the GPR, the new ground grid would provide cathodic protection to the surrounding area.

Other potential hazards include the presence of high-voltage, open-air conductors, which can create a high-temperature electrical arc between the electrical conductor and people or objects. The existing LEU Industrial Substation perimeter fence would be modified with the installation of a pedestrian gate into the adjacent LEU Guild Substation fenced yard. To minimize potential exposure of the public to electric shock hazards, an 8-foot chain-link fence topped with 1 to 2 feet of barbed wire would extend around the perimeter of the proposed LEU Guild Substation, thereby restricting site access. The pedestrian and vehicle entrance into the stations would be gated and monitored remotely; thus, access would be restricted to only authorized personnel. Warning signs would be posted around the perimeter of the station's fence and gate to alert of potential electrical hazards.

Furthermore, the project is designed and maintained to withstand degrees of failure within portions of the system. Crews digitally monitor and operate the system with controls in place to proactively identify potential issues and minimize the hazard exposure to the public from failure of project components as the result of an accident. Regular maintenance by LEU crews further reduces the likelihood and severity of failures.

Implementation of BMPs

The project has been designed to reduce the risk of shock hazards in compliance with existing regulations. LEU would implement BMP HAZ-3, and an 8-foot chain-link fence topped with 1 to 2 feet of barbed wire, which would be installed around the perimeter of the new LEU Guild Substation before the new electric equipment is energized, further reducing potential exposure of the public to electric shock hazards.

Significance before Mitigation

Implementing the project would not create other physical hazards, such as exposing workers or the public to excessive shock hazards. The potential for the project to expose workers or the public to excessive shock hazards during construction and O&M would be addressed through compliance with established regulations, including construction personnel training requirements. In addition to the training and safety standards required for authorized personnel, the project would be designed in accordance with CPUC GO 95 guidelines for safe ground clearances that are established to protect the public from electric shock. APM HAZ-3 and BMP HAZ-3 would ensure that the project is designed to minimize the potential for shock hazards through appropriate fencing and access restrictions. As a result, the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.11 HYDROLOGY AND WATER QUALITY

This section describes the existing hydrologic conditions in the project area; describes the applicable federal, state, and local regulations addressing hydrology and water quality; and analyzes the potential hydrology and receiving water quality impacts associated with implementation of the project. Potential effects on the capacity of San Joaquin County and City of Lodi water supply, sewer/wastewater, and drainage/stormwater facilities are addressed in Section 3.17, "Utilities and Service Systems."

Comments regarding hydrology and water quality were received in response to the Notice of Preparation. The Central Valley Regional Water Quality Control Board (Central Valley RWQCB) advised that the project comply with regional and state regulations to protect the quality of surface water and groundwater. Additionally, several of the comments related to agricultural impacts from conflicts with wells also expressed concern about the quality of the groundwater tapped by these wells. The comment from the Central Valley RWQCB is addressed in the "Regulatory Setting" section, and the comments about wells are addressed in the impact analysis below. See Appendix A for all comments received during the public scoping period.

3.11.1 Environmental Setting

HYDROLOGY AND DRAINAGE

Regional Hydrology

The project area is located in the Eastern San Joaquin Groundwater Subbasin of the San Joaquin Valley Hydrologic Region, which is under the jurisdiction of the Central Valley RWQCB (ESJGWA 2022). Located in the rain shadow of the Coast Ranges, the project area experiences a Mediterranean climate, which is characterized by cool, wet winters and hot, dry summers. Precipitation in the region generally occurs as rainfall between November and April (NOAA 2024). Average annual precipitation in the project area was 14.7 inches between 1996 and 2015 (ESJGWA 2022). Surface waters in the project area are part of the San Joaquin River Basin and generally flow west and south from the Sierra Nevada; across the Central Valley; through Mokelumne River, Bear Creek, and their tributaries; to the Sacramento–San Joaquin Delta; and into the Pacific Ocean.

Local Hydrology

The project area is within the Bear Creek, Middle River–San Joaquin River, and lower Mokelumne River watersheds, which all drain into the Sacramento–San Joaquin Delta (Figure 3.11-1). The local topography is generally flat with rolling hills to the east. Elevation ranges from approximately 135 feet above sea level in the eastern portion of project area to approximately 60 feet above sea level at the western portion of the project area.

The Lower Mokelumne River watershed covers 627 square miles, beginning downstream of Camanche Dam and running southwest through the City of Lodi and then northwest until it is joined by the Cosumnes River (NOAA 2022). The Camanche Reservoir is managed as part of an integrated system releasing water to meet various demands for downstream users, including storage regulation for flood control, hydroelectric generation, instream flow requirements for salmon, and the California Department of Fish and Wildlife Mokelumne River Fish Hatchery (NOAA 2022). The Lower Mokelumne River watershed intersects with the northwestern portion of the project area, where the existing LEU Industrial Substation, the proposed new LEU Guild Substation, the proposed new PG&E Thurman Switching Station, the existing PG&E 60 kilovolt (kV) lines, and about 0.5 mile of the westernmost end of the new proposed PG&E Lockeford-Bellota 230 kV transmission line facilities are or would be located. The drainage basin of the Middle River–San Joaquin River watershed, which encompasses approximately 212 square miles, is located mainly west-southwest of the project area, where the San Joaquin River enters the Delta and joins the Sacramento River. East of the existing and proposed substations, the project area is located in the Middle River–San Joaquin River watershed for about 1.8 miles along PG&E Lockeford-Bellota Line. The drainage basin of the Bear Creek watershed covers approximately 127 square miles from south of the Camanche Reservoir to north of Stockton (EPA 2019). The eastern

portion of PG&E's proposed Lockeford- Bellota Line (about 4.25 miles), PG&E Lockeford Substation, and all of the proposed new PG&E Brighton-Lockeford 230 kV Line and PG&E Lockeford-Bellota No. 2 230 kV lines are within the Bear Creek watershed.

There are two creeks that cross the project area, perennial Bear Creek and ephemeral Paddy Creek, which are channelized, concrete-lined, and are Central Valley Flood Protection Board (CVFPB) Regulated Streams with federal levees (Figure 3.11-1). The channelization provided by these levees protects the surrounding area from flood hazards and serves agricultural water needs. Bear Creek is mostly dry during summer with some standing water, and Paddy Creek is dry throughout summer (EPA 2019). Paddy Creek originates as a natural stream about 3.5 miles east of the eastern end of the project area. After crossing the project area, Paddy Creek converges with the Middle Paddy and South Paddy Creeks before connecting to Bear Creek south of the project area. Bear Creek continues westwards and flows into the San Joaquin River approximately 10 miles from the project area. Additionally, there is a seasonal irrigation ditch next to Paddy Creek within the project area. Paddy Creek is crossed by four existing 115 kV transmission lines and two existing 230 kV transmission lines south of the project area, near East Kettleman Lane and North Jack Tone Road (see Appendix B, page 8).

Stormwater Drainage

Water flows southwest through the project area as it makes its way to the Sacramento–San Joaquin Delta. PG&E and LEU facilities in the project area have existing stormwater systems on-site. The LEU Industrial Substation has a stormwater catch basin that stores water temporarily and then releases it to the City of Lodi stormwater system (ERM 2022). Stormwater runoff from PG&E Lockeford Substation is contained within a retention basin on the eastern side of the substation site. Stormwater is directed to the 7,500-square-foot retention basin through a 450-foot-long drainage ditch on-site.

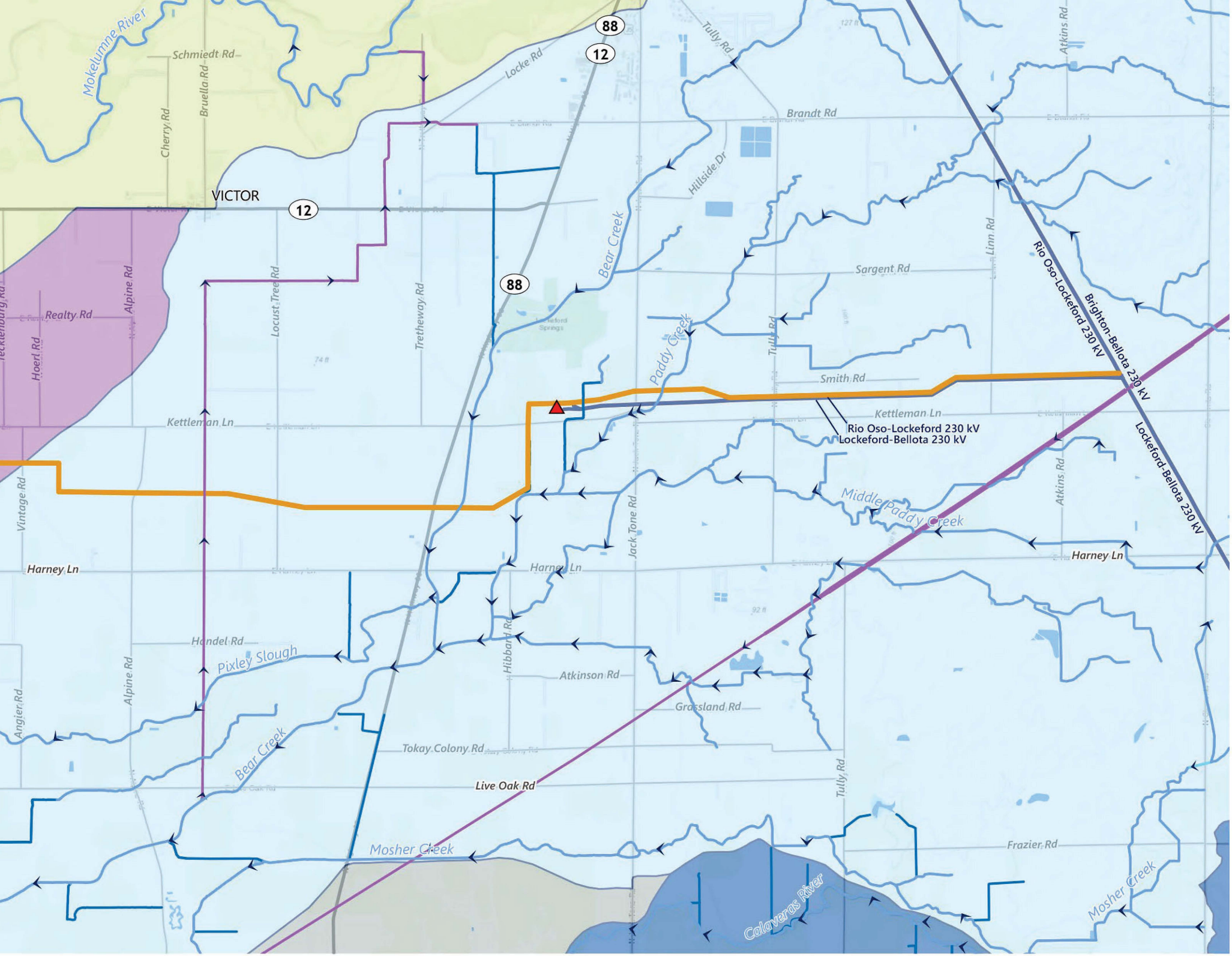
In the western portion of the project area, the sites of the proposed PG&E Thurman Switching Station and LEU Guild Substation are open fields east of the existing LEU Industrial Substation. There is an existing storm drain system of curbs and gutters on the roads that surround this portion of the project area. The existing storm drain system at the proposed site of PG&E Thurman Switching Station and LEU Guild Substation directs water that falls on impervious surfaces into the City of Lodi stormwater drain system. Components of the City of Lodi's stormwater drain system that exist around the project area consist of passive infrastructure, such as manholes, gutters, and curbs. No valves, pump stations, outfalls, or catch basins are within the project area.

Stormwater in the eastern portion of the project area runs into drainage channels along existing roadways, some of which drain into Paddy and Bear Creeks.

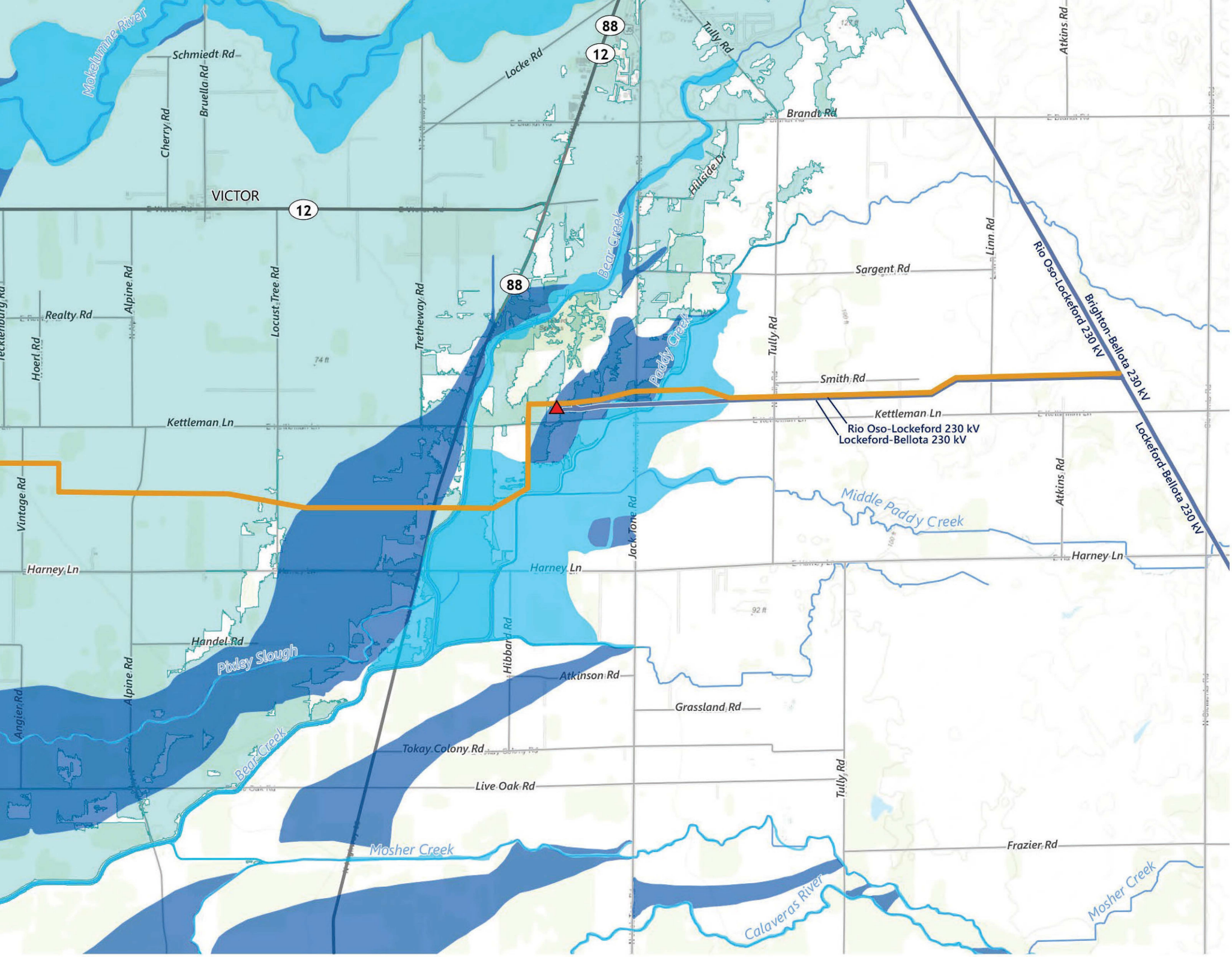
Flood Conditions

The Federal Emergency Management Agency (FEMA) maps the 100-year floodplain in the United States (areas with an annual probability of flooding of greater than 1 percent) (FEMA 2024). The 1-percent annual-chance flood also is referred to as the base flood or 100-year flood, and the area is labeled as a FEMA Zone A type on the Flood Insurance Rate Map (FIRM). Moderate flood hazard areas, labeled Zone B or Zone X (shaded), also are shown on the FIRM and are the areas between the limits of the base flood and the 0.2-percent annual-chance flood (or 500-year flood) (Figure 3.11-2).

West of the proposed crossing of Paddy Creek, almost the entire project area is within the Camanche Dam inundation zone (Figure 3.11-2). Camanche Dam is operated by the East Bay Municipal Utility District (EBMUD) under its Dam Safety Program. EBMUD proactively inspects, upgrades, and improves its dams and water supply structures as needed and in consultation with the regulatory agencies. Engineers monitor dams using instruments, monthly visual inspections, and periodic dam safety reviews to prevent loss of life, personal injury, and property damage from the failure of dams (EBMUD 2024). Additionally, Camanche Dam is under the jurisdiction of the Federal Energy Regulatory Commission because of its hydropower production and, therefore, has additional annual dam safety inspections (EBMUD 2024). The eastern side of the project area near the intersection of Akins Road and Kettleman Lane is approximately 11 miles away from Camanche Dam, and the western side of the project area in the City of Lodi is approximately 19 miles from the dam. Unlike the western portion of the project area, the eastern portion of the project area is not within any flood hazards areas or inundation zones.



cal Survey's National Hydrography Dataset/Watershed Boundary Dataset in 2023; adapted by Ascent in 2024.



ergency Management Agency in 2023 and California Department of Water Resources in 2024; adapted by Ascent in 2024.

A seiche is a standing wave that is in an enclosed or semi-enclosed body of water. Seiches are typically caused when strong winds and rapid changes in atmospheric pressure push water from one end of a body of water to the other (NOAA 2023). When the wind stops, the water rebounds to the other side of the enclosed area. The water then continues to oscillate back and forth for hours or even days. Earthquakes, tsunamis, or severe storm fronts may also cause seiches along ocean shelves and ocean harbors. Similarly, tsunamis are large series of waves caused by earthquakes or undersea volcanic eruptions that can cause damage along shorefront land (NOAA 2023). Because the project area is located more than 50 miles away from the ocean and is not in the vicinity of any enclosed or semi-enclosed bodies of water, the project area is not at risk of seiche or tsunami events.

Groundwater Hydrology

The project area is entirely within the Eastern San Joaquin Groundwater Subbasin of the San Joaquin Groundwater Basin (Figure 3.11-3). The subbasin is west of the Sacramento–San Joaquin Delta and is bounded by the Sierra Nevada foothills to the east, the San Joaquin River to the west, Dry Creek to the north, and the Stanislaus River to the south (ESJGWA 2022). In the eastern part of the subbasin, groundwater flows from east to west and generally mirrors the eastward-sloping topography of the geologic formations (DWR 2006). In the western part of the subbasin, groundwater flows eastward toward areas with relatively lower groundwater elevation (DWR 2006). The subbasin was identified by the California Department of Water Resources (DWR) in 1980 as critically overdrafted (ESJGWA 2022). Measurements over the past 60 years show a fairly continuous decline in groundwater levels in eastern San Joaquin County (ESJGWA 2022). Groundwater levels have declined at an average rate of 0.5 foot per year and have dropped as much as 100 feet in some areas between 1995 and 2015 (ESJGWA 2022). Because the subbasin has experienced chronic lowering of groundwater levels in the past, many wells have been deepened (ESJGWA 2022). According to the Eastern San Joaquin Groundwater Authority (ESJGWA), approximately 53 million acre-feet of usable groundwater are present in the Eastern San Joaquin Groundwater Subbasin. Because of the continued overdraft of groundwater in the subbasin, a significant groundwater depression is present east of Stockton, east of Lodi, and south of the project area (ESJGWA 2022: Figure 2-37). The groundwater depression extends to depths greater than 50 feet below mean sea level and has a low percolation rate and consequently slow groundwater recharge in the Eastern San Joaquin Groundwater Subbasin (ESJGWA 2022).

Less than 1 mile south of the proposed PG&E Thurman Switching Station is a groundwater monitoring well that records the groundwater level in Lodi (DWR 2020). The well is 165 feet deep and sits at an elevation of 60 feet. In 2000, the water surface was approximately 68 feet below ground surface. The groundwater depth has steadily declined, and in 2013 the groundwater was approximately 87 feet below ground surface (DWR 2020). Additionally, a geotechnical investigation of the existing PG&E Lockeford Substation did not encounter groundwater at any of the substation sites; however, perched water, or water that has been blocked from reaching the groundwater table by geologic features, was discovered at two of the test sites at about 5 feet deep (Kleinfelder 2019).

WATER QUALITY

Surface Water Quality

Under Section 303(d) of the Clean Water Act, states identify water bodies as impaired for certain pollutants. Bear Creek, which passes through the project area (refer to Figure 3.11-1), is listed as a Category 5 water body (SWRCB 2024). A Category 5 listing indicates that it is a polluted water that requires a total maximum daily load (TMDL), which is not yet completed, for at least one of the listed pollutants. Bear Creek in San Joaquin County has elevated levels of copper, bacteria, and low dissolved oxygen (SWRCB 2024). The San Joaquin River and Mokelumne River in the vicinity of the project area are also on the Section 303(d) impaired waters list. Bear and Paddy Creeks drain into the San Joaquin River, and stormwater in the City of Lodi, including in the project area, is directed toward Mokelumne River. The San Joaquin River impairments are DDT, Group A pesticides, toxicity, and pH. Mokelumne River's listed impairments are copper, mercury, toxicity, and zinc (SWRCB 2024).

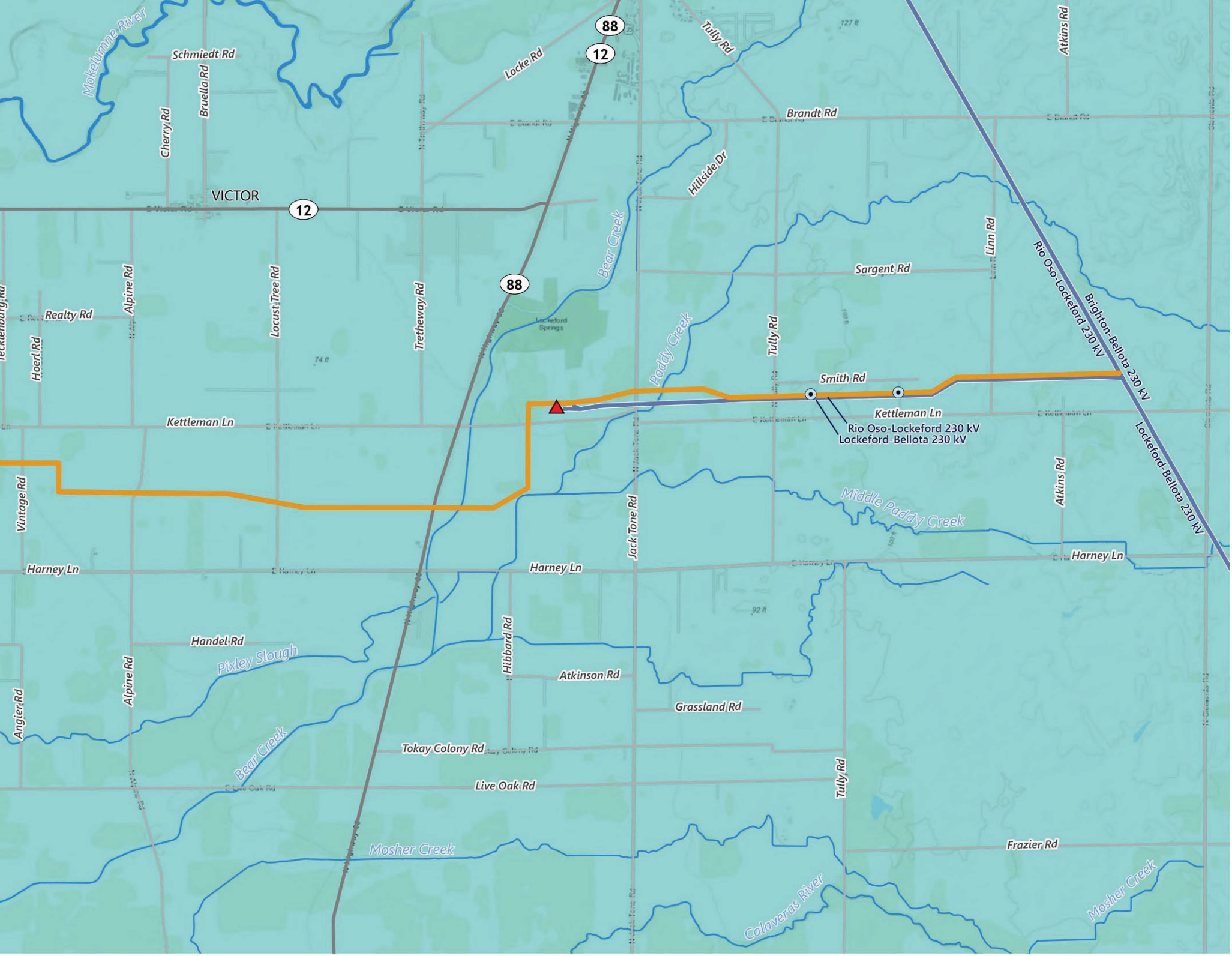
Groundwater Quality

Groundwater quality can be affected by many things, but the chief controls on the characteristics of groundwater quality are the source and chemical composition of recharge water, properties of the host sediment, and history of discharge or leakage of pollutants. In 2015, the total fresh groundwater storage of the Eastern San Joaquin Groundwater Subbasin was estimated as 53.0 million acre-feet (ESJGWA 2022). An additional 75.0 million acre-feet in the deepest simulated layer of the Eastern San Joaquin Groundwater Subbasin models are saline water (ESJGWA 2022). Groundwater quality impairments in the subbasin have been extensive, and the subbasin is considered critically overdrafted under the California Sustainable Groundwater Management Act (SGMA) (DWR 2006). Anthropogenic and naturally occurring pollutants threaten the subbasin's water quality. The primary naturally occurring water quality constituents of concern are salinity and arsenic, and the primary water quality constituents related to human activity are nitrates, salinity, and various point-source contaminants. Despite these threats, the water quality in the Eastern San Joaquin Groundwater Subbasin is generally not known to have significantly adversely affected beneficial uses of groundwater (ESJGWA 2022).

Localized salinity issues are a concern for some areas of the Eastern San Joaquin Groundwater Subbasin. Pumping in excess of recharge has resulted in declining groundwater levels that have contributed to an increase of salinity in groundwater wells since the 1950s (ESJGWA 2022: 2-82). Elevated salinity concentrations in the subbasin are the result of natural processes and overlying land use activities. Rates of total dissolved solids, a measure of salinity, are high in portions of the project area and much of the western Eastern San Joaquin Groundwater Subbasin where groundwater levels have declined over time (ESJGWA 2022).

Nitrate and arsenic in groundwater sources can be naturally occurring and the result of human activities. Therefore, it is difficult to determine their source. However, both nitrate and arsenic presence and concentration have increased in groundwater samples over time in the project area (ESJGWA 2022).

Point sources are discrete or discernable sources of pollutants that may introduce undesirable constituents into groundwater and may negatively affect water quality. In the Eastern San Joaquin Groundwater Subbasin, point sources include leaking underground storage tanks and landfills. These sites are actively investigated and monitored in the subbasin in response to known or potential sources of groundwater contamination. The RWQCB, the California Department of Toxic Substances Control, and the US Environmental Protection Agency (EPA) provide oversight of point-source pollution through existing regulatory programs, including management of remedial action for point-source contamination sites. There are 258 active contamination sites in the Eastern San Joaquin Groundwater Subbasin. These sites contain fuels (gas and/or diesel), synthetic organics (e.g., pesticides, herbicides, insecticides), or a mix of constituents (multiple constituents, such as heavy metals and pesticides). Most sites in the Eastern San Joaquin Groundwater Subbasin are fuel sites (e.g., gas or diesel) that are under active investigation or remediation (ESJGWA 2022). Hazardous sites in the project area are closed sites and unlikely to actively contribute to groundwater contamination. For more information, see Section 3.10, "Hazards and Hazardous Materials."


Mokelumne River
Schmiedt Rd
Bruella Rd
Cherry Rd
Locke Rd
88
12
Tully Rd
Atkins Rd
Brandt Rd
Hillside Dr
VICTOR
12
Bear Creek
Linn Rd
Rio Oso-Lockeford 230 kV
Brighton-Bellota 230 kV
Sargent Rd
Alpine Rd
Locust Tree Rd
Tretheway Rd
88
Realty Rd
Hoerl Rd
Lockeford Springs
Paddy Creek
Tully Rd
Smith Rd
Kettleman Ln
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
Lockeford-Bellota 230 kV
Vintage Rd
Jack Tone Rd
Middle Paddy Creek
Atkins Rd
Harney Ln
Harney Ln
Harney Ln
Handel Rd
Pixley Slough
Hibbard Rd
Atkinson Rd
Alpine Rd
Angier Rd
Grassland Rd
Bear Creek
Tokay Colony Rd
Live Oak Rd
Tully Rd
Mosher Creek
Frazier Rd
Calaveras River
Mosher Creek

ent in 2024.

3.11.2 Regulatory Setting

FEDERAL

Clean Water Act

EPA is the lead federal agency responsible for water quality management. The Clean Water Act (CWA) is the primary federal law that governs and authorizes water quality control activities by EPA, as well as the states. Elements of the CWA that address water quality are discussed below.

CWA Water Quality Criteria/Standards

Pursuant to federal law, EPA has published water quality regulations under Title 40 of the Code of Federal Regulations (CFR). Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States. As defined by the act, water quality standards consist of designated beneficial uses of the water body in question and criteria that protect the designated uses. Section 304(a) requires EPA to publish advisory water quality criteria that accurately reflect the latest scientific knowledge on the kind and extent of all effects on health and welfare that may be expected from the presence of pollutants in water. Where multiple uses exist, water quality standards must protect the most sensitive use. As described in the discussion of state regulations, below, the State Water Resources Control Board (SWRCB) and its nine RWQCBs have designated authority in California to identify beneficial uses and adopt applicable water quality objectives (WQOs).

CWA Section 303(d) Impaired Waters List

Under Section 303(d) of the CWA, states are required to develop lists of water bodies that do not attain WQOs after implementation of required levels of treatment by point source dischargers (municipalities and industries). Section 303(d) requires that the state develop a TMDL for each of the listed pollutants. A TMDL is the amount of the pollutant that the water body can receive and still comply with WQOs. It is also a plan to reduce loading of a specific pollutant from various sources to achieve compliance with WQOs. In California, implementation of TMDLs is achieved through water quality control plans, known as Basin Plans, of the RWQCBs. See the "State" section, below.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) Permit program was established in the CWA to regulate municipal and industrial discharges to surface waters of the United States. NPDES Permit regulations have been established for broad categories of discharges, including point source waste discharges and nonpoint source stormwater runoff. Each NPDES Permit identifies limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES Permits.

"Nonpoint source" pollution originates over a wide area rather than from a definable point. Nonpoint source pollution often enters receiving water in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Two types of nonpoint source discharges are controlled by the NPDES program: discharges caused by general construction activities and the general quality of stormwater in municipal stormwater systems. The goal of the NPDES nonpoint source regulations is to improve the quality of stormwater discharged to receiving water to the maximum extent practicable. The RWQCBs in California are responsible for implementing the NPDES Permit system (see the discussion in the "State" section below).

National Flood Insurance Act

FEMA is tasked with responding to, planning for, recovering from, and mitigating against disasters. The Federal Insurance and Mitigation Administration in FEMA is responsible for administering the National Flood Insurance Program (NFIP) and administering programs that aid with mitigating future damages from natural hazards.

FEMA prepares FIRMs that delineate the regulatory floodplain to assist local governments with the land use planning and floodplain management decisions needed to meet the requirements of the NFIP. Floodplains are divided into flood hazard areas, which are areas designated by their potential for flooding, as delineated on FIRMs. Special Flood Hazard Areas are the areas identified as having a 1-percent chance of flooding each year (otherwise known as the 100-year flood). In general, the NFIP mandates that development in the regulatory 100-year floodplain is not to proceed if the development is expected to increase the flood elevation by 1 foot or more.

STATE

Porter-Cologne Water Quality Control Act

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act). The Porter-Cologne Act grants SWRCB and each of the nine RWQCBs power to protect water quality and is the primary vehicle for implementation of California's responsibilities under the CWA. The applicable RWQCB for the proposed project is the Central Valley RWQCB. SWRCB and the Central Valley RWQCB have the authority and responsibility to adopt plans and policies, regulate discharges to surface water and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substances, sewage, or oil or petroleum products.

Under the Porter-Cologne Act, each RWQCB must formulate and adopt a water quality control plan (known as a Basin Plan) for its region. The Basin Plan for the Central Valley Region includes a comprehensive list of water bodies in the region and detailed language about the components of applicable WQOs. The Basin Plan recognizes natural water quality, existing and potential beneficial uses, and water quality problems associated with human activities throughout the Sacramento and San Joaquin River Basins. Through the Basin Plan, the Central Valley RWQCB executes its regulatory authority to enforce the implementation of TMDLs, and to ensure compliance with surface WQOs. The Basin Plan includes both narrative and numerical WQOs designed to provide protection for all designated and potential beneficial uses in all its principal streams and tributaries. Applicable beneficial uses include municipal and domestic water supply; irrigation; noncontact and contact water recreation; groundwater recharge; freshwater replenishment; hydroelectric power generation; and preservation and enhancement of wildlife, fish, and other aquatic resources.

The Central Valley RWQCB also administers the adoption of waste discharge requirements (WDRs), manages groundwater quality, and adopts projects within its boundaries under the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (General Permit).

NPDES Construction General Permit for Stormwater Discharges Associated with Construction Activity

SWRCB adopted the statewide NPDES General Permit in August 1999. The state requires that projects disturbing more than 1 acre of land during construction file a Notice of Intent with the RWQCB to be covered under this permit. Construction activities subject to the General Permit include clearing, grading, stockpiling, and excavation. Dischargers are required to eliminate or reduce nonstormwater discharges to storm sewer systems and other waters. A stormwater pollution prevention plan (SWPPP) must be developed and implemented for each site covered by the permit. The SWPPP must include measures to prevent construction pollutants from contacting stormwater and keep products of erosion from moving off-site into receiving waters throughout the construction and life of the project; the measures must address source control and, if necessary, pollutant control.

NPDES Stormwater Permit for Discharges from Small Municipal Separate Storm Sewer Systems

The Municipal Stormwater Permitting Program regulates stormwater discharges from municipal separate storm sewer systems (MS4s). Stormwater is runoff from rain or snowmelt that runs off surfaces, such as rooftops, paved streets, highways, and parking lots, which can carry with it pollutants, such as oil, pesticides, herbicides, sediment, trash, bacteria and metals. The runoff can then drain directly into a local stream, lake, or bay. Often, the runoff drains into storm drains that eventually drain the untreated runoff into a local water body.

The MS4 permitting requirements were developed in two phases: Phase I and Phase II. MS4 Permits continue to be issued under Phase I or Phase II depending on the size of the MS4 seeking authorization. The project area is subject to a Phase II MS4 Permit that both the City of Lodi and unincorporated San Joaquin County fall under (WQ Order 2013-0001-DWQ).

California Water Code

The California Water Code is enforced by DWR. The mission of DWR is "to manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments." DWR is responsible for promoting California's general welfare by ensuring beneficial water use and development statewide.

Groundwater Management

Groundwater management is outlined in the California Water Code, Division 6, Part 2.75, Chapters 1–5, Sections 10750 through 10755.4. The intent is to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdictions and to provide a methodology for developing a Groundwater Management Plan.

SGMA, which became law on January 1, 2015, applies to all groundwater basins in the state (Water Code Section 10720.3). By enacting SGMA, the legislature intended to provide local agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater within their jurisdiction (Water Code Section 10720.1).

Pursuant to SGMA, any local agency that has water supply, water management or land use responsibilities within a groundwater basin may elect to be a "groundwater sustainability agency" (GSA) for that basin (Water Code Section 10723). ESJGWA was formed in 2017 as a response to SGMA and has notified DWR that it has elected to become a GSA pursuant to Water Code Section 10723.8 and intends to undertake sustainable groundwater management in area roughly coincident with the Eastern San Joaquin Groundwater Subbasin, in the San Joaquin Valley. ESJGWA is composed of 16 GSAs that operate in the subbasin region. ESJGWA, with input from its members, completed its Groundwater Sustainability Plan (GSP) in 2019 and revised it in 2022 (ESJGWA 2022). Within the project area, there are three GSAs: the City of Lodi, Lockeford Community Services District, and North San Joaquin Water Conservation District (ESJGWA 2022). SGMA requires development of a GSP that achieves groundwater sustainability in the Eastern San Joaquin Groundwater Subbasin by 2040. The GSP outlines the need to reduce overdraft conditions and has identified projects for potential development that either replace groundwater use (offset) or supplement groundwater supplies (recharge) to meet current and future water demands.

Central Valley Flood Protection Act

The Central Valley Flood Protection Act of 2008 establishes the 200-year flood event as the minimum level of protection for urban and urbanizing areas. As part of the state's FloodSAFE program, those urban and urbanizing areas protected by flood control project levees must receive protection from the 200-year flood event level by 2025. DWR and CVFPB collaborated with local governments and planning agencies to prepare the 2022 Central Valley Flood Protection Plan (CVFPP) (DWR 2022), which CVFPB adopted on June 29, 2012, and updated in November 2022. The objective of the CVFPP is to create a systemwide approach to flood management and protection improvements for the Central Valley and San Joaquin Valley.

State Plan of Flood Control

Section 9110(f) of the California Water Code defines the State Plan of Flood Control (SPFC) as follows: "'State Plan of Flood Control' means the state and federal flood control works, lands, programs, plans, policies, conditions, and mode of maintenance and operations of the Sacramento River Flood Control Project described in Section 8350, and of flood control projects in the Sacramento River and San Joaquin River watersheds authorized pursuant to Article 2 (commencing with Section 12648) of Chapter 2 of Part 6 of Division 6 for which the board or the department has provided the assurances of nonfederal cooperation to the United States, and those facilities identified in Section 8361."

The SPFC encompasses a wide network of facilities, which range from major structures, such as levees, drainage pumping plants, drop structures, dams and reservoirs, and major channel improvements, to minor components, such as stream gauges, pipes, and bridges.

Central Valley Water Quality Control Plan

The objective of the Central Valley Water Quality Control Plan for the Central Valley Region, the Sacramento River Basin, and the San Joaquin River Basin (Central Valley RWQCB 2019) is to guide how the quality of surface water and groundwater in the region should be managed. The Basin Plan identifies various beneficial water uses and the water quality that must be maintained to allow those uses to continue. It also describes an implementation plan necessary to achieve the standards established in the plan and summarizes SWRCB and RWQCB plans and policies to protect water quality. The Central Valley RWQCB implements the plan by issuing and enforcing WDRs based on either state WDRs or federally delegated NPDES Permits for discharges to surface water.

California Public Utility Commission General Order 95

CPUC General Order (GO) 95 regulates all aspects of design, construction, and operation and maintenance (O&M) of electrical power lines and fire safety hazards for utilities subject to CPUC jurisdiction. GO 95 includes basic minimum allowable vertical clearances of wires above railroads, thoroughfares, ground surfaces, and water surfaces. In areas not suitable for sailboating, like Bear and Paddy Creeks, span wires must be 15 feet above the annual flood level, and supply conductors and cables of 22.5 kV to 300 kV must be 25 feet above the annual flood level for public safety and water quality protection purposes (CPUC 2020).

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City and County) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Because LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies. The City of Lodi Public Works Department and the San Joaquin County Department of Public Works both require and enforce standards contained in the California Building Code related to grading and construction, including those that may directly or indirectly affect surface water quality by contributing to erosion or siltation or alter existing drainage patterns.

Eastern San Joaquin Groundwater Sustainability Plan

ESJGWA developed the Eastern San Joaquin GSP to meet SGMA regulatory requirements by the January 31, 2020, deadline for critically overdrafted basins, while reflecting local needs and preserving local control over water resources. In March 2023, DWR informed San Joaquin County Public Works that staff anticipate recommending approval of the resubmitted Eastern San Joaquin GSP, which includes sustainable management criteria, defines monitoring networks and data management systems, and identifies projects for implementation.

San Joaquin County General Plan

The San Joaquin County General Plan (San Joaquin County 2016) contains the following policies related to hydrology or water quality that are applicable to the LEU portions of the project:

- Policy IS-4.8: Water Conservation Measures. The County shall require existing and new development to incorporate all feasible water conservation measures to reduce the need for water system improvements.
- Policy IS-4.13: Water Quality Standards. The County shall require that water supplies serving new development meet State water quality standards. If necessary, the County shall require that water be treated to meet State standards and that a water quality monitoring program be in place prior to issuance of building permits.

- **Policy IS-7.1: Adequate Stormwater Facilities**. The County shall require that stormwater drainage facilities are properly designed, sited, constructed, and maintained to efficiently capture and dispose of runoff and minimize impacts to water quality.
- **Policy PHS-2.1: Restrict Uses in Designated Floodways**. The County shall restrict uses in designated floodways except those that do not adversely affect flood elevations or velocities and are tolerant of occasional flooding in accordance with the County's Floodplain Management Ordinance.
- **Policy PHS-2.3: Evaluation of Flood Protection for New Development**. The County shall require evaluation of potential flood hazards prior to approval of new development projects to determine whether the proposed development is reasonably safe from flooding and shall approve such development consistent with applicable State and Federal laws.

City of Lodi General Plan

The City of Lodi General Plan (City of Lodi 2010) contains the following policies related to hydrology or water quality that are applicable to the LEU portions of the project:

- **Policy S-G1:** Ensure a high level of public health and safety.
- **Policy S-G2**: Prevent loss of lives, injury, illness, and property damage due to flooding, hazardous materials, seismic and geological hazards, and fire.
- **Policy S-G4:** Minimize vulnerability of infrastructure and water supply and distribution systems.
- **Policy S-P5:** Continue to ensure, through the development review process, that future developments do not increase peak storm flows and do not cause flooding of downstream facilities and properties. Additionally, the City shall ensure that storm drainage facilities are constructed to serve new development adequate to storm runoff generated by a 100-year storm.
- **Policy S-P6:** Prohibit new development, except for public uses incidental to open space development, within Zone A (100-year flood zone) of the most current FEMA floodplain map (see Figure 8-1 [Figure 3.11-2 in this document] for the most current map).

City of Lodi Stormwater Management Plan

The Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (Order 2003-0005-DWQ), also known as the Phase II NPDES General Permit, required the City of Lodi and other small MS4s to obtain a permit for stormwater discharges. The permit required the City to develop and implement a storm water management program (SWMP) that describes best management practices (BMPs), measurable goals, and timetables for implementation in six program areas: public education and outreach, illicit discharge detection and elimination, public participation/involvement, construction site runoff control, post-construction runoff control, and pollution prevention/good housekeeping. Additionally, the permit requires the MS4 to reduce its discharge of pollutants to the maximum extent practicable and perform inspections and monitoring.

The original SWMP was prepared to correspond with the initial Phase II MS4 General Permit term, 2004 through 2008. BMPs identified in the original SWMP have been implemented. Following each year of the permit term, an annual report was prepared and submitted to the Central Valley RWQCB. The annual reports contained information about progress made toward the implementation of the BMPs and any proposed changes to the SWMP. The most recent version was developed in 2012.

3.11.3 Environmental Impacts and Mitigation Measures

ANALYSIS METHODOLOGY

Evaluation of potential hydrologic and water quality impacts is based on a review of existing documents and studies that address water resources in the vicinity of the project. Information obtained from these sources was reviewed and summarized to describe existing conditions and to identify potential environmental effects, based on the standards of significance presented in this section. In determining the level of significance, the analysis assumes that the project would comply with relevant federal, state, and local laws, ordinances, and regulations.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E APMs

- PG&E SJVHCP AMM-1. Employees and contractors performing O&M activities will receive ongoing environmental education. Training will include review of environmental laws and guidelines that must be followed by all personnel to reduce or avoid effects on covered species during O&M activities.
- PG&E SJVHCP AMM-2. Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
- PG&E SJVHCP AMM-6. No vehicles will be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.
- PG&E SJVHCP AMM-9. Erosion control measures will be implemented where necessary to reduce erosion and sedimentation in wetlands, waters of the United States, and waters of the state, and habitat occupied by covered animal and plant species when O&M activities are the source of potential erosion problems.
- APM AIR-1: PG&E Dust Control During Construction.
  - PG&E will implement measures to control fugitive dust in compliance with the San Joaquin Valley Air Pollution Control District (SJVAPCD) standards. Dust control measures will include the following at a minimum:
  - All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
  - The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
  - Cover all haul trucks entering/leaving the site and trim their loads as necessary.
  - Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
  - All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
  - Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
  - Water and/or cover soil stockpiles daily.
  - Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
  - All vehicle speeds will be limited to 15 miles per hour or less on unpaved areas.

- Implement dust monitoring in compliance with the standards of the local air district.
- Halt construction during any periods when wind speeds are in excess of 50 mph.

- **APM HAZ-1: PG&E Development and Implementation of Hazardous Material and Emergency Response Procedures.** PG&E will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction and, as appropriate, during the O&M phase. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the SWPPP (APM HYD-1). If required, a site-specific SPCC [spill prevention, control, and countermeasure] Plan and a Hazardous Materials Business Plan (HMBP) will be developed before the operation of the expanded PG&E Lockeford Substation and new PG&E Thurman Switching Station (APM HYD-4).
- **APM HAZ-2: PG&E Emergency Spill Supplies and Equipment.** Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill at PG&E's project components. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.
- **APM HAZ-4: PG&E Worker Environmental Awareness Training Program.** A PG&E worker environmental awareness training program (WEAP) will be developed and implemented prior to construction. The WEAP training will be administered to communicate environmental concerns and appropriate work practices to all construction field personnel before they begin work on the project. The training program will emphasize site specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper best practices implementation. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.
- **APM HYD-1: Prepare and Implement an SWPPP for PG&E Project Components.** Stormwater discharges associated with project construction activities are regulated under the CGP [Construction General Permit]. Cases in which construction will disturb 1 acre or greater of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. PG&E will comply with all CGP requirements for construction of PG&E project components.

  Following project approval, PG&E will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at PG&E project components. Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures – such as straw wattles, erosion control blankets, and silt fences – will be installed in compliance with the CGP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and waste to stormwater. These safety measures will be installed following manufacturer's specifications and according to standard industry practice.

  Erosion and sediment control measures may include the following:

  - Straw wattle, silt fence, or gravel bag berms
  - Trackout control at all entrances and exits
  - Stockpile management
  - Effective dust control measures

- Good housekeeping measures
- Stabilization measures, which may include wood mulch, gravel, and/or seeding.

Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations.

The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. The plan will be maintained and updated during construction as required by the CGP.

- APM HYD-2: PG&E Worker Environmental Awareness Program. The PG&E worker environmental awareness program will communicate environmental issues and appropriate work practices specific to PG&E project components to all field personnel before they begin work on the project. These will include spill prevention and response measures from the PG&E SWPPP and proper implementation of best practices. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to CPUC.
- APM HYD-3: Project Site Restoration. As part of the final construction activities, PG&E will restore all removed curbs and gutters, repave, and restore landscaping or vegetation as necessary for its portion of the project. Within the City of Lodi, PG&E will repair or replace damaged or removed stormwater infrastructure in kind or in conformance with current City design standards, whichever is deemed most appropriate by City staff through the encroachment permit process. Completion of the required restoration of the stormwater infrastructure will be verified by the City of Lodi.
- APM HYD-4: SPCC Plan for PG&E Thurman Switching Station and SPCC Plan Modification for PG&E Lockeford Substation. PG&E will prepare an SPCC plan for PG&E Thurman Switching Station for implementation during operation, and the existing PG&E Lockeford Substation SPCC Plan will be modified prior to operation of the expanded facility, as required by applicable regulations (40 CFR 112). An SPCC plan includes engineered and operational methods for preventing, containing, and controlling potential releases (for example, construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.
- APM HYD-5: Project Stormwater Plan for PG&E Thurman Switching Station. PG&E will prepare a Project Stormwater Plan for PG&E's Thurman Switching Station to submit to the City of Lodi as part of its building permit and to align with the City of Lodi's Stormwater Management and Discharge Control Code, Lodi Municipal Code Chapter 13.14. The plan will include proposed site design and control measures and postconstruction stormwater runoff calculations showing pre-project and post-project volumes.

LEU BMPs

- BMP AIR-1: LEU Dust Control During Construction.
  - LEU will implement measures to control fugitive dust in compliance with the San Joaquin Valley Air Pollution Control District (SJVAPCD) standards. Dust control measures will include the following at a minimum:
  - All exposed surfaces with the potential of dust-generating will be watered or covered with coarse rock to reduce the potential for airborne dust from leaving the site.
  - The simultaneous occurrence of more than two ground disturbing construction phases on the same area at any one time will be limited. Activities will be phased to reduce the amount of disturbed surfaces at any one time.
  - Cover all haul trucks entering/leaving the site and trim their loads as necessary.

- Use wet power vacuum street sweepers to sweep all paved access road, parking areas, staging areas, and public roads adjacent to project sites on a daily basis (at minimum) during construction. The use of dry power sweeping is prohibited.
- All trucks and equipment, including their tires, will be washed off prior to leaving project sites.
- Apply gravel or non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas at project sites.
- Water and/or cover soil stockpiles daily.
- Vegetative ground cover will be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
- All vehicle speeds will be limited to 15 miles per hour or less on unpaved areas.
- Implement dust monitoring in compliance with the standards of the local air district.
- Halt construction during any periods when wind speeds are in excess of 50 mph.

- **BMP HAZ-1: LEU Development and Implementation of Hazardous Material and Emergency Response Procedures.** LEU will implement construction controls, training, and communication to minimize the potential exposure of the public and site workers to potential hazardous materials during all phases of project construction and, as appropriate, during the O&M phase. Construction procedures that will be implemented include worker training appropriate to the worker's role, and containment and spill control practices in accordance with the SWPPP (BMP HYD-1). A site-specific SPCC Plan and an HMBP will be developed before the operation of the new LEU Guild Substation (BMP HYD-4).
- **BMP HAZ-2: LEU Emergency Spill Supplies and Equipment.** Materials will be available on the project site during construction to contain, collect, and dispose of any minor spill at LEU's project components. Oil-absorbent material, tarps, and storage drums will be available on the project site during construction and will be used to contain and control any minor releases of oil. If excess water and liquid concrete escape during pouring, they will be directed to adjacent lined and bermed areas, where the concrete will dry and then be transported for disposal per applicable regulations.
- **BMP HAZ-4: LEU Worker Environmental Awareness Training Program.** An LEU WEAP will be developed and implemented prior to construction. The WEAP training will be administered to communicate environmental concerns and appropriate work practices to all construction field personnel before they begin work on the project. The training program will emphasize site specific physical conditions to improve hazard prevention and will include a review of the SWPPP, which also will address spill response and proper best practices implementation. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to the City of Lodi.
- **BMP HYD-1: Prepare and Implement an SWPPP for LEU Project Components**. Stormwater discharges associated with project construction activities are regulated under the CGP. Cases in which construction will disturb 1 acre or greater of soil require submittal of a Notice of Intent, development of an SWPPP (both certified by the Legally Responsible Person), periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. LEU will comply with all CGP requirements for construction of LEU project components.

  Following project approval, LEU will prepare and implement a SWPPP, which will address erosion and sediment control concerns to minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The SWPPP will be designed specifically for the hydrologic setting of the proposed project (surface topography, storm drain configuration, and other factors) at LEU project components. Implementation of the SWPPP will help stabilize graded areas and reduce erosion and sedimentation. The SWPPP will propose best practices that will be implemented during construction activities. Erosion and sediment control measures – such as straw wattles, erosion control blankets, and silt fences – will be

installed in compliance with the CGP. Suitable soil stabilization measures will be used to protect exposed areas during construction activities, as specified in the SWPPP. During construction activities, measures will be implemented to reduce exposure of construction materials and waste to stormwater. These safety measures will be installed following manufacturer's specifications and according to standard industry practice.

Erosion and sediment control measures may include the following:

- Straw wattle, silt fence, or gravel bag berms
- Trackout control at all entrances and exits
- Stockpile management
- Effective dust control measures
- Good housekeeping measures
- Stabilization measures, which may include wood mulch, gravel, and/or seeding.

Identified erosion and sediment control measures will be installed prior to the start of construction activities and will be inspected and improved as required by the CGP. Temporary sediment control measures intended to minimize sediment transport from temporarily disturbed areas such as silt fences or wattles will remain in place until disturbed areas are stabilized. In areas where soil is to be temporarily stockpiled, soil will be placed in a controlled area and will be managed using industry-standard stockpile management techniques. Where construction activities occur near a surface waterbody or drainage channel, the staging of construction materials and equipment and excavation spoil stockpiles will be placed and managed in a manner to minimize the risk of sediment transport to the drainage. Any surplus soil will be transported from the site and disposed of in accordance with federal, state, and local regulations.

The SWPPP will identify areas where refueling and vehicle-maintenance activities and storage of hazardous materials will be permitted, if necessary. The plan will be maintained and updated during construction as required by the CGP.

- BMP HYD-2: LEU Worker Environmental Awareness Program. LEU Worker Environmental Awareness Program. LEU's worker environmental awareness program will communicate environmental issues and appropriate work practices specific to LEU project components to all field personnel before they begin work on the project. These will include spill prevention and response measures from the LEU SWPPP and proper implementation of best practices. An LEU environmental monitoring program also will be implemented to ensure that the plans are followed throughout the construction period for LEU project components. A copy of the training materials and training sign-in sheets documenting participation in the training will be provided to the City of Lodi.
- BMP HYD-3: Project Site Restoration. As part of the final construction activities, LEU will restore all removed curbs and gutters, repave, and restore landscaping or vegetation as necessary for its portion of the project. Within the City of Lodi, LEU will repair or replace damaged or removed stormwater infrastructure in kind or in conformance with current City design standards, whichever is deemed most appropriate by City staff through the building permit process. Completion of the required restoration of the stormwater infrastructure will be verified by the City of Lodi.
- BMP HYD-4: SPCC Plan for LEU Guild Substation and SPCC Plan Modification for LEU Industrial Substation. LEU will prepare an SPCC plan for LEU Guild Substation for implementation during operation, and the existing LEU Industrial Substation SPCC Plan will be modified prior to operation of the expanded facility, as required by applicable regulations (40 CFR 112). An SPCC plan includes engineered and operational methods for preventing, containing, and controlling potential releases (for example, construction of a retention pond, moats, or berms) as well as provisions for quick and safe cleanup.
- BMP HYD-5: Project Stormwater Plan for LEU Guild Substation. LEU will prepare a Project Stormwater Plan for LEU Guild Substation to align with the City of Lodi's Stormwater Management and Discharge Control Code, Lodi Municipal Code Chapter 13.14. The plan will include proposed site design and control measures and postconstruction stormwater runoff calculations showing pre-project and post-project volumes.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts on hydrology and water quality under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. An impact on hydrology or water quality would be significant if implementation of the project would:

- violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality;
- substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would
  - result in substantial erosion or siltation on- or off-site;
  - result in flooding on-site or off-site;
  - create or contribute runoff water that would exceed the capacity of existing or planned stormwater- drainage systems or provide substantial additional sources of polluted runoff; or
  - impede or redirect flood flows
- in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or
- conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

ISSUES NOT DISCUSSED FURTHER

Tsunami and Seiche

As described in Section 3.11.1, "Environmental Setting," the project is not within a tsunami or seiche zone or at risk from these flood events. Therefore, the impacts related to tsunamis and seiches are not be discussed further.

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. System protection work typically occurs in the control room and employs two workers that do not need construction equipment. The work may also include extending existing fiber telecommunication lines and potentially removing redundant telecommunication equipment within existing fenced station facilities in areas of previous ground disturbance. If the communication equipment is removed from PG&E remote-end substations instead of retired in place, a crew of approximately six workers would use cranes or manlifts and potentially a jack hammer or backhoe to remove the equipment and the top part of foundations. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme.

The remote-end substations are designed to contain runoff onsite. If excavation occurs to remove the redundant onsite telecommunication equipment, excavation would be approximately 3 feet deep and may result in a small, temporary stockpile of excavated soil. If project work at PG&E remote-end substations includes ground disturbance to remove retired telecommunication equipment, the work areas will be included in the SWPPP. Work at PG&E remote-end substations and at the repeater station would not alter the potential for erosion or siltation onsite or offsite following installations and there would be no effect on groundwater because the project will not use groundwater or result in new impervious surfaces that could interfere with groundwater recharge. Because all work

would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project components would not result in physical environmental changes that could violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality; substantially decrease groundwater supplies or interfere substantially with groundwater recharge; substantially alter the existing drainage pattern of the site or area; risk release of pollutants due to project inundation; or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact HYD-1: Violate Any Water Quality Standards or Waste Discharge Requirements or Otherwise Substantially Degrade Surface or Ground Water Quality

PG&E Project Components

Construction Activities

Construction of the PG&E components of the project would require the crossing of two channelized waterways that supply water to farms and drain into the Sacramento–San Joaquin Delta. Electrical line installation would cross over the channelized Bear Creek and Paddy Creek waterways and the federal levees associated with these creeks (Figure 3.11-1). An irrigation ditch runs parallel to the proposed access route between Paddy Creek and Bear Creek (Appendix B, page 12). The ditch appears to be seasonal and is devoid of vegetation. No access routes for construction would pass through either creek channel. Additionally, no equipment would be used in the creek channels, and the line would span the waterways.

Proposed construction activities could result in the release of pollutants or sediment to drainages on-site that have the potential to affect water quality. Such activities include:

- grading,
- vegetation clearing,
- ground disturbance from equipment and vehicle use,
- trenching to install underground project components, and
- horizontal directional drilling (HDD).

Additionally, approximately 8,000–12,0000 gallons of water per day may be used for daily dust suppression during peak periods of construction when ground disturbance is occurring at the 230 kV structure locations and at the PG&E substations. Water would be sprayed onto the work areas on the project sites, and the implementation of SWPPP protocols would minimize eroded soils and pollutants from entering waterways from all construction-related activities.

As described in Section 2.6, "Proposed Project," Table 2-5, the total temporary footprint for PG&E work areas would be approximately 45 acres, and the construction staging areas outside of station fence lines would be 10–15 acres. The PG&E substation, switching station, and underground installation sites would require extensive cut and fill of approximately 10,140 yd^3.

HDD would be required for undergrounding PG&E's 12 kV service line extension within South Guild Avenue to new PG&E Thurman Switching Station for approximately 550 feet, and its work area would cover 900 square feet. A nontoxic, water-based lubricant containing water and bentonite clay, referred to as drilling mud, would be used to aid the drilling, coat the walls of the borehole, and maintain the opening. During the bore, drilling mud would be pumped under high pressure through the HDD section and would return the soil cuttings to a pit at the surface entry point. Drilling mud collected in the pit would be removed from the project site to be reused in other projects or disposed of off-site at a waste facility. No additives considered hazardous according to federal and state laws would

be used during the HDD process. The HDD process would affect soil up to 15 feet deep. The water table in the project area is greater than 65 feet deep below the surface and is not likely to be encountered during drilling. Additionally, there are no drainages in the proposed HDD area, so drilling mud would not enter regional waterways. Trenching would also be used for 70–100 feet to cross South Guild Avenue and complete the proposed undergrounding effort. During construction, an open trench would be approximately 42 inches deep and 12 inches wide. After the electrical duct has been installed, the road would be restored to its original surface condition. The HDD and trenching would not occur in any defined drainages or waterways or near any water sources. The NPDES CGP would require similar protections around the construction of trenching and HDD as it would for grading to minimize the potential for violation of water quality standards.

As shown in Figure 3.11-3, the PG&E new 230 kV Transmission Line is proposed adjacent to two agricultural wells and one groundwater well. However, the wells are over 150 feet away from any construction areas and approximately 70 feet from a proposed overland travel route to the nearest tubular steel pole (TSP) (Appendix B, page 4 and page 6). However, the proposed overland travel route is east, or farther away, from the existing travel route between the proposed TSP and existing agricultural well. The construction of the project would not exceed a depth of 18 feet for TSP installation and 15 feet for HDD work. DWR data indicates that the groundwater depth is greater than 65 feet in the project area. Because the project would not excavate to the depth of groundwater and there would be no new substantial disturbance within 150 feet of the existing wells, water quality impacts to groundwater would not occur.

Operation and Maintenance

The total permanent footprint for all new and expanded PG&E facilities would be approximately 8.13 acres. Monthly maintenance activities occurring at PG&E Lockeford Substation and PG&E Thurman Switching Station may include use of water and hazardous materials for routine maintenance. The materials would be handled in accordance with the existing PG&E Lockeford Substation SPCC. No changes are proposed to occur to existing maintenance activities at PG&E remote-end substations or the PG&E Clayton Hill Repeater Station.

Vegetation management inside and outside of station facilities is required to meet CPUC regulations and would be treated to maintain appearances and safety. Ground disturbance and herbicide use from vegetation management activities in the project area could potentially cause issues to water quality. Vegetation would not be continually removed unless it is posing a risk to the project infrastructure. Herbicide may be used in vegetation maintenance at the PG&E stations and would be applied according to label recommendations. Label recommendations include ratios of herbicides to use and when to apply herbicides if rain is forecasted, which would reduce the risk of herbicides entering waterways or stormwater and minimize the potential for degradation of water quality. MS4 Permits would include project-specific requirements to preserve water quality.

Implementation of APMs

Implementation of PG&E SJVHCP AMM-6 would protect water quality from potential hazardous spills into waterways by not allowing vehicles to be refueled within 100 feet of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed. As required by APM HYD-1, a SWPPP would be prepared to reduce the potential for erosion and minimize the risk of release of pollutants. APM HYD-2 would provide training to PG&E crews on environmental awareness and associated appropriate work practices, which would reduce the risk of spills and properly implement best practices. APM HYD-3, would require that PG&E commit to restoring stormwater control infrastructure including curbs, gutters, landscaping, and vegetation that may be damaged during the project, based on encroachment permits acquired from the City of Lodi. The stormwater system around the project area is a piece of the regional effort to reduce pollutants in urban stormwater discharges and enhance regional watercourses in a manner pursuant to the Federal Clean Water Act, Porter-Cologne Water Quality Control Act, and NPDES requirements. Additionally, implementation of APM HYD-4 would create a SPCC plan for PG&E Thurman Switching Station, a SPCC Plan Modification for PG&E Lockeford Substation for the prevention of potential releases as well as provisions for quick and safe clean ups. APM HYD-5 reinforces PG&E's commitment to obtaining building permits from the City of Lodi prior to commencement of the project, through which PG&E would be required to prepare a Project Stormwater Plan for PG&E Thurman Switching Station for that includes calculations of pre- and post-construction stormwater runoff. This alignment with the City of Lodi's Stormwater Management and Discharge Control Code would further reduce the

potential for construction of the substation to violate any water quality standards or WDRs. To further address the hazardous materials used on-site for construction and maintenance of the project, APM HAZ-1 and HAZ-2 require PG&E to develop emergency response plans prior to construction and have equipment available and ready to be used in the event of hazardous materials spilling during project-related activities.

Construction and operation of the PG&E project components would involve the use of pollutants, pressurized water cleaning, HDD procedures, dust suppression, cut and fill, grading, crossing channelized waterways, and ground inspections that may cause water quality impacts. The potential impacts would be reduced through compliance with applicable water quality protection regulations of CGPs, SWPPP construction BMPs, MS4 Permit stormwater pollutant discharge requirements, and building permit requirements acquired for the project. Implementation of APMs HYD-1, HYD-2, HYD-3, HYD-4, HYD-5, HAZ-1, and HAZ-2 would also work to minimize the potential for water quality violations. PG&E construction workers would also receive training and have materials in work areas to respond if a spill or release occurs to avoid or minimize the amount of polluted runoff from work areas (APM HAZ-4). Current and updated PG&E O&M policies, which include inspection procedures consistent with CPUC GO 95 to address the clearances from water surfaces to protect water quality, would maintain a regular inspection cycle consistent with CPUC during operation and maintenance.

LEU Project Components

Construction Activities

The LEU project components would not cross any waterways, wells, or irrigation ditches. The groundwater well operated by the City of Lodi south of the LEU Industrial Substation would be more than 200 feet outside the fence line and adjacent to a proposed staging area. The staging area, which would be used for receiving, staging, a laydown area, construction worker parking, and helicopter landing/pickup, would not be within the adjacent groundwater well operations facility and therefore would not have or damage groundwater well facilities.

Construction activities that could result in the release of hazardous materials or sediment to drainages, which could adversely affect water quality, include:

- grading,
- vegetation clearing,
- ground disturbance from equipment and vehicle use,
- trenching to install underground project components, and
- HDD.

Acreages of soil disturbance are provided in Section 2.6, "Proposed Project," Table 2-5. The total temporary footprint for LEU work areas would be approximately 4.95 acres, and construction staging areas outside of station fence lines would be 1.66 acres. The substation site would require the cut and fill of approximately 6,100 yd^3. Areas disturbed by grading are more prone to erosion. HDD would occur for the LEU 12 kV feeder lines from the LEU Industrial Substation. The HDD segment would be located west of PG&E Thurman Switching Station and span 750 feet. The HDD work area and mud collection pit would be located in an area of 24 square feet. The process, materials, and groundwater levels would be the same as described for the HDD work for the PG&E project components. City of Lodi General Plan Policy S-G4, which protects water supply infrastructure from development to avoid damaging water supply infrastructure and therefore minimizing the potential of violations of water quality standards, would apply to the LEU portion of the project.

Operation and Maintenance

Maintenance activities would occur monthly at the LEU Industrial and LEU Guild Substations. Inspections would not require construction of additional roads or impervious surfaces. A detailed inspection of all equipment and operations at the LEU sites would occur every 5 years. These LEU substation maintenance activities may include the use of hazardous materials. Vegetation in the LEU stations would be maintained for aesthetics and safety purposes, but no vegetation is planned for routine removal. Therefore, the landscaped areas would continue to provide soil

structure, which reduces the erosion potential and the potential to degrade surface water quality. Additionally, the project would comply with the NPDES MS4 Permit conditions for stormwater discharge. The potential for O&M of the LEU project components to substantially increase adverse effects related to violation of water quality standards and WDRs would be the same as discussed above for the PG&E project components.

Implementation of BMPs

As required by BMP HYD-1, a SWPPP would be implemented to reduce the potential for erosion and minimize the risk of release of pollutants. BMP HYD-2 would provide training to LEU crews on environmental awareness and associated appropriate work practices, which would reduce the risk of spills, and on response measures to properly implement best practices. Through BMP HYD-3, building permits acquired from the City of Lodi would require that LEU commit to restoring stormwater control infrastructure including curbs, gutters, landscaping, and vegetation that may be damaged during the project. Additionally, for the project to maintain alignment with the City of Lodi municipal code, LEU would implement BMP HYD-4 and BMP HYD-5 to create an SPCC plan for LEU Guild Substation, SPCC Plan Modification for LEU Industrial Substation, and a Project Stormwater Plan for LEU Guild Substation to prevent potential releases, calculate stormwater runoff, and identify provisions for quick and safe cleanups. To address the hazardous materials used on-site for construction and maintenance of the project, BMPs HAZ-1 and HAZ-2 would require LEU to develop emergency response plans before construction and have equipment available and ready to be used in the event of hazardous materials spilling during project-related activities.

Construction and operation of the LEU project components would involve the use of pollutants, pressurized water cleaning, HDD procedures, dust suppression, crossing channelized waterways, and ground inspections that may contribute to water quality impacts. The potential impacts would be reduced through compliance with applicable water quality protection regulations of CGPs, SWPPPs, MS4 Permits, and City of Lodi General Plan water quality policy S-G4 and through implementation of BMPs HYD-1, HYD-2, HYD-3, HYD-4, HYD-5, HAZ-1, and HAZ-2. Current and updated LEU O&M policies, which include inspection procedures would be implemented before project construction and during operation.

Significance before Mitigation

Project construction and operation would require the crossing of channelized waterways, the use of cut and fill, include grading, and the use of hazardous materials, which may increase the potential to degrade water quality. However, the proposed project would not violate any water quality standards or waste discharge requirements, and the risks of these activities degrading water qualify would be reduced through compliance with applicable federal, state, and local regulations and implementation of the APMs and BMPs described above. All activities that pose a risk to water quality would occur in compliance with the CGP, SWPPP, MS4 Permit stormwater discharge requirements, and Policy S-P5 from the City of Lodi General Plan. Implementing the project would not violate water quality standards or WDRs during construction or O&M. As a result, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact HYD-2: Substantially Decrease Groundwater Supplies or Interfere with Groundwater Recharge Such That the Project May Impede Sustainable Groundwater Management of the Basin

PG&E Project Components

Construction Activities

Construction of the project would require the use of water to minimize the generation of fugitive dust. Water required for project construction would be supplied by water trucks from contracted vendors and may come from several sources, including City of Lodi Water Utility and North San Joaquin Water Conservation District (NSJWCD) municipal water sources that include surface water and groundwater, Lodi Lake, or recycled water sources. Groundwater would not be extracted from the immediate project area for use onsite, but may be part of the regional water supplies obtained by the water vendors. As discussed above, more than 50-million-acre feet of groundwater is

estimated to be available in the Eastern San Joaquin County Subbasin overall. The quantity of water required for dust suppression during construction would not substantially decrease these groundwater supplies or impede sustainable management of the groundwater basin. Section 3.17, "Utilities and Service Systems," discusses water sources for the project in more detail.

Based on DWR data, regional groundwater is 65–87 feet below ground. At this depth, the groundwater aquifer would not be affected by the installation of TSP foundations, which would be up to 18 feet deep, along most of the project area. The HDD construction associated with the extended secondary service line would be up to 15 feet deep. Isolated perched water has been documented approximately 5 feet below the ground surface near PG&E Lockeford Substation and could be encountered during construction (Kleinfelder 2019). Perched water sits higher in the soil profile because it has not reached the groundwater table due to geologic features blocking its percolation. If perched water is discovered during construction at the substations, dewatering protocols from the CGP and SWPPP would be followed. Because perched water would not be used as part of the groundwater supply, implementing the project would not affect groundwater supplies.

The PG&E portions of the project would temporarily disturb approximately 32.22 acres. Localized compaction of soil from construction activities, including the use of heavy equipment, could diminish stormwater infiltration capacity. The effects would be localized and spread out over approximately 9 miles of project area and create a minor reduction in groundwater recharge potential in comparison to the size of the basin and recharge ability of the surrounding agricultural land. Following construction, the temporarily disturbed area would be restored to pre-project infiltration conditions.

Operation and Maintenance

No groundwater would be used during operation and maintenance of the project, and no impervious areas in addition to the approximately 8.13 acres of new impermeable and semi-impermeable surfaces created for the PG&E components would be created during operation and maintenance of the project. This acreage accounts for the new poles along the new PG&E 230 kV transmission lines; underground lines; new facilities at PG&E Lockeford Substation; the new PG&E Thurman Switching Station; and smaller upgrades at PG&E Bellota, Brighton, and Rio Oso Substations. The impervious surfaces along the transmission lines proposed for the project would be at pole sites spread over approximately 9 miles of electrical alignment. Each pole would have approximately 9.5 to 22 square feet of impervious area, or about 0.06 acre of coverage, along the alignment and would not prevent the infiltration of rainwater surrounding this small area. The 8.07 acres of impermeable and semi-impermeable area created by the substations would include storm drain systems and stormwater basins that allow for the infiltration of stormwater. Furthermore, the station sites would be graded and covered in gravel in spaces that do not have permanent infrastructure improvements, which would continue to allow infiltration into the groundwater table from the station sites.

Implementation of APMs

Implementation of APM HYD-5 would require preparation of a stormwater plan in compliance with City of Lodi Municipal Code Chapter 13.14, Stormwater Management and Discharge Control for the PG&E Thurman Switching Station, to ensure that the City of Lodi's stormwater system could manage additional runoff from the completed project.

Construction and operation of the project would require water use to minimize dust and to clean equipment from various sources; however, directly taking from groundwater would not occur, however; some groundwater may be sourced through the City of Lodi water supply. Construction of the project would create new impervious surfaces in the project area, which would prevent the infiltration of stormwater. The total new coverage of impermeable and semi-impermeable area from the PG&E portion of the project would be approximately 8 acres, which accounts for stations, poles, and pull boxes. To maintain alignment with the City of Lodi municipal code, PG&E would implement APM HYD-5 and prepare a stormwater plan to minimize the effects of new impervious surface at PG&E's Thurman Switching Station. Implementing the project would not decrease groundwater supplies, nor would it interfere with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

LEU Project Components

Construction Activities

LEU's Guild and Industrial Substations are located in the City of Lodi's water district and sewer service area. Water required for construction may come from several sources, including a municipal water source, delivery by water trucks, or Lodi Lake, which is located on the north side of the City of Lodi. Another potential water source for construction would be recycled water from the City's newly upgraded wastewater treatment plant. The City of Lodi Water Utility and NSJWCD use groundwater as part of their water supplies. Section 3.17, "Utilities and Service Systems," discusses water sourced for the project in more detail. Based on DWR data, groundwater is expected to be present at depths greater than 65 feet. LEU's portion of the project would not involve excavation greater than 15 feet, so no dewatering is anticipated.

Grading and excavation activities would be required for the proposed LEU Guild Substation, modified LEU Industrial Substation, and relocated LEU 12 kV feeder line. Localized compaction of soil from construction activities, including the use of heavy equipment, could temporarily diminish the stormwater infiltration capacity and associated groundwater recharge. The effects would be localized to the project area and would create a minor reduction in groundwater recharge potential in comparison to the size of the basin and recharge ability of surrounding agricultural land. The temporarily disturbed areas are spread out throughout the project area and would be restored to pre-project infiltration conditions.

Operation and Maintenance

Construction of the LEU portions of the project would create 3.25 acres of impermeable and semi-impermeable surfaces. The largest source of new impermeable surface for LEU project components would be the Guild Substation. To manage the stormwater at the Guild Substation from the creation of the 3.25 acres of impermeable and semi-impermeable surfaces, a 231,000-gallon retention basin is included in the proposed design. The LEU 12 kV feeder line and LEU Industrial Substation would not add a substantial amount of impermeable surface; therefore, the existing stormwater systems that serve the 12 kV feeder line and the LEU Industrial Substation are sufficient to handle any minor increase in runoff.

Implementation of BMPs

Implementing BMP HYD-5 would require LEU to prepare a project stormwater plan to maintain alignment with City of Lodi Municipal Code Chapter 13.14, Stormwater Management and Discharge Control, to ensure that the City of Lodi's stormwater system could manage additional runoff from the completed project.

Construction of the project would create new impermeable and semi-impermeable surfaces in the project area, which would prevent the infiltration of stormwater. The total new coverage of permanent impermeable and semi-impermeable area from the LEU portion of the project would be approximately 3 acres, which accounts for the new substation and facility improvements. Implementing the project would not decrease groundwater supplies, nor would the project interfere with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Significance before Mitigation

The project is located in the Eastern San Joaquin Groundwater Subbasin, which is a critically overdrafted, high-priority basin because of groundwater level decline. Groundwater is not proposed for direct extraction and use during construction, operation, or maintenance of the project.

Approximately 11 acres of impervious surfaces (8 acres associated with PG&E project components and 3 acres associated with LEU components) would be created with project implementation. These impervious acres are spread throughout the project area. Stormwater basins would allow for infiltration of stormwater at the substations. Impervious areas would include storm drains and stormwater infiltration systems that would allow for the infiltration of stormwater. Additionally, the project would comply with the NPDES MS4 Permit conditions and implement applicable APMs and BMPs. Implementation of applicable APMs and BMPs would restore the temporary work areas to their pre-project condition so that they continue to allow for the infiltration of stormwater. As a result, the

potential to substantially decrease groundwater supplies or interfere with groundwater recharge such that the project may impede sustainable groundwater management of the basin during construction and operation would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact HYD-3: Substantially Alter the Existing Drainage Pattern of the Site or Area, including through the Alteration of the Course of a Stream or River or through the Addition of Impervious Surfaces, in a Manner Which Would Result in Substantial Erosion, Flooding, or Excessive Runoff

PG&E Project Components

Construction Activities

to complete the proposed project would change the current ground surfaces. As described above in the discussion of Impact HYD-2, the total temporary work area for PG&E project components (i.e., grading activities at PG&E Lockeford Substation and PG&E Thurman Switching Station, installation of TSPs along the 230 kV transmission lines, and construction of staging areas and temporary access roads) would be approximately 45 acres. Although these work areas may expose soil in a manner that contributes to erosion potential, the underlying drainage pattern of the project area would not be changed in a manner that would contribute to additional erosion because the area is mostly flat and avoids any drainage features in the project area, the TSP footprints are relatively small and discrete, and the stations would be designed to retain all stormwater runoff from new impervious surfaces. Along Bear Creek and Paddy Creek, the electrical poles would span the creeks and would not be within the channelized creeks. Because these creeks are CVFPB Regulated Streams and federal levees, Title 23 (23 California Code of Regulations Sections 120 and 123) applies to the project and requires the planned vertical clearance of 25 feet for aerial levee crossings of power lines that are more than 75 kV. Each span has been designed to have an aerial clearance of 28 feet above the creeks in accordance with GO 95. Additionally, in accordance with GO 95, the PG&E 230 kV structures and temporary work areas would be more than approximately 25 feet from the landward side of the landside levee toe to each side of the channelized non navigable canals, which exceeds the Title 23 required distance of 10 feet. The access route to the work areas would be overland routes, such as driveways, which would avoid drainage ditches and constructed watercourses culverted beneath the access routes. The project's ground-disturbing activities outside the City of Lodi would be located on parcels where municipal or otherwise developed stormwater collection systems are not established or at existing substations with stormwater management systems (SJC GIS 2024). The stormwater conveyance systems that exist generally consist of agricultural ditches along field roads and other local roads.

The project would be required to comply with the NPDES CGP and MS4 Permit conditions, which would prevent substantial erosion, flooding, and excessive runoff. Therefore, the work near and around the waterways and transmission line would not alter the drainage patterns of the site or otherwise cause substantial erosion or siltation.

Operation and Maintenance

The PG&E project components at the substations would create up to approximately 8.07 acres of semipermeable and impermeable surfaces with the potential to alter the drainage pattern of the site throughout the life of the project. The PG&E Thurman Switching Station and the PG&E Lockeford Substation sites would include stormwater infiltration infrastructure. The existing drainage and retention basin at PG&E Lockeford Substation would be extended by approximately 2,742 square feet to retain additional drainage from the expanded facilities. The proposed PG&E Thurman Switching Station would include an on-site retention basin. The site drainage system and stormwater detention basin for each station are designed to collect and allow infiltration of the volume of runoff generated by the facility during a 25-year, 24-hour storm event. Stormwater runoff from the impervious portion of the proposed PG&E Thurman Switching Station and PG&E Lockeford Substation would be retained through on-site retention basins, as described above, to prevent flooding on- and off-site. These basins would prevent the erosion and siltation

caused by altering the drainage patterns of the site. Overland flows onto the station facilities are not expected given the relatively flat terrain.

The installation of the 72 TSPs outside of the substations would result in up to approximately 2,770 square feet (0.06 acre) of new impervious surface, bringing the total increase in semipermeable and impermeable surfaces to 8.13 acres for the PG&E project components. The replacement of existing lattice steel towers to TSPs, which have a smaller surface area, would slightly decrease its existing impervious footprint along the powerlines. The permanent PG&E TSPs located along the new PG&E 230 kV transmission line and in approximately 1.25 miles of mapped 100-year floodplains include nine monopole structures (ranging from 3 to 7 feet in diameter at base). This is roughly one structure per 825 feet of floodplain. The structures would have a small footprint and cross-section and would not significantly impede or redirect flood flows. TSPs in the 500-year flood hazard zone and inundation zone would be in a formation similar to that used in the 100-year flood zone and also would not impede flood flows, because they would cover a limited surface area.

The TSP foundations and substation footprints proposed by PG&E would not substantially alter the drainage pattern of the project area. No streams or rivers would be altered. As described above for Impact HYD-2, the total impervious surface area would be approximately 8 acres spread over an approximately 9-mile alignment. As a result, substantial erosion, flooding, or excessive runoff related to changes in drainage patterns would not occur.

Implementation of APMs

As described above, the project would be required to comply with regulations including the NPDES CGP and MS4 Permit conditions, which would prevent substantial erosion, flooding, and excessive runoff. APM HYD-1 expresses PG&E's commitment to preparation and implementation of a SWPPP as required under the NPDES CGP for Stormwater Discharges Associated with Construction Activity.

Stormwater would be retained within the stations and an increase in offsite runoff, erosion, or siltation would not occur. In addition, APM HYD-3 would require that PG&E restores any damage to the City's existing stormwater infrastructure in or adjacent to the project area. Additionally, through APM HYD-5 PG&E would prepare a Project Stormwater Plan for the Thurman Switching Station that would be approved by the City of Lodi before the start of construction. This plan would detail project design elements and provide calculations that demonstration that the grading and additional impervious surfaces associated with the switching station would not substantially alter the drainage of the site in a manner that would result erosion, flooding, or excessive runoff. These measures would reduce the risk of runoff, erosion, and flooding from project-related drainage alterations during construction and O&M of the project.

Implementation of APMs HYD-1, HYD-3, and HYD-5 would restore the work areas to pre-construction conditions and minimize erosion or alteration of stormwater drainage patterns. Additionally, the project would abide by City of Lodi General Plan Policy S-P5, which require management of stormwater drainage and development in the floodplain.

LEU Project Components

Construction Activities

LEU construction activities, including construction of the staging area for the LEU substation work, would be conducted inside the new Guild Substation area, inside the existing LEU Industrial Substation, and at the feeder line locations. This area is relatively flat, and existing curbs and gutters are associated with South Guild Avenue and East Thurman Road to the east and south. Based on the preliminary grading design, earthwork activities for LEU Guild and Industrial substations would require approximately 6,100 cubic yards of cut and fill. LEU would implement a project SWPPP during construction to reduce the rate and amount of surface runoff, siltation, and erosion and to prevent flooding on-site or off-site, as required under the NPDES CGP for Stormwater Discharges Associated with Construction Activity. Movement of earth would have the potential to alter drainage on-site; however, the project is subject to City of Lodi General Plan Policies S-P5 which requires management of stormwater drainage in the city. Implementation of these policies would minimize the alteration of drainage on-site and thereby minimize the effect on the larger drainage patterns in the region.

Operation and Maintenance

As discussed above for Impact HYD-2, approximately 3 acres of impermeable surface would be added by construction of the LEU project components. During LEU O&M, surface runoff from 3.25 acres of new impermeable area at the new proposed LEU Guild Substation would be directed to and contained in an on-site 231,500-gallon retention basin to prevent on- or off-site erosion and siltation. This retention basin is designed to manage a 25-year, 24-hour storm event. Additionally, much of the substation would be covered in gravel, which would allow for infiltration on-site. For these reasons, drainage patterns in the project vicinity would remain largely unchanged. All stormwater from the LEU Guild Substation would be managed on-site and would not enter the City of Lodi stormwater drainage system. At the existing LEU Industrial Substation, stormwater enters storm drains and is discharged to a catch basin system before being discharged into the City of Lodi stormwater system (ERM 2022). The modifications planned for the LEU Industrial Substation would not create impervious surfaces extensive enough to alter the stormwater runoff from the site.

The potential for O&M of the LEU project components to substantially alter the existing drainage pattern of the sites or area, including through the alteration of the course of a stream or river or through the addition of impermeable surfaces, in a manner that would create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff is minimal. The LEU portions of the project also would be required to be consistent with City of Lodi Policy S-P5, which prevents new development from altering drainage or increasing flood risk in the area.

Implementation of BMPs

Implementation of BMP HYD-1 would commit PG&E to preparation and implementation of a SWPPP as required under the NPDES CGP for Stormwater Discharges Associated with Construction Activity to stabilize soil and control sediment to not alter drainage patterns. Per the MS4 permit the City of Lodi would conduct stormwater compliance inspections to minimize the risk of impeding or redirecting flood flows. BMP HYD-3 would require that LEU restores any damage to existing stormwater infrastructure in or adjacent to the project area. Additionally, to maintain alignment with City of Lodi municipal code, BMP HYD-5 requires preparation of a LEU Stormwater Plan that would be approved by the City of Lodi before the start of construction. These measures would reduce the risk of runoff, erosion, and flooding from project-related drainage alterations during construction and O&M of the project.

The project components are located on flat land without defined natural drainage systems. The City of Lodi maintains curbs and gutters to channel stormwater adjacent to project components that are within the City of Lodi. On average, there is less than 2 feet of variation in existing elevation in stations or at line structure locations. Implementation of the proposed project would not alter any drainage patterns, including the course of any streams or rivers or localized drainage patterns, through the creation of new impervious surfaces. All new impervious surfaces would include storm drain infrastructure that would be designed to minimize any potential for erosion, flooding, or excessive runoff.

The proposed project includes the installation of stormwater infrastructure at the stations to retain stormwater and prevent erosion and siltation, and would not alter existing drainage patterns. Implementation of BMP-HYD-1, BMP HYD-3, and BMP HYD-5 would restore the work areas to pre-construction conditions and minimize erosion and alteration of stormwater drainage patterns. Additionally, the LEU components of the project would abide by City of Lodi General Plan Policy S-P5, which require management of stormwater drainage. Following state and federal stormwater drainage requirements would reduce the potential for the project to alter drainage and risk erosion or flooding on and off site.

Significance before Mitigation

The proposed project includes the construction of TSP structures, substations, and underground work areas, which would not change the drainage pattern of the area. Work along the transmission lines also would not result in additional erosion or siltation, because APMs, BMPs, City of Lodi General Plan Policy S-P5 as well as the NPDES CGP, MS4 Permit conditions, and SWPPPs for the project components, would be implemented. As a result, the potential for erosion or siltation, flooding, or excessive runoff on-site or off-site during construction, operation, or maintenance would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact HYD-4: Risk Release of Pollutants due to Project Inundation in Flood Hazard Zones

PG&E and LEU Project Components

As shown in Figure 3.11-2 and described above, portions of the project area are within the 100-year floodplain, the 500-year floodplain, and the Camanche Dam inundation zone.

Potentially hazardous materials, such as oil, grease, hydraulic fluid, and fuel, would be used during construction. In addition, construction would generate waste materials and expose soil. If a flood event occurs during the construction period, it could result in a release of pollutants (e.g., hazardous material storage areas on the construction site could be inundated, thereby resulting in failure of the containment systems). However, given the 1-percent chance of a 100-year storm event inundating the nine pole replacements within the 100-year flood hazard zone, the 0.2-percent chance of a 500-year flood event affecting the rest of the project area, and the low likelihood of a dam failure occurring with iterative annual inspections by both the Federal Energy Regulatory Commission and EBMUD in any given year and the temporary nature of the construction activities, this is an unlikely occurrence. Furthermore, the PG&E SWPPP requirements and SPCC plan would consider the project's potential flood hazard and address the risk of release of pollutants from inundation of the project area to align with NPDES General Permit requirements, WDRs, an MS4 Phase II General Permit, and the Stormwater Management and Discharge Control Code to minimize flood hazards. These regulations require the management and control of pollutants during construction and facility operations. Hazardous waste, such as treated wood and material known or assumed to contain asbestos, would be removed from the project sites and disposed of properly at an off-site waste facility.

During O&M, compliance with these adopted regulations would substantially reduce the risk of release of hazardous materials. The substations would store and use small amounts of lubricants, cleaners, and other potentially hazardous materials on-site. In accordance with SPCC plans (40 CFR 112) hazardous materials would not be stored in areas that experience periodic flooding. Additionally, only TSPs are within the 100-year flood hazard plain. TSPs do not pose a threat to release pollutants in a flooding event. The likelihood of flooding in the remainder of the project area is low (0.2-percent likelihood in the 500-year flood zone).

Implementation of APMs and BMPs

CGP and building permits for the project would require that the implementation of APM HYD-1, and BMP HYD-1 by PG&E and LEU be required and to prepare a SWPPP pursuant to the NPDES General Permit requirements and restore the work sites after construction is complete to minimize the risk of pollutant release in flood events. Specifically for the building of the substations, building permits would commit PG&E and LEU to APM HYD-4 and BMP HYD-4 to prepare SPCC plans that include engineered and operational methods for preventing, containing, and controlling potential pollutant releases (e.g., construction of a retention pond, moats, or berms), as well as provisions for quick and safe cleanup. Through implementation of APM HYD-5, PG&E would prepare a stormwater plan for the Thurman Switching Station in compliance with the City of Lodi building permit and stormwater management control. Similarly, through implementation of BMP HYD-5, LEU would maintain alignment with the City of Lodi municipal code for stormwater management and control requirements and prepare a stormwater plan for the LEU Guild Substation.

Pollutants could be released if a 100- or 500-year flooding event or dam failure caused inundation of the project area during construction or O&M of the project. Implementation of APMs HYD-1, HYD-3, HYD-4, and HYD-5 would minimize the risk associated with PG&E's project components by restoring project sites to their original condition and by requiring preparation of a SWPPP and SPCC plan to prepare for flood events and minimize the risk of release of pollutants. Implementation of BMPs HYD-1, HYD-3, HYD-4, and HYD-5 would reduce the risk of release of pollutants for the LEU project components. The SPCC plans prepared pursuant to 40 CFR 112 would address the potential for disturbance of pollutants used in the project area to result in a significant hazard to the public or the environment.

Significance before Mitigation

Project components would be within the 100- and 500-year FEMA-designated flood hazard zones and Camanche Dam inundation zone. During construction, disturbed areas would be more likely to release sediment and other pollutants during a flood event; however, the project would comply with the conditions of the CGP to minimize the potential for release of sediment and pollutants during flood events. The project would require the use, storage, and transport of hazardous materials. Hazardous material would be stored in compliance with current and updated HMBPs to address the potential risk of pollutants. The risk of pollutants being released into the environment during a flood event would be reduced through compliance with applicable NPDES General Permit requirements, WDRs, an MS4 Phase II General Permit, City of Lodi General Plan Policy S-P5, and the Stormwater Management and Discharge Control Code and the implementation of the APMs and BMPs described above to minimize flood hazards and reduce risk of pollutant release. As a result, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact HYD-5: Conflict with or Obstruct Implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan

PG&E and LEU Project Components

Implementing the project would not result in any sediment or pollutant discharges that could conflict with the Basin Plan. Activities associated with project construction, including grading, would not create substantial additional sources of polluted runoff. As described previously for Impacts HYD-1, and HYD-4, a SWPPP and an SPCC plan would be prepared and implemented to further reduce any water quality impacts. Additionally, the City of Lodi's Stormwater Management Plan is reflected in APMs and BMPs that would be implemented by PG&E and LEU. Use of groundwater is not proposed for project implementation; therefore, implementing the project would not deplete or interfere with groundwater supply or recharge. Further, the project would not conflict with or obstruct implementation of the Eastern San Joaquin Groundwater Sustainability Plan or the Revised Basin Plan because there are no proposed sediment or pollutant discharges or water withdrawal for the project that would affect groundwater sources. (See Impacts HYD-1 and HYD-2 for further discussion.).

Implementation of APMs and BMPs

Implementation of APMs HYD-1, HYD-2, HYD-4, and HYD-5 would require management of the risks of sedimentation from soil disturbance and accidental release of hazardous materials into waterways that could infiltrate into groundwater during the construction and O&M of PG&E portions of the project. Implementation of BMPs HYD-1, HYD-2, HYD-4, and HYD-5 would require management of the risks of sedimentation from soil disturbance and accidental release of pollutants into waterways that could infiltrate into groundwater during the construction and O&M of LEU portions of the project. Compliance with the San Joaquin Groundwater Sustainability Plan and the Revised Basin Plan would be supported by preparing a SWPPP educating workers on the project of environmental concerns in the area, complying with building permits from the City and County to restore the project sites after construction is complete, and creating an SPCC plan for safe uses of hazardous materials in the project area. Specifically, APM HYD-5 and BMP HYD-5 would maintain alignment with the City of Lodi Stormwater Management Plan BMPs and regional SWMP mandate from the MS4 Permit and require preparation of a stormwater plan for the project. Implementation of these APMs and BMPs would ensure that the project would not interfere with the basin management plans from ESJGWA or the Central Valley RWQCB and would reinforce compliance with regulatory requirements from the state and local groundwater management plans.

The project would not cause waste discharges that would conflict with the Basin Plan, nor would it require the use of groundwater in the project area; therefore, it would not conflict with the Eastern San Joaquin Groundwater Sustainability Plan.

Significance before Mitigation

The project would not cause sediment or pollutant discharges or a groundwater impact that would conflict with any water quality control or groundwater management plan. The risks of pollutant discharge would be reduced through compliance with applicable MS4 Permit guidelines, including post-construction design standards and pollutant controls that mandate consistency with the Basin Plan and the City of Lodi Stormwater Management Plan to protect the regional water systems (City of Lodi 2012). Implementation of the APMs and BMPs described above would support implementation of regulatory requirements. As a result, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.12 LAND USE AND PLANNING

This section describes the existing conditions related to land use and planning in the project area; describes the applicable federal, state, and local regulations addressing land use; and analyzes the potential land use impacts associated with implementation of the project. See Section 3.6, "Biological Resources," for a discussion of the project's compatibility with the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan and PG&E's San Joaquin Valley Habitat Conservation Plan.

No comments related to land use and planning were received in response to the notice of preparation (NOP). See Appendix A for all NOP comments received during the public scoping period.

3.12.1 Environmental Setting

PROJECT AREA

The project would be located in the unincorporated area of northeastern San Joaquin County and partially in an industrial area of the City of Lodi. Major geographic features in the project area include the Mokelumne River; Bear Creek; and State Routes 99, 88, and 12. The topography in the area is generally flat with rolling hills rising to the east. The project area ranges in elevation from approximately 135 feet above sea level at the eastern end to approximately 60 feet above sea level at the western end. The part of the project area in northeastern San Joaquin County is predominantly agricultural with retail, wineries, and rural and semirural residential development. Small, concentrated areas of industrial and commercial business can be found along transportation corridors. The part of the project area in the City of Lodi is primarily industrial and consists of various manufacturing and production uses, as well as parks and open space.

LAND USE DESIGNATIONS AND ZONING

Land Use Designations

General plan land use designations in the project area include a mixture of general agriculture, open space/resource conservation, industrial, and public/quasi-public land uses. Figure 3.12-1 displays the land use designations within 0.5 mile of the project components.

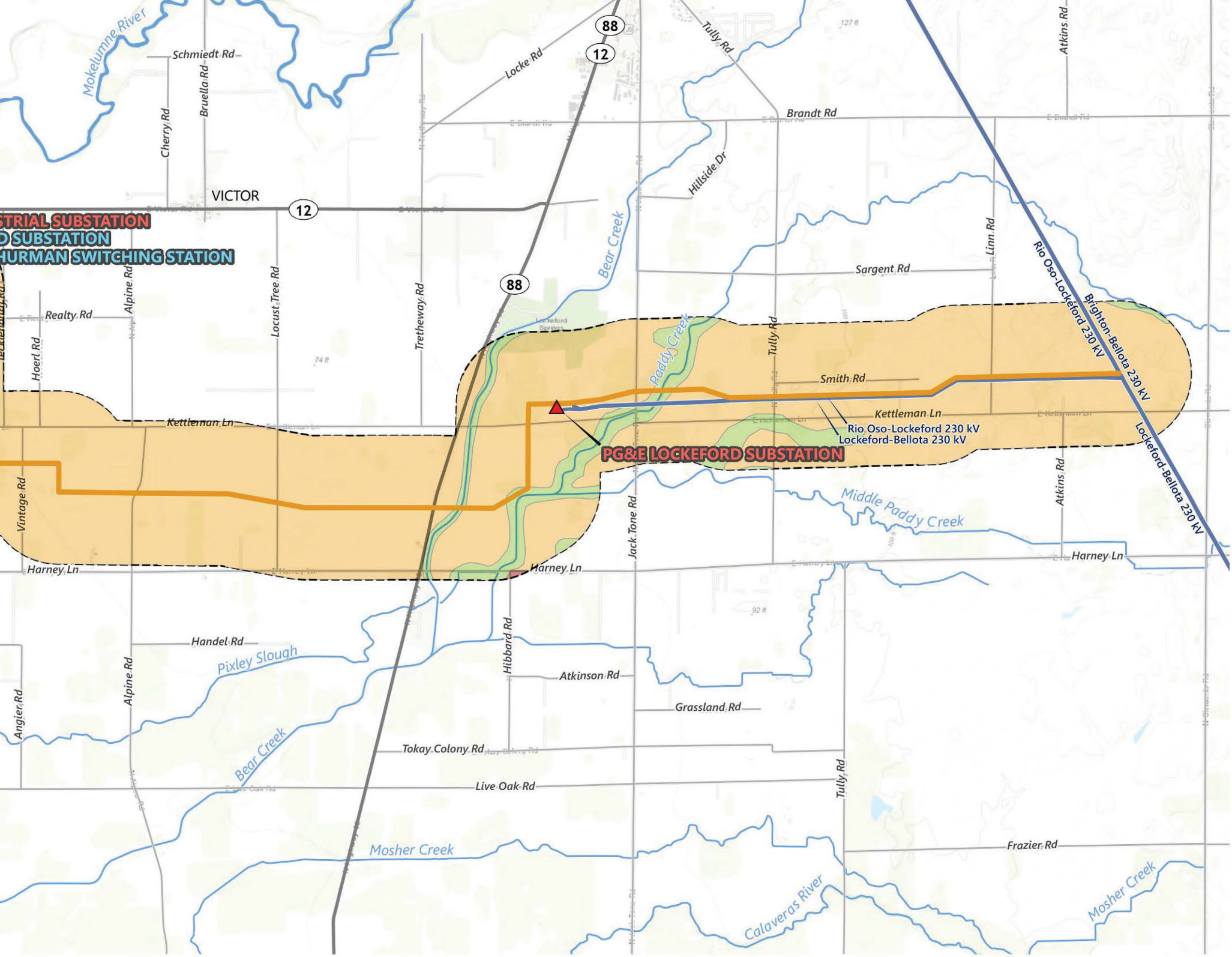
The San Joaquin County General Plan (San Joaquin County 2016) specifically designates the following land uses in the project area:

- General Agriculture. Land that provides for large-scale agriculture production and associated processing, sales, and support uses. Generally applies to areas outside of areas planned for urban development where soils are capable of producing a wide variety of crops or can support grazing.
- Open Space/Resource Conservation. Any areas with significant natural resources that should remain as open space to be used for recreation, or as areas preserved and used for resource production (for example, mining). May be applicable to any area of the County that is essentially unimproved and is planned to remain open in character, improved for recreational uses, managed in the production of resources, protected from development-related impacts, or restricted from access for the protection of the community (for example, floodplains).

The City of Lodi General Plan (City of Lodi 2010) designates the following land uses in the project area that fall within the City's jurisdiction, i.e., the LEU portion of the project:

- Industrial. A mix of heavy manufacturing, warehousing, general service, storage, and distribution activities.
- Public/Quasi-Public. Properties owned by government entities or quasi-public users. This designation includes government facilities, public and private schools, and libraries.

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STRIAL SUBSTATION
D SUBSTATION
HURMAN SWITCHING STATION
PG&E LOCKEFORD SUBSTATION
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
Brighton-Bellota 230 kV
Lockeford-Bellota 230 kV
VICTOR
Mokelumne River
Schmiedt Rd
Cherry Rd
Bruella Rd
Locke Rd
Tully Rd
Brandt Rd
Hillside Dr
Bear Creek
Sargent Rd
Linn Rd
Atkins Rd
Realty Rd
Hoert Rd
Alpine Rd
Locust Tree Rd
Tretheway Rd
Paddy Creek
Smith Rd
Kettleman Ln
Vintage Rd
Jack Tone Rd
Middle Paddy Creek
Harney Ln
Handel Rd
Pixley Slough
Hibbard Rd
Atkinson Rd
Grassland Rd
Angier Rd
Tokay Colony Rd
Live Oak Rd
Mosher Creek
Frazier Rd
Calaveras River
88
12
74 ft
92 ft
127 ft

Zoning

The San Joaquin County and City of Lodi Zoning Ordinances establish development standards and other general provisions to ensure consistency between general plan land use designations and proposed development projects. Consistent with the San Joaquin County Zoning Map, the entire portion of the project area within the unincorporated county is zoned as General Agriculture (AG-40) (San Joaquin County 2024). Under the County's Land Use Code, major utility infrastructure is permitted on lands designated for General Agriculture uses in the unincorporated county, subject to site approval. In addition, according to the City of Lodi Zoning Map, the Industrial (I) and Public/Quasi-Public (PQP) zoning districts are located in the portion of the project area in the city (City of Lodi 2024). Under the City's Land Use Code, major utility infrastructure is permitted on lands designated for industrial uses with a use permit and on lands designated for Public/Quasi-Public uses by right. See Figure 3.3-4 in Section 3.3, "Agriculture," for a depiction of zoning within 0.5 mile of the project components.

SURROUNDING LAND USES

Most lands in the vicinity of the project area in unincorporated San Joaquin County are used for agriculture and rural residential developments. Within 0.5 mile of the project area in the unincorporated county, land is used primarily for agricultural purposes with scattered residential and urban developments. In addition, most lands in the vicinity of the project area in the City of Lodi are used for industrial uses. Within 0.5 mile of the project area boundary in the city, lands are used for industrial, open space, and public/quasi-public purposes.

3.12.2 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws related to land use are applicable to the project.

STATE

State Planning and Zoning Laws

California Government Code Section 65300 et seq. establishes the obligation of cities and counties to adopt and implement general plans. The general plan is a comprehensive, long-term, and general document that describes plans for the physical development of a city or county and of any land outside its boundaries that, in the City's or County's judgment, bears relation to its planning. Cities typically identify a "sphere of influence" in their general plans; these are areas outside the city corporate boundaries that make up the probable future service area of the city. The general plan addresses a broad range of topics, including at a minimum land use, circulation, housing, conservation, open space, noise, and safety. In addressing these topics, the general plan identifies the goals, objectives, policies, principles, standards, and plan proposals that support the City's or County's vision for the area.

The State Zoning Law (California Government Code Section 65800 et seq.) establishes that zoning ordinances, which are laws that define allowable land uses in a specific zone district, are required to be consistent with the general plan. Local general plan policies and zoning ordinances, as they relate to the project, are summarized below.

LOCAL

Pursuant to CPUC General Order 131-D, CPUC has exclusive jurisdiction over the siting, design, and construction of PG&E's portion of the project, and PG&E's portion of the project is not subject to local (City of Lodi and San Joaquin County) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Because the LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County General Plan

The San Joaquin County General Plan (San Joaquin County 2016) contains the following land use-related policy:

- **Policy LU-7.2: Agricultural Support Uses.** The County shall require new agricultural support development and non-farm activities to be compatible with surrounding agricultural operations. New developments shall be required to demonstrate that they are locating in an agricultural area because of unique site area requirements, operational characteristics, resource orientation, or because it is providing a service to the surrounding agricultural area. The operational characteristics of the use may not have a detrimental impact on the operation or use of surrounding agricultural properties. Developments must be sited to avoid any disruption to the surrounding agricultural operations.

San Joaquin County Zoning Code

The San Joaquin County Land Use Code establishes zoning districts that are applied to property in unincorporated San Joaquin County, determines how the zoning districts are applied on the County's zoning maps, and provides general permit requirements for development and new land uses in the unincorporated areas of the county. Under the County's Land Use Code, the unincorporated areas of San Joaquin County are divided into zoning districts that consistently implement the general plan, as well as any applicable community and specific plans. Under the Land Use Code, major utility infrastructure is permitted on lands designated for General Agriculture uses in the unincorporated county subject to site approval.

City of Lodi General Plan

The City of Lodi General Plan (City of Lodi 2010) contains the following land use–related policies that are applicable to the LEU portions of the project:

- **Policy LU-G1:** Create a balanced and sustainable land use pattern that provides for a diversity of uses and satisfies existing and future needs.
- **Policy LU-G6:** Ensure the continued economic sustainability of the community and fiscal health of the City government.

City of Lodi Zoning Code

The City of Lodi Land Use Code establishes zoning districts that apply to property within the limits of the City of Lodi. Similar to the County's Land Use Code, the City's Land Use Code determines how the zoning districts in the city are applied and provides general permit requirements for development and new land uses in the city. Under the City's Land Use Code, the different areas in the city are divided into zoning districts that consistently implement the general plan, as well as applicable community and specific plans. Under the City's Land Use Code, major utility infrastructure is permitted on lands designated for Industrial uses with a use permit and on lands designated for Public/Quasi-Public uses by right.

3.12.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

This discussion focuses on consistency with regional planning, planning designations/zoning, and existing use consistency. Evaluation of potential land use impacts is based in part on a review of the planning documents pertaining to the project area, including the current San Joaquin County General Plan, the City of Lodi General Plan, and the San Joaquin County and City of Lodi Zoning Ordinances. These documents were reviewed to determine whether implementation of the proposed project would impede or conflict with those plans such that an

environmental impact would occur. In determining the level of significance, this analysis assumes that the project would comply with relevant state regulations and local planning policies, where feasible.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

No applicable applicant-proposed measures (APMs) or best management practices (BMPs) relevant to land use and planning are proposed as part of the project.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts related to land use and planning under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. An impact related to land use and planning would be significant if implementation of the project would:

- physically divide an established community or
- cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect not analyzed elsewhere in this EIR.

ISSUES NOT DISCUSSED FURTHER

Physically Divide an Established Community

The proposed project would include the construction, operation, and maintenance of a new electrical transmission line to better serve the energy needs of the growing population in unincorporated San Joaquin County and the City of Lodi. The construction, operation, and maintenance of the proposed transmission line and associated infrastructure would not create a barrier that would physically divide the existing rural/agricultural community in unincorporated San Joaquin County or the City of Lodi. The route has been engineered with consideration to existing linear features and parcel lines to minimize effects on land use, and the overhead lines would not prohibit travel beneath the lines or disrupt visual continuity. No impact would occur. This issue is not discussed further.

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project components would not result in physical environmental changes that could physically divide an established community or cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect not analyzed elsewhere in this EIR. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact LAN-1: Conflict with Applicable Land Use Plans, Policies, or Zoning not analyzed elsewhere in this EIR

PG&E and LEU Project Components

As stated above, the portion of the project carried out by PG&E would not be subject to local land use plans, policies, or zoning. However, local land use plans, policies, and zoning ordinances are considered for informational purposes. The portion of the project carried out by LEU in the City of Lodi is not regulated by CPUC and is subject to local land use plans, policies, and zoning.

In unincorporated San Joaquin County, all land in the project area is zoned as General Agriculture, including the locations of the existing PG&E 60 kV lines and PG&E Lockeford Substation. According to Table 9-605.2 of the San Joaquin County Land Use Code, major utilities are permitted in the General Agriculture zone district, subject to site approval. Furthermore, California Government Code Section 51238 states that electric utility infrastructure is compatible with land designated for agricultural use.

In the City of Lodi, the proposed PG&E transmission line, switching station, service line extension, and existing PG&E 60 kV lines are located on land currently zoned for Industrial and Public/Quasi-Public use. In addition, the proposed LEU Industrial Substation and Guild Substation and existing electrical customer service line that would be relocated to an underground configuration are also located on land zoned for Industrial and Public/Quasi-Public use. According to Section 17.24.030 of the City of Lodi Land Use Code, utility facilities are permitted in the industrial land use area with a use permit. Also, according to Section 17.26.060 of the City of Lodi Land Use Code, utility facilities are permitted by right in the Public/Quasi-Public district.

The project would establish infrastructure consistent with City of Lodi General Plan Policy LU-G1 to support a land use pattern that provides for a diversity of existing and future uses. Also, having the necessary electricity infrastructure in place would promote the continued economic sustainability and fiscal health of the community and City government, because the City would more likely be able to operate without experiencing power outages. Thus, the project is consistent with and would help facilitate the realization of the City of Lodi General Plan Policies LU-G1 and LU-G6.

Implementation of APMs and BMPs

No applicable APMs or BMPs are proposed as part of the project.

Significance before Mitigation

Because major utility infrastructure is permitted on lands zoned and designated for General Agriculture uses in unincorporated San Joaquin County subject to site approval, the PG&E portion of the project is consistent with the San Joaquin County General Plan and Zoning Code. In addition, because utility infrastructure is permitted on lands zoned and designated for industrial uses with a use permit in the City of Lodi and on lands designated for Public/Quasi-Public uses by right in the city, the PG&E and LEU portions of the project in the city are compatible with the City of Lodi General Plan and Zoning Code. Further, the project would enable the City to effectively realize City of Lodi General Plan Policies LU-G1 and LU-G6. No changes in land use or zoning would be required as part of the project. Therefore, the PG&E project components are consistent with the zoning and land use policies in San Joaquin County, and the PG&E and LEU project components are both consistent with the zoning and land use policies in the City of Lodi.

Neither the PG&E portion nor the LEU portion of the project would conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect not analyzed elsewhere in this EIR. As a result, the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

3.13 NOISE

This section includes a description of ambient-noise conditions, a summary of applicable regulations related to noise and vibration, and an analysis of potential short-term construction and long-term operational-source noise impacts associated with the project. Supporting data is provided in Appendix I, "Noise Measurement Data and Noise Modeling Calculations."

Several comments on the notice of preparation (NOP) were received regarding noise. The commenters expressed concerns about construction noise and operational corona noise from the transmission lines. These topics are addressed in operational noise in impact analysis (see Impact NOI-1). See Appendix A for all NOP comments received during the public scoping period.

3.13.1 Environmental Setting

ACOUSTIC FUNDAMENTALS

Prior to discussing the noise setting for the project, background information about sound, noise, vibration, and common noise descriptors is presented to provide context and a better understanding of the technical terms referenced throughout this section.

Sound, Noise, and Acoustics

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a human ear. Noise is defined as loud, unexpected, annoying, or unwanted sound.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receiver, and the propagation path between the two. The loudness of the noise source and obstructions or atmospheric factors affecting the propagation path to the receiver determine the sound level and characteristics of the noise perceived by the receiver. The field of acoustics deals primarily with the propagation and control of sound.

Frequency

Continuous sound can be described by frequency (pitch) and amplitude (loudness). A low-frequency sound is perceived as low in pitch. Frequency is expressed in terms of cycles per second, or hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz, or thousands of hertz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

Sound Pressure Levels and Decibels

The amplitude of pressure waves generated by a sound source determines the loudness of that source. Sound pressure amplitude is measured in micro-Pascals (mPa). One mPa is approximately one hundred billionth (0.00000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to 100,000,000 mPa. Because of this large range of values, sound is rarely expressed in terms of mPa. Instead, a logarithmic scale is used to describe sound pressure level (SPL) in terms of decibels (dB).

Addition of Decibels

Because decibels are logarithmic units, SPLs cannot be added or subtracted through ordinary arithmetic. Under the decibel scale, a doubling of sound energy corresponds to a 3 dB increase. In other words, when two identical sources are each producing sound of the same loudness at the same time, the resulting sound level at a given distance would be 3 dB higher than if only one of the sound sources was producing sound under the same conditions. For example, if one idling truck generates an SPL of 70 dB, two trucks idling simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. Under the decibel scale, three sources of equal loudness together produce a sound level approximately 5 dB louder than one source.

A-Weighted Decibels

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear.

Human hearing is limited in the range of audible frequencies, as well as in the way it perceives the SPL in that range. In general, people are most sensitive to the frequency range of 1,000–8,000 Hz and perceive sounds within this range better than sounds of the same amplitude with frequencies outside of this range. To approximate the response of the human ear, sound levels of individual frequency bands are weighted, depending on the human sensitivity to those frequencies. Then, an "A-weighted" sound level (expressed in units of A-weighted decibels, or dBA) can be computed based on this information.

The A-weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgment correlates well with the A-scale sound levels of those sounds. Thus, noise levels are typically reported in terms of A-weighted decibels. All sound levels discussed in this section are expressed in A-weighted decibels. Table 3.13-1 describes typical A-weighted noise levels for various noise sources.

Table 3.13-1 Typical A-Weighted Noise Levels

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

Note: dBA = A-weighted decibels.

Source: Caltrans 2013a: Table 2-5.

Human Response to Changes in Noise Levels

The doubling of sound energy results in a 3 dB increase in the sound level. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different from what is measured.

Under controlled conditions in an acoustical laboratory, the trained healthy human ear can discern 1 dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In general, the healthy human ear is most sensitive to sounds between 1,000 and 5,000 Hz and perceives both higher- and lower-frequency sounds of the same magnitude with less intensity (Caltrans 2013b: 2-18). In typical noisy environments, changes in noise of 1–2 dB are generally not perceptible. However, it is widely accepted that people can begin to detect sound level increases of 3 dB in typical noisy environments. Furthermore, a 5 dB increase is generally perceived as a distinctly noticeable increase, and a 10 dB increase is generally perceived as a doubling of loudness (Caltrans 2013b: 2-10). Therefore, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) that would result in a 3 dB increase in sound would generally be perceived as barely detectable.

Corona Noise

Under certain conditions, the localized electric field near an energized conductor can be sufficiently concentrated to produce a tiny electric discharge, known as corona, that can ionize air close to the conductors. Corona is the physical manifestation of energy loss and can transform discharged energy into very small amounts of sound, radio noise, heat, and chemical reactions of the air components. Several factors, including conductor voltage, shape and diameter, and surface irregularities, such as scratches, nicks, dust, or water drops, can affect a conductor's electrical surface gradient and its corona performance.

Transmission lines can generate a small amount of sound energy during corona activity. This audible noise from the line can barely be heard in fair weather conditions on higher-voltage lines. During wet weather conditions (such as rain or fog), water drops collect on the conductor and increase corona activity so that a crackling or humming sound may be heard near the line. This noise is caused by small electrical discharges from the water drops. However, during heavy rain, the ambient noise generated by the falling raindrops will typically be greater than the noise generated by corona. Corona noise is generally more noticeable on high-voltage lines and does not generate noticeable noise for power lines rated at 230 kilovolt (kV) and lower. Audible noise levels on typical 230 kV lines are very low and are usually not noticeable. For example, the calculated rainy weather audible noise for a 230 kV transmission line is about 25 dBA, which is less than the ambient noise levels in a library and less than the background noise levels for rain and wind (CPUC 1999).

Common Noise Descriptors

Noise in our daily environment fluctuates over time. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors used throughout this section.

- **Equivalent continuous sound level (L_{eq}):** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound level that occurs during the same period (Caltrans 2013a: 2-48). For instance, the 1-hour equivalent sound level, also referred to as the hourly L_{eq}, is the energy average of sound levels occurring during a 1-hour period.
- **Maximum sound level (L_{max}):** L_{max} is the highest instantaneous sound level measured during a specified period (Caltrans 2013a: 2-48; FTA 2018: 207–208).
- **Day-night level (L_{dn}):** L_{dn} is the energy average of A-weighted sound levels occurring over a 24-hour period, with a 10 dB "penalty" applied to sound levels occurring during nighttime hours between 10:00 p.m. and 7:00 a.m. (Caltrans 2013a: 2-48; FTA 2018 :214).
- **Community noise equivalent level (CNEL):** Similar to L_{dn} with an additional penalty of 4.77 dBA (A-weighted decibels), for the hours 7:00 p.m. to 10:00 p.m., which are usually reserved for relaxation, television, reading, and conversation (Caltrans 2013a: 2-48).

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which a noise level decreases with distance depends on the following factors.

Geometric Spreading

Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roads and highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources, thus propagating at a slower rate in comparison to a point source. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

Ground Absorption

The propagation path of noise from a source to a receiver is usually very close to the ground. Noise attenuation from ground absorption and reflective-wave canceling provides additional attenuation associated with geometric spreading. Traditionally, this additional attenuation has also been expressed in terms of attenuation per doubling of

distance. This approximation is usually sufficiently accurate for distances of less than 200 feet. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receiver, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receiver, such as soft dirt, grass, or scattered bushes and trees), an additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuation rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

Atmospheric Effects

Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels because wind can carry sound. Sound levels can be increased over large distances (e.g., more than 500 feet) from the source because of atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors, such as air temperature, humidity, and turbulence, can also affect sound attenuation.

Shielding by Natural or Human-Made Features

A large object or barrier in the path between a noise source and a receiver attenuate noise levels at the receiver. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dB of noise reduction (Caltrans 2013b :2-41). Barriers higher than the line of sight provide increased noise reduction. Using the Federal Highway Administration's (FHWA's) highway noise abatement guidelines, it is "simple" to achieve a 5 dBA reduction, "attainable" to achieve a 10 dBA reduction, "very difficult" to achieve a 15 dBA reduction, and "nearly impossible" to achieve a 20 dBA reduction from a noise barrier (FHWA 2010). A 10 dBA reduction is considered typical in practice. Vegetation between the source and receiver is rarely effective in reducing noise because it does not create a solid barrier unless there are multiple rows of vegetation.

Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Ground-borne vibration is vibration of and through the ground. Ground-borne vibration can range from levels that are imperceptible by humans to levels that can create substantial damage to buildings and structures. Sources of ground-borne vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels can be depicted in terms of amplitude and frequency, relative to displacement, velocity, or acceleration.

Ground-borne vibration amplitudes are commonly expressed in peak particle velocity (PPV) or root-mean-square (RMS) vibration velocity. PPV and RMS vibration velocity are normally described in inches per second (in/sec) or in millimeters per second. PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is typically used in the monitoring of transient and impact vibration and has been found to correlate well to the stresses experienced by buildings (FTA 2018 :110; Caltrans 2013a: 6).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. In a sense, the human body responds to average vibration amplitude. The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a 1-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2018: 110, 199; Caltrans 2013b: 7). This is based on a reference value of 1 microinch per second.

The typical background ground-borne vibration-velocity level in residential areas is approximately 50 VdB. Ground vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of

75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels (FTA 2018: 120; Caltrans 2013b: 27).

Typical outdoor sources of perceptible ground vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur to fragile buildings. Construction activities can generate sufficient ground vibrations to pose a risk to nearby structures. Constant or transient vibrations can weaken structures, crack facades, and disturb occupants (FTA 2018: 113).

Ground-vibration levels generated by construction activity can be transient, random, or continuous. Transient construction vibrations are generated by blasting, impact pile driving, and wrecking balls. Continuous vibrations are generated by vibratory pile drivers, large pumps, and compressors. Random vibration can result from jackhammers, pavement breakers, and heavy construction equipment. Table 3.13-2 summarizes the general human response to different ground vibration-velocity levels.

Table 3.13-2 Human Response to Different Levels of Ground Noise and Vibration

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

Note: VdB = vibration decibels referenced to 1 µ inch/second and based on the root mean square (RMS) velocity amplitude.

Source: FTA 2018: 120.

The Federal Transit Administration (FTA) Division of Environmental Analysis developed the *Transit Noise and Vibration Impact Assessment Manual*, which provides guidance to engineers, planners, and consultants in assessing vibration from construction, operation, and maintenance of projects. To address the human response to ground vibration, the FTA has set forth guidelines for maximum-acceptable vibration criteria for different types of land uses. These guidelines are presented below in Table 3.13-3. In addition, FTA has also established construction vibration damage criteria, shown below in Table 3.13-4.

Table 3.13-3 Ground-Borne Vibration Impact Criteria for General Assessment for Human Response

Land Use Category	Ground-Borne Vibration Impact Levels for Human Response (VdB re 1 microinch/second) Frequent Events[1]	Ground-Borne Vibration Impact Levels for Human Response (VdB re 1 microinch/second) Occasional Events[2]	Ground-Borne Vibration Impact Levels for Human Response (VdB re 1 microinch/second) Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations.	65[4]	65[4]	65[4]
Category 2: Residences and buildings where people normally sleep.	72	75	80
Category 3: Institutional land uses with primarily daytime uses.	75	78	83

Note: VdB re 1 microinch/second = vibration decibels referenced to 1 microinch/second and based on the root mean square (RMS) velocity amplitude.

[1] "Frequent Events" is defined as more than 70 vibration events of the same source per day.

[2] "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.

[3] "Infrequent Events" is defined as fewer than 30 vibration events of the same source per day.

[4] This criterion is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes. Vibration-sensitive manufacturing or research would require detailed evaluation to define acceptable vibration levels.

Source: FTA 2018: 123–126.

Table 3.13-4 FTA Construction Damage Vibration Criteria

Land Use Category	PPV (in/sec)
Reinforced-concrete, steel, or timber (no plaster)	0.5
Engineered concrete and masonry (no plaster)	0.3
Nonengineered timber and masonry buildings	0.2
Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2018.

EXISTING NOISE ENVIRONMENT

Existing Noise- and Vibration-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels and because of the potential for nighttime noise to result in sleep disruption. Additional land uses, such as schools, transient lodging, recreational parks, historic sites, cemeteries, and places of worship, are also generally considered sensitive to increases in noise levels. These land use types are also considered vibration-sensitive land uses, as are commercial and industrial buildings where vibration would interfere with operations within the building.

PG&E Lockeford Substation

The nearest noise-sensitive receptor to the existing PG&E Lockeford Substation is the residence at 12752 East Kettleman Lane, approximately 440 feet southeast of the center of where construction activities would occur. The PG&E Lockeford Substation would include a new battery enclosure and control enclosure located on the northern side of the substation site, 750 feet north of the residence at 12752 East Kettleman Lane. Regarding vibrations, where the attenuation distance is measured from the edge of the project site to the property boundary, construction activities at the PG&E Lockeford Substation would occur approximately 140 feet northeast of the property boundary.

PG&E 230 kV Transmission Line

The nearest noise-sensitive receptor to the proposed PG&E 230 kV transmission line is the residence at 12752 East Kettleman Lane, approximately 80 feet southeast of the transmission line where proposed construction activities would occur. In addition, the Lodi Memorial Park and Cemetery, which are considered sensitive receptors during the daytime (when visitors expect a quiet environment) per San Joaquin County noise standards (San Joaquin County 2016: Table PHS-1), are located 125 feet northeast of the proposed transmission line corridor. Near the PG&E Lockeford Substation, installation of a guard structure netting over State Route (SR) 88 would be required. These activities could occur within 250 feet of the single-family home located at 12411 N Hwy 88.

PG&E Thurman Switching Station, PG&E 12 kV Extension, LEU Guild Substation, and LEU Industrial Substation

The nearest noise-sensitive receptors to the proposed LEU Guild Substation and PG&E Thurman Switching Station are the Lodi Memorial Park and Cemetery, which is located 600 feet northeast of the center of where construction activities would occur. Lodi Memorial Park and Cemetery is only considered a sensitive receptor during the daytime when visitors expect a quiet environment. The nearest residential noise-sensitive receptor (at which nighttime noise is considered) is the residence at 16141 Curry Avenue, approximately 2,320 feet east of the center of construction activities for the PG&E Thurman Switching Station, PG&E 12 kV extension, LEU Guild Substation, and LEU Industrial Substation. Following construction, the PG&E Thurman Switching Station would include a new battery enclosure and control enclosure on the northern side of the project site, 1,680 feet east of the nearest sensitive receptor: the residence at 6195 East Sargent Road. Regarding vibrations, construction activities at the PG&E Thurman Switching Station, PG&E 12 kV extension, LEU Guild Substation, and LEU Industrial Substation would occur approximately 200 feet southwest of the Lodi Memorial Park and Cemetery.

Table 3.13-5 below identifies sensitive receptors in the project area that would be located near extended (operational) noise-generating activities or work outside the typical daytime construction hours. Figures 3.13-1 and 3.13-2 show the locations of these sensitive receptors. In this section (and as identified in Table 3.13-5), the residence at 12752 East Kettleman Lane will be referred as SR1; the residence at 16141 Curry Avenue will be referred to as SR2; Lodi Memorial Park and Cemetery will be referred to as SR3; the residence at 6195 East Sargent Road will be referred to as SR4; and the residence at 12411 N Hwy 88 is referred to as SR5.[1]

Table 3.13-5 Sensitive Receptors Near Proposed Activities that Would Experience Operational or Nighttime Noise in the Project Area

Receptor	Receptor ID	Daytime Construction Location Near Sensitive Receptor	Distance to SR (feet)	Nighttime Construction Location Near Sensitive Receptor	Distance to SR (feet)	Operational Noise Sources Near Sensitive Receptor	Distance to SR (feet)
Residence at 12752 East Kettleman Lane	SR1	PG&E Lockeford Substation	440	PG&E Lockeford Substation	440	PG&E Lockeford battery enclosure	750
		PG&E 230 kV transmission line	80	NA	NA	NA	NA
Residence at 16141 Curry Avenue	SR2	PG&E Thurman Switching Station, PG&E 12 kV extension, LEU Guild Substation, and LEU Industrial Substation	2,320	PG&E Thurman Switching Station, PG&E 12 kV extension, LEU Guild Substation, and LEU Industrial Substation	2,320	NA	NA
Lodi Memorial Park and Cemetery	SR3	PG&E 230 kV transmission line	125	NA	NA	LEU Guild Substation transformer	900
		PG&E Thurman Switching Station, PG&E 12 kV extension, LEU Guild Substation, and LEU Industrial Substation	600	NA	NA	LEU Guild Substation HVAC unit	850
Residence at 6195 East Sargent Road	SR4	NA	NA	NA	NA	PG&E Thurman Switching Station enclosures	1,680
Residence at 12411 N SR 88	SR5	NA	NA	Installation of guard netting	250	NA	NA

Notes: SR= sensitive receptor; NA= not applicable; kV = kilovolt; HVAC = heating, ventilation, and air conditioning.

NA indicates that a sensitive receptor would not be subject to noise from the loudest activities because of distance or, in the case of the Lodi Memorial Park and Cemetery because receptors would not be present at night.

Source: Compiled by Ascent in 2024.

Airports and Airstrips

The *San Joaquin County Airport Land Use Compatibility Plan* (San Joaquin County 2018) identifies three public airports near Lodi: (1) Lodi Airpark, which is located approximately 4.3 miles southwest of the 230 kV alignment; (2) Lodi Airport, which is located approximately 5.0 miles northwest of LEU Industrial Substation; and (3) Kingdon Airpark, which is located approximately 6.3 miles southwest of LEU Industrial Substation. The project area is not within the land use compatibility zones of these airports. In addition to the public airports, there is a private airstrip, Wallom Field, located approximately 2.75 miles south of the 230 kV alignment. There are no land use plans associated with Wallom Field. There are no active public airports or private airstrips within 2 miles of the project area (see Figure 3.10-1 in Section 3.10, "Hazards and Hazardous Materials").

[1] Although the condition of the residence at 12411 N SE 88 indicates that it is likely uninhabited as of September 2024, this location has been used in modeling because it is the nearest residence to the proposed construction work. Residents could be present in the future when netting is installed. This is more conservative than modeling based on the sensitive receptor at 14051 N SR 88, which is setback approximately 500 feet from the highway and has a garage blocking direct line of sight between the potential nighttime activities on SR 88 and the receptor.

Existing Noise Survey and Ambient Levels

To characterize the existing ambient noise environment at the project site, short-term (10-minute durations) ambient noise level measurements were conducted at four locations in the project area close to nearby sensitive receptors in proximity to the proposed substation and switching station (where noise-generating activities would be concentrated and occur for the longest duration) on October 15 and October 16, 2019, for the day, evening, and nighttime hours. The locations of the noise monitoring sites are shown in Figure 3.13-3. American National Standards Institute (ANSI) S1.4 type 1 sound level meter (Larson Davis Model 831) was used for the ambient noise level measurement surveys. The meters were calibrated before use with Larson Davis Laboratories Model CAL200 acoustical calibrators to ensure measurement accuracy. The measurement equipment meets all pertinent specifications of ANSI. These results show typical reference noise levels of industrial areas that are surrounded by roadways and associated traffic. For example, MP02 would be expected to have the lowest CNEL as the measurement was taken in a field, furthest away from traffic locations, whereas MP04 would be expected to have the loudest CNEL because it was taken on Beckman Road. The primary noise sources at MP02 and MP03 are Pine Street and the existing LEU Industrial Substation. The results of the ambient noise measurement survey are summarized in Table 3.13-6.

Table 3.13-6 Ambient Noise Measurements

Measurement Location	Daytime (1:30 p.m. to 3:00 p.m.) Noise Level L_{eq} (dBA)	Evening (6:30 p.m. to 8:00 p.m.) Noise Level L_{eq} (dBA)	Nighttime (12:00 a.m. to 1:30 a.m.) Noise Level L_{eq} (dBA)	Overall CNEL (dBA)
MP01	66	60	54	65
MP02	48	45	42	50
MP03	64	57	56	65
MP04	74	71	67	76

Notes: dBA = A-weighted decibels, CNEL = community noise equivalent level; L_{eq} = noise equivalence level.

Source: Jacobs Engineering Group 2023.

3.13.2 Regulatory Setting

FEDERAL

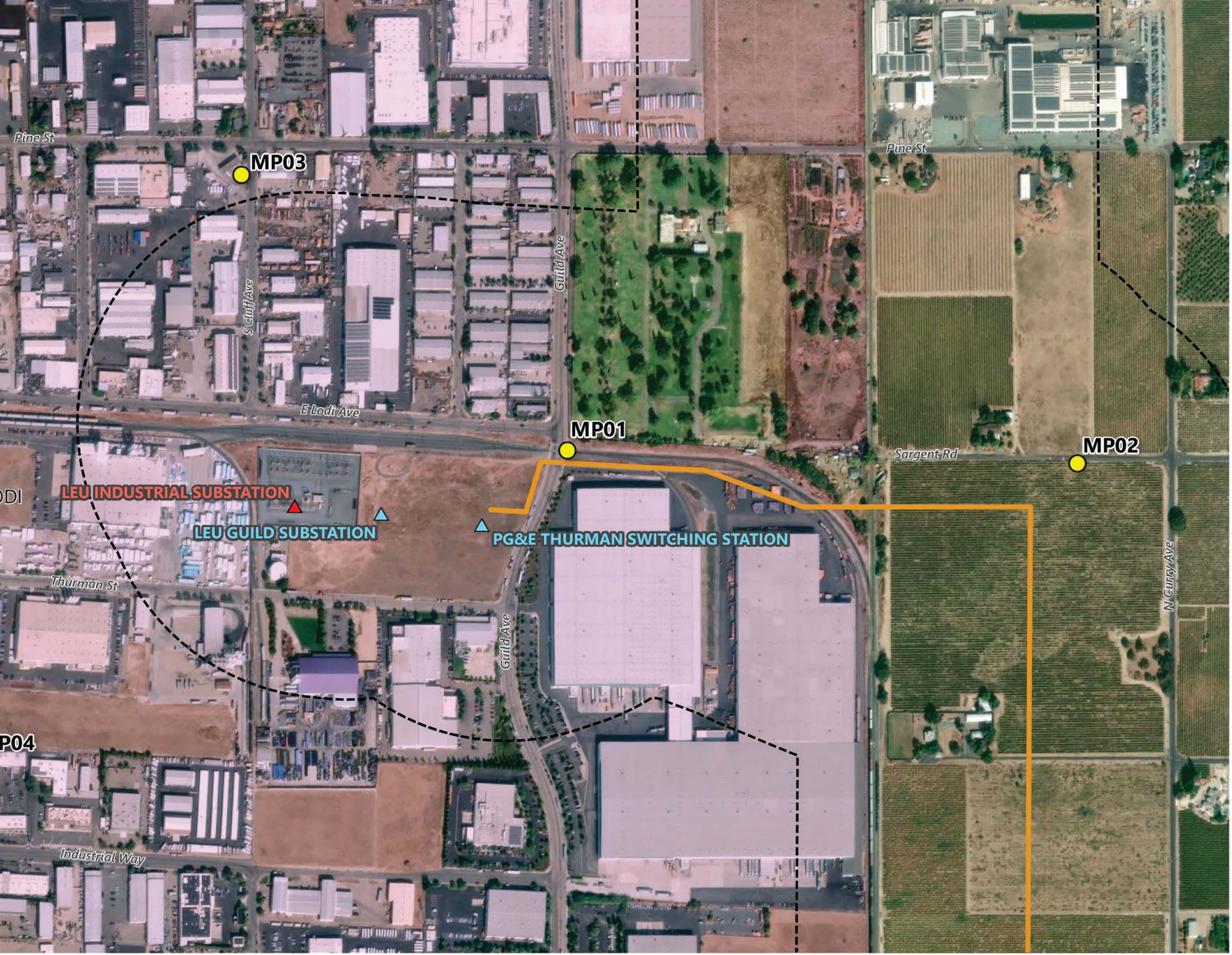
No federal plans, policies, regulations, or laws are applicable to the evaluation of noise associated with the project.

STATE

No state plans, policies, regulations, or laws are applicable to the evaluation of noise associated with the project.


Pine St
Pine St
S Cluff Ave
Guild Ave
SR3 Lodi Memorial Park and Cemetery
E Lodi Ave
SR4 East Sergent Residence
LEU Control and Battery Enclosures
Sargent Rd
LEU INDUSTRIAL SUBSTATION
LEU GUILD SUBSTATION
PG&E THURMAN SWITCHING STATION
Thurman St
Guild Ave
N Curry Ave
SR2 East Realty Residence
Industrial Way


PG&E Lockeford
Control Enclosure
PG&E LOCKEFORD SUBSTATION
Kettleman Ln
SR1 East Kettleman Residence
88
ttime Netting
ture Installation
0
1 in =
Esri W
1901


Pine St
MP03
S Cluff Ave
Guild Ave
E Lodi Ave
MP01
Pine St
MP02
Sargent Rd
LEU INDUSTRIAL SUBSTATION
LEU GUILD SUBSTATION
PG&E THURMAN SWITCHING STATION
Thurman St
Guild Ave
N Curry Ave
P04
Industrial Way

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (city and county) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Because LEU is not subject to CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

The section below summarizes policies and regulations of these jurisdictions as they pertain to noise in the project area.

San Joaquin County

San Joaquin County 2035 General Plan

The Public Health and Safety Element of the San Joaquin County 2035 General Plan provides goals, policies, and implementation programs to minimize exposure to excessive noise sources that may cause undue stress or annoyance. The Public Health and Safety Element includes an analysis of major noise sources in the county and noise contours along major traffic corridors (San Joaquin County 2016). The Public Health and Safety Element also sets noise standards to prevent new noise conflicts by addressing the needs of noise-sensitive land uses, establishing noise-reducing project design features, and establishing appropriate noise-emission standards.

Noise Level Standards

General Plan Table PHS-1 (Table 3.13-7 of this section) summarizes the noise level standards for noise-sensitive uses (e.g., residential development, lodging, hospitals, nursing homes, schools, day care centers) at outdoor activity areas affected by non-transportation noise sources in the county. General Plan Table PHS-2 (Table 3.13-7 of this section) presents the noise and land use compatibility standards for various land uses. In addition to these standards, the policies in this section address ways to reduce or eliminate existing and future noise conflicts between land uses.

Table 3.13-7 Non-Transportation Noise Level Performance Standards for Noise-Sensitive Uses at Outdoor Activity Areas[1]

Noise Level Descriptor	Daytime[2] (7:00 a.m.–10:00 p.m.)	Nighttime[2] (10:00 p.m.–7:00 a.m.)
Hourly L_{eq} dB	50	45
Maximum Level dB	70	65

Notes: These standards apply to new or existing residential areas affected by new or existing non-transportation sources. L_{eq} = equivalent continuous sound level; dB =decibels.

[1] Where the location of outdoor activity areas is unknown or not applicable, the noise standard shall be applied at the property line of the receiving land use. When determining the effectiveness of noise mitigation measures, the standards shall be applied on the receiving side of noise barriers or other property line noise mitigation measures.

[2] Each of the noise level standards specified shall be reduced by 5 dB for impulsive noise, single tone noise, or noise consisting of primarily of speech or music.

Source: San Joaquin County 2016.

San Joaquin County 2035 General Plan Policies

- **Policy PHS-9.1: Noise Standards for New Land Uses.** The County shall require new development to comply with the noise standards through proper site and building design, such as building orientation, setbacks, barriers, and building construction practices.
- **Policy PHS-9.4: Acceptable Vibration Levels.** The County shall require construction projects anticipated to generate a significant amount of vibration to ensure acceptable interior vibration levels at nearby vibration-sensitive uses based on FTA criteria.
- **Policy PHS-9.6: Enforcement of State and Federal Noise Regulations.** The County shall continue to enforce State and Federal noise laws regarding vehicle operation, equipment, and building insulation.

- **Policy PHS-9.7: Require Acoustical Study.** The County shall require a project applicant to prepare an acoustical study for any proposed new residential or other noise-sensitive development when the County determines the proposed development may expose people to noise levels exceeding acceptable General Plan noise levels.
- **Policy PHS-9.9: Noise Exemptions.** The County shall support the exemption of the following noise sources from the standards in this section:
  - Emergency warning devices and equipment operated in conjunction with emergency situations, such as sirens and generators which are activated during power outages. The routine testing of such warning devices and equipment shall also be exempt provided such testing occurs during the hours of 7:00 a.m. to 10:00 p.m.
  - Activities at schools, parks, or playgrounds, provided such activities occur during daytime hours.
  - Activities associated with County-permitted temporary events and festivals.

San Joaquin County Code of Ordinances

The noise ordinance for San Joaquin County is established by the County Code of Ordinances (San Joaquin County 2022). Section 9-1025.9 establishes noise limits for transportation and stationary noise sources aligning with those included in the General Plan (Table 3.13-7). Operational noise is subject to Section 9-1025.9M, and operational vibrations are Subject to section 9-407.060, and construction noise is subject to Section 9-404.

Section 9-404.020: Exemptions

- **(c) Construction**. Noise associated with construction, provided such activities do not take place before 6:00 a.m. or after 9:00 p.m. on any day.
- **(i) Public Works Construction Projects, Maintenance, and Repair**. Street, utility, and similar construction projects, or the maintenance or repair thereof, undertaken by, under contract to, or at the direction of the County, the State of California, or a public utility. These activities include street sweeping, debris and litter removal, removal of downed wires, restoring electrical service, repairing traffic signals, unplugging sewers, vacuuming catch basins, repairing of damaged poles, removal of abandoned vehicles, and repairing of water hydrants, watermains, gas lines, oil lines, sewers, storm drains, roads, and sidewalks.
- **(j) Utility Facilities**. Facilities for utilities including, without limitation, electric power transformers and related equipment, sewer lift stations, wastewater processing, wells, and pumping stations.

Section 9-404.060: Additional Regulations for Specific Activities

- **(a) Construction.** General construction noise shall be limited to weekdays from 6:00 a.m. to 9:00 p.m. Pre-construction activities, including loading and unloading, deliveries, truck idling, backup beeps, and radios, also are limited to these construction noise hours.
  - (1) No noise-producing construction activities shall be permitted outside of these hours or on Sundays and federal holidays unless a temporary waiver is granted by the Building Official.
  - (4) Except in emergencies, no construction shall be permitted outside of these hours, including maintenance work on public rights-of-way, that creates construction noise.

Section 9-1025.9M

- **(a) Standards for Commercial and Industrial Uses.** For new commercial uses, industrial uses or utilities, the exterior, non-transportation noise level performance standards specified in Table 9-1025.9M (Table 3.13-7 of this section) shall be applicable.

Section 9-407.060

- **(a) Perceptible Vibration.** No use shall cause any perceptible vibration at any lot line abutting any zone except within an I-G zone.
- **(b) Vibration Within the General Industrial Zone.** Vibration along any lot line within an I-G Zone (General Industrial Zones) shall not exceed the levels for vibration displacement set forth in Table 9-407.060 [Table 3.13-8

of this section]. Vibration displacement shall be measured by a seismograph or other instrument capable of measuring and recording displacement and frequency, particle velocity, or acceleration. Readings shall be made at points of maximum vibration along any lot line within an I-G Zone.

- (c) Exceptions. The limits of this Section shall not apply to the construction or demolition of structures or infrastructure or to vibration caused by motor vehicles or trains.

Table 3.13-8 Maximum Vibration Displacement Levels

Frequency (cycles per second)	Steady State (inches)	Impact (inches)
10 and below	0.0010	0.0020
10–20	0.0008	0.0016
20–30	0.0007	0.0014
30–40	0.0003	0.0006
40–50	0.0002	0.0004
50–60	0.0001	0.0002
60 and over	0.0001	0.0002

Source: San Joaquin County 2022.

City of Lodi

City of Lodi General Plan

The City of Lodi General Plan governs the city's actions relating to the long-term physical and economic development of Lodi and provides strategies and actions to meet the envisioned development (City of Lodi 2010). The Noise Element in the General Plan identifies the noise sources that exist within the city, describes noise impacts that may result from the General Plan, and establishes policies to mitigate potential impacts through both preventative and responsive actions (City of Lodi 2010). The City of Lodi General Plan Noise Element describes policies to meet the state and local noise exposure standards. The following policies pertain to this project.

City of Lodi General Plan Policies

- Policy N-G1: Protect humans, the natural environment, and property from manmade hazards due to excessive noise exposure.
- Policy N-G2: Protect sensitive uses, including schools, hospitals, and senior care facilities, from excessive noise.
- Policy N-P1: Control and mitigate noise at the source where feasible, as opposed to at the receptor end.
- Policy N-P2: Encourage the control of noise through site design, building design, landscaping, hours of operation, and other techniques for new development deemed to be noise generators.
- Policy N-P5: Noise sensitive uses, such as residences, hospitals, schools, libraries, and rest homes, proposed in areas that have noise exposure levels of "conditionally acceptable" and higher must complete an acoustical study, prepared by a professional acoustic engineer. This study should specify the appropriate noise mitigation features to be included in the design and construction of these uses, to achieve interior noise levels consistent with noise exposure standards [Table 3.13-9].
- Policy N-P14: Reduce vibration impacts on noise-sensitive land uses (such as residences, hospitals, schools, libraries, and rest homes) adjacent to the railroad, SR 99, expressways, and near noise generating industrial uses. This may be achieved through site planning, setbacks, and vibration-reduction construction methods such as insulation, soundproofing, staggered studs, double drywall layers, and double walls.

Table 3.13-9 City of Lodi—Allowable Noise Exposure, Outdoor and Interior

Land Use	Outdoor Activity Area (CNEL)	Interior Areas (CNEL)
Residential	60	45
Administrative office	60	45
Childcare services–childcare centers	65	45
Community assembly	65	50
Cultural and library services	65	50
Educational services: General	70	65

Note: CNEL = community noise equivalent level.

Source: City of Lodi 2010.

City of Lodi Municipal Code

The noise ordinance for the City of Lodi is established by the City of Lodi Code of Ordinances (City of Lodi 2021). Sections 9.24 and 17.14 establish noise regulations for operational and construction noise sources aligning with those included in the city's General Plan (Table 3.13-9).

Section 9.24.020: Public Nuisance Noise

The following special noise restrictions are established without regard to their sound level impact and may be enforced without the prerequisite of a sound level measurement.

A. General Noise Regulations. Notwithstanding any other provision of this chapter, and in addition thereto, it is unlawful for any persons to willfully make or continue or permit or cause to be made or continued, any loud, unnecessary or unusual noise which unreasonably disturbs the peace and quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal noise sensitivity.

B. The standards which shall be considered in determining whether a violation of the provision of this section exists shall include, but not be limited to, the following:

    1. The volume of the noise;
    2. The intensity of the noise;
    3. Whether the nature of the noise is usual or unusual for the area and hour;
    4. Whether the origin of the noise is natural or unnatural;
    5. The volume and intensity of the background noise, if any;
    6. The proximity of the noise to residential sleeping facilities;
    7. The nature and the zoning of the area within which the noise emanates;
    8. The density of the inhabitation of the area within which the noise emanates;
    9. The time of day or night the noise occurs;
    10. The duration of the noise;
    11. Whether the noise is produced by a commercial or noncommercial activity.

Section 9.24.030: Excessive, Offensive, or Disturbing Noise

C. It is unlawful for any person, firm or corporation to cause, permit, or generate any noise or sound as described herein between the hours of ten p.m. and seven a.m. which exceeds the ambient noise level at the property line of any residential property (or, if a condominium or apartment house within any adjoining apartment) as determined at the time of such reading by more than five decibels. This section shall be applicable whether such noise or sound is of a commercial or noncommercial nature.

Section 17.14.040: General Performance Standards
All land uses activities, and processes shall be operated and maintained so as to not be injurious to public health, safety or welfare, and to comply with the following standards:

C. Ground Vibration. No ground vibration shall be generated that is perceptible without instruments by a reasonable person at the property lines of the site, except for motor vehicle operations.

F. Noise. No use, activity, or process shall exceed the maximum allowable noise standards identified by the General Plan.

3.13.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

This noise analysis uses local noise standards as thresholds for determination of significance for both the PG&E and LEU portions of the project. Separate noise standards are applied to the portions of the project within unincorporated San Joaquin County and Lodi. Regarding vibration, the City of Lodi does not specify vibration standards. For the purpose of this analysis, FTA and the county's vibration standards are applied to all elements of the project.

Construction Noise and Vibration

To assess potential short-term (construction-related) noise and vibration impacts, sensitive receptors and their relative exposure were identified. Project-generated construction source noise and vibration levels were determined based on methodologies, reference emission levels, and usage factors from FTA's *Guide on Transit Noise and Vibration Impact Assessment* methodology (FTA 2018) and FHWA's *Roadway Construction Noise Model User's Guide* (FHWA 2006). Reference levels for noise and vibration emissions for specific equipment or activity types are well documented and the usage thereof common practice in the field of acoustics. FTA guidance states that to assess the potential damage effect from construction vibrations, each piece of equipment should be evaluated separately. Thus, for this analysis, the equipment that would produce the most vibrations (vibratory roller) was evaluated (FTA 2018).

Because the city does not have specific vibration thresholds, county thresholds are used for this analysis. For construction noise, the center of construction to the sensitive receptor property boundary was measured and used as the attenuation distance, consistent with FTA methodology. The noise modeling conducted for this project analyzed the loudest noise-generating activities at nearby sensitive receptors. For construction vibration, the edge of the construction boundary to the sensitive receptor was measured and used as the attenuation distance.

The PG&E portions of the proposed project located in San Joaquin County are exempt from noise standards pursuant to Code of Ordinances Section 9-404.020 (c), which pertains to daytime construction activities, Section 9-404.020(i), which wholly exempts utility construction projects undertaken at the direction of the State of California (e.g., CPUC), and Section 9-404.020(j), which wholly exempts utility facilities.

Operational Noise and Vibration

With respect to non-transportation noise sources (e.g., stationary) associated with project implementation, the assessment of long-term (operational-related) impacts was based on reconnaissance data, reference noise emission levels (i.e., typical vibrations from project components), and measured noise levels for activities and equipment associated with project operation (e.g., heating, ventilation, and air conditioning [HVAC] units and transformers), and standard attenuation rates and modeling techniques. Because the city does not have specific vibration thresholds, county thresholds are used for this analysis.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant-proposed measures (APMs) that are incorporated into PG&E's components of the proposed project. Similarly, LEU has developed best management practices (BMPs) that would apply to the LEU components of the proposed project. The project includes the following APMs and BMPs related to noise.

PG&E APMs

APM NOI-1: PG&E General Construction Noise Management

PG&E will employ the following standard noise-reducing construction practices:

- Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition.
- Turn off construction equipment when not in use, where applicable.
- Locate stationary equipment, construction staging areas, helicopter landing zones, and construction material areas as far as practical from sensitive receptors.
- Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise.
- PG&E will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, and access roads, and within approximately 1,000 feet of helicopter landing zones. PG&E also will post notices in public areas, including recreational use areas, within approximately 500 feet of the project alignment and construction work areas. The announcement will state approximately where and when construction will occur in the area, including areas of helicopter construction. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. PG&E will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. PG&E also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the PG&E public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. PG&E will respond to questions or concerns received.

APM NOI-2: PG&E Noise Minimization with Portable Barriers

Compressors and other small stationary equipment used during construction of PG&E project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.

APM NOI-3: PG&E Noise Minimization with Quiet Equipment

Quiet equipment will be used during construction of PG&E project components whenever possible (for example, equipment that incorporates noise-control elements into the design, such as quiet model compressors or generators, can be specified).

APM NOI-4: PG&E Noise Minimization through Direction of Exhaust

When in proximity to noise-sensitive uses, PG&E equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.

APM NOI-5: PG&E Noise Disruption Minimization through Residential Notification

In the event that nighttime construction is necessary for PG&E project components– for instance, if certain activities such as line splicing or [horizontal directional drilling] HDD in certain soil conditions need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.

APM NOI-6: PG&E Horizontal Directional Drilling Noise Minimization Measures

Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. HDD activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and the integrity of the

project. If nighttime HDD activities are required, the project will monitor actual noise levels from the HDD activities between 10:00 p.m. and 7:00 a.m. If the nighttime noise levels created by the HDD operation result in outreach to PG&E public liaison officer and are in excess of the ambient noise level by approximately 5 dBA at the nearest residential property plane, PG&E will, within 24 hours of the excess measurement, employ additional minimization measures to the greatest extent practicable. Such measures may include ensuring that semipermanent stationary equipment (for example, generators) is stationed as far from sensitive areas as practicable, using sound-attenuated "quiet" or "Hollywood/Movie Studio" silencing packages, or modifying barriers to further reduce noise levels.

APM NOI-7: PG&E Noise Minimization Equipment Specification

PG&E will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.

LEU BMPs

BMP NOI-1: LEU General Construction Noise Management

LEU will employ the following standard noise-reducing construction practices:

- Comply with manufacturer's muffler requirements on all construction equipment engines and ensure exhaust mufflers are in good condition.
- Turn off construction equipment when not in use, where applicable.
- Locate stationary equipment, construction staging areas, and construction material areas as far as practical from sensitive receptors.
- Include noise control requirements for construction equipment and tools in specifications provided to construction contractors to the maximum extent practicable, including performing all work in a manner that minimizes noise.
- LEU will provide written notice at least 1 week prior to planned construction activities to all sensitive receptors and residences within approximately 500 feet of construction sites, staging yards, and access roads. LEU will post notices in public areas, including recreational use areas, within approximately 500 feet of the construction work areas. The announcement will state approximately where and when construction will occur in the area. Notices will provide tips on reducing noise intrusion – for example, by closing windows facing the planned construction. LEU will identify a public liaison to respond to concerns of neighboring receptors during construction, including residents, about construction noise disturbance. LEU also will establish a toll-free telephone number for receiving questions or concerns during construction and develop procedures for responding to callers. Contact information for reaching the LEU public liaison officer by telephone or in person will be included in the notices and also posted conspicuously at the construction sites. LEU will respond to questions or concerns received.

BMP NOI-2: LEU Noise Minimization with Portable Barriers

Compressors and other small stationary equipment used during construction of LEU project components will be shielded with portable barriers if appropriate and if located within approximately 200 feet of a residence.

BMP NOI-3: LEU Noise Minimization with Quiet Equipment

Quiet equipment will be used during construction of LEU project components whenever possible (for example, equipment that incorporates noise-control elements into the design, such as quiet model compressors or generators, can be specified).

BMP NOI-4: LEU Noise Minimization through Direction of Exhaust

When in proximity to noise-sensitive uses, LEU equipment exhaust stacks and vents will be directed away from those noise-sensitive uses where feasible.

BMP NOI-5: LEU Noise Disruption Minimization through Residential Notification

In the event that nighttime construction is necessary for LEU project components – for instance, if certain activities such as HDD in certain soil conditions need to continue to completion – affected residents will be notified in advance by mail, personal visit, or door-hanger, and will be informed of the expected work schedule.

BMP NOI-6: LEU Horizontal Directional Drilling Noise Minimization Measures

Temporary barriers utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials will be used to reduce noise generated by the auger bore operations. HDD activities will be limited to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and the integrity of the project. If nighttime HDD activities are required, the project will monitor actual noise levels from HDD activities between 10:00 p.m. and 7:00 a.m. If the nighttime noise levels created by HDD operation result in outreach to LEU public liaison officer and are in excess of the ambient noise level by approximately 5 dBA at the nearest residential property plane, LEU will, within 24 hours of the excess measurement, employ additional minimization measures to the extent practicable. Such measures may include ensuring that semi-permanent stationary equipment (for example, generators) is stationed as far from sensitive areas as practicable, using sound-attenuated "quiet" or "Hollywood/Movie Studio" silencing packages, or modifying barriers to further reduce noise levels.

BMP NOI-7: LEU Noise Minimization Equipment Specification

LEU will specify general construction noise reduction measures that require the contractor to ensure that all equipment is in good working order, adequately muffled, and maintained in accordance with the manufacturers' recommendations.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts on biological resources under CEQA are based on Appendix G of the State CEQA Guidelines and *CPUC's Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. A noise impact would be considered significant if implementation of the project would:

- result in exposure of persons to or generation of substantial temporary or permanent increase in ambient noise or vibration levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies;
    - for components located within the county:
        - any nonexempt construction-generated noise occurring outside of the county's acceptable construction hours of 6:00 a.m. to 9:00 p.m. that exceeds the county's nighttime exterior noise level of 45 dBA L_{eq} at residential land uses;
        - long-term operational noise levels generated by stationary or area sources that exceed the County Noise Control Ordinance standards of 50 dBA L_{eq} or 70 dBA L_{max} during the daytime (7:00 a.m. to 10:00 p.m.) or 45 dBA L_{eq} or 65 dBA L_{max} during the nighttime (10:00 p.m. to 7:00 a.m.) at nearby existing noise-sensitive land uses;
        - result in construction-generated vibration levels exceeding Caltrans's recommended standards with respect to the prevention of structural building damage (0.2 and 0.08 in/sec PPV for normal and historical buildings, respectively) or FTA's maximum-acceptable-vibration standard with respect to human response (80 VdB for residential uses) at nearby existing vibration-sensitive land uses, or exceeding the county's threshold of displacement of 0.007 inches for pieces of equipment with a frequency of 20–30 cycles per second or 0.0003 for pieces of equipment with a frequency of 30–40 cycles per second; or

- for components located within the city:
  - any construction-generated noise occurring outside of the city's acceptable construction hours of 7:00 a.m. to 10:00 p.m. that exceeds the county's nighttime exterior noise level of 45 dBA L_{eq} (San Joaquin County's nighttime noise level standards are applicable for construction noise in lieu of the City of Lodi having adopted hourly noise level standards);
  - long-term operational noise levels generated by stationary or area sources that exceed City Noise Control Ordinance standards of 60 CNEL or 45 dBA L_{eq} nighttime threshold at nearby existing residential land uses;
  - result in construction-generated vibration levels exceeding Caltrans's recommended standards with respect to the prevention of structural building damage (0.2 and 0.08 in/sec PPV for normal and historical buildings, respectively) or FTA's maximum-acceptable-vibration standard with respect to human response (80 VdB for residential uses) at nearby existing vibration-sensitive land uses, or exceeding the county's threshold of displacement of 0.007 inches for pieces of equipment with a frequency of 20–30 cycles per second or 0.0003 for pieces of equipment with a frequency of 30–40 cycles per second; or
- for any project component located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; or for a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

ISSUES NOT DISCUSSED FURTHER

Airport Noise

The project site is not located within an airport land use plan or within 2 miles of any public airport; therefore, the project would not expose people residing or working in the project area to excessive noise levels due to proximity to an airport. This impact is not evaluated further.

PG&E Remote-End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system-protection scheme. Work at PG&E's remote-end substations and repeater station would occur within the existing facility fence lines and would generate noise levels consistent with other regular station O&M activities. Therefore, remote-end PG&E project components would not result in exposure of persons to or generation of temporary or permanent noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. In addition, the remote-end facilities are not located within an airport land use plan or within 2 miles of any public airport; therefore, the project would not expose people working at the remote-end facilities to excessive noise levels due to proximity to an airport. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact NOI-1: Expose Persons to or Generate Temporary or Permanent Noise Levels in Excess of Established Standards

PG&E Project Components

Construction Activities

Construction is a temporary noise-generating activity, and noise from construction ceases once the construction period is complete. Construction noise levels vary from hour to hour and day to day, depending on the equipment in use, the operations being performed, and the distance between the noise source and receiver.

As mentioned above in Section 3.13.2, "Regulatory Setting," in unincorporated San Joaquin County, construction noise is exempt from local land use and zoning regulations as long as construction activities only occur between 6:00 a.m. and 9:00 p.m. (San Joaquin County Code of Ordinances Section 9-404.202, Exemptions). Section 9.24.030 of the City of Lodi's Municipal Code exempts construction noise between 7:00 a.m. and 10:00 p.m., and Section 9-404.020 also exempts public works construction projects, maintenance, and repair. Construction would generally occur between 7:00 a.m. and 5:30 p.m., adhering to both the county's and the city's regulations. Occasionally, work may occur after 9:00 p.m. if required in permits issued by other agencies (e.g., Caltrans's encroachment permits).

Construction activities would occur at the PG&E Lockeford Substation, the PG&E Thurman Switching Station, and along the transmission lines. These construction activities would include general construction with off-highway trucks and street sweepers, equipment mobilization, clearing of the access roads, structure assembly, conductor and structure installation, restoration, site preparation, grading and paving, foundation excavation and installation, landscaping, and expanding the existing substations. The loudest activities at the nearest sensitive receptors to the PG&E Lockeford Substation, PG&E Thurman Switching Station, and the PG&E 12 kV extension line would be grading and paving, which could simultaneously use a concrete truck, a bulldozer, roller, and a grader and would occur during the daytime. The loudest activity at the nearest sensitive receptors to the PG&E 230 kV transmission line would be equipment mobilization, which would occur during the day and could simultaneously use a grader, dump truck, and crane. Table 3.13-10 summarizes the loudest construction activities at each location and attenuated noise levels to the nearest sensitive receptor (see Figures 3.13-1 and 3.13-2). Full modeling assumptions and results can be found in Appendix I.

Table 3.13-10 PG&E Daytime Construction Noise Levels

Location	Loudest Construction Work	Reference Noise Level at 50 ft (dBA L_{eq})	Nearest Receptor	Distance to Nearest Receptor	Attenuated Noise Level (dBA L_{eq})
PG&E Lockeford Substation	Grading and paving	86.5	SR1	440 feet	67.6
PG&E 230 kV transmission line	Mobilization	84.4	SR1	80 feet	80.4
PG&E Thurman Switching Station and PG&E 12 kV extension	Grading and paving	86.5	SR3	600 feet	64.9

Notes: ft = feet; L_{eq} = noise equivalence level; dBA = A-weighted decibels.

Source: Modeled by Ascent in 2024.

Helicopter Noise

Project construction would include the use of a light-duty helicopter (Hughes MD 500 or equivalent) for conductor stringing operations. PG&E expects the helicopter would be used on the project for approximately 5 hours a day for 50 days. Helicopter operations would be limited to daylight hours within 500 feet of residences. Helicopters would typically be staged and refueled at local airports including the Lodi Airpark, Lodi Airport, and Kingdon Airpark. Proposed temporary helicopter landing zones would be collocated with three staging areas, as shown in Appendix B (refer to pages 9, 15, and 25).

Light-duty helicopters typically result in noise of 71 to 81 dBA at 250 feet from the helicopter; noise exposure drops to 65 to 75 dBA at 500 feet (Jacobs Engineering Group 2023). Most helicopter noise (refueling, takeoff, and landing) is expected to occur at landing zones and would only operate near residences during daytime hours.

Nighttime Work

Typical construction hours would be 7:00 a.m. to 5:30 p.m. Occasionally, work could occur in the evening (after 5:30 p.m.) outside of the hours when construction activities are exempt from noise standards (i.e., between the hours of 9:00 p.m. and 7:00 a.m.). The activities that may extend beyond the typical workday are installing the guard netting structure over SR 88 where the 230 kV transmission line passes over SR 88 (if required by the conditions of the Caltrans encroachment permit), testing and commissioning the new 230 kV line to the PG&E Thurman Switching Station and PG&E Lockeford Substation, and trenching and HDD activities at the PG&E Thurman Station. However, these activities would qualify as public works construction projects, maintenance, and repair and would be exempt from noise level standards and thresholds pursuant to Section 9.404-020 of the San Joaquin County Development Code. The locations of these facilities relative to sensitive receptors are shown on Figures 3.13-1 and 3.13-2 and described further below.

- Installation of the guard netting on the guard structure across SR 88 would occur 250 feet southwest of SR5 and would include the use of one heavy-duty diesel bucket truck and one light-duty truck, such as a pickup truck adjacent to the highway, where vehicle noise occurs in the existing condition. Work would consist of attaching the netting to guard structures installed during daytime hours, would occur for a discrete period (3 to 4 hours), and would be substantially consistent with the noise environment at SR5 due to its location along SR 88.
- Testing, wiring, and commissioning the new 230 kV line would occur at the PG&E Lockeford Substation, 440 feet from SR1, and would include the use of a rigging truck, forklift, manlift, boom truck, pickup truck, flat-bed truck, dump truck, and air compressor. This work would typically occur during the day but may occur at night due to the limited period of time during which testing and commissioning can happen (i.e., the annual outage window of approximately November to March). No work would occur after 9:00 p.m. As illustrated in Figure 3.13-2, these activities would be located in the northwest corner of the existing substation, which is the farthest point from SR1. In addition, although any of the listed equipment could be associated with the testing, wiring, and commissioning process, all equipment may not be required at night, and these activities would be generally consistent with currently ongoing O&M activities at the existing substation.
- Trenching and HHD activities could occur at the PG&E Thurman Switching Station, 2,320 feet away from SR2, and would include the use of an auger drill rig, a man lift, and flatbed truck. Although SR3 is a closer sensitive receptor, the Lodi Memorial Park and Cemetery is not considered a sensitive receptor for the nighttime noise analysis because the area is not used or occupied at night in the same manner as a residential land use. Table 3.13-11 summarizes the nighttime noise levels to which the nearby receptors could be exposed. Pacific Coast Producers' warehouse on 650 South Guild Avenue fully blocks the line of sight between the PG&E Thurman Switching Station and SR2. Because the warehouse is a solid structure that would block the line of sight between construction noise and the receiver, the warehouse would effectively act as a sound wall. Given the complexities in determining the exact level of noise reduction from an existing building (e.g., building material, building openings, building orientation), a conservative assumption of 10 dBA reduction was applied, which is the level of noise reduction generally accepted as readily achievable from a solid sound wall (FHWA 2010). The noise levels in Table 3.13-11 consider the reduction from the intervening structures.

As shown in Table 3.13-11, noise levels from nighttime construction near the PG&E Lockeford Substation and along SR 88, if these occurred at night, would reach noise levels of 64.4 and 66.0 dBA L_{eq} at SR1 and SR5, respectively. These noise levels would be equivalent to noise levels between a gas lawn mower 100 feet away and heavy traffic 300 feet away (refer to Table 3.13-1). In addition, there is typically a 5–20 dBA L_{eq} reduction from interior to exterior noise levels if the windows are closed (FTA 2018: Table 4-35). Thus, the noise levels experienced at SR1 and SR5 would be 44.4–59.4 dBA L_{eq} and 46.0–61.0 dBA L_{eq}. These noise levels are closer to that the noise level experienced from a dishwasher running in the next room, as shown in Table 3.13-1.

Table 3.13-11 PG&E Nighttime Construction Noise Levels

Phase	Noise Level (dBA L_{eq}) at 50 feet	Nearest Receptor	Distance to Nearest Receptor (feet)	Exterior Noise Level (dBA L_{eq}) at Receptor	Interior Noise Level (dBA L_{eq}) at Receptor
PG&E Lockeford Substation[1]					
Testing, wiring, and commissioning	83.3	SR1	440	64.4	44.4–59.4
230 kV Transmission Line					
Guard netting installation	80.0	SR5	250	66.0	46.0–61.0
PG&E Thurman Switching Station					
Testing, wiring, and commissioning	83.3	SR2	2,320	40.0	35.0–20.0
Trenching and HDD	83.6	SR2	2,320	40.2	35.2–20.2

Notes: kV= kilovolts; HDD = horizontal directional drilling; L_{eq} = noise equivalence level; dBA = A-weighted decibels.

[1] Work at the Lockeford Substation may occur after 5:30 p.m. but would not occur after 9:00 p.m.

Source: Modeled by Ascent in 2024.

Operation and Maintenance

Long-term operational noise from the PG&E components of the project would include corona noise from the proposed PG&E 230 kV transmission line, operation of the control and battery enclosures at the PG&E Lockeford Substation and the PG&E Thurman Switching Station, and transmission line maintenance activities, which would include washing the insulators, minor substation maintenance, outage repairs, line repair, replacement, and reconductoring. Corona and electric field gradients cause audible noise from transmission lines and structures. Typically, only lines of 345 kV and above generate a noticeable amount of corona noise (CPUC 1999). Since the proposed transmission line would be 230 kV, noise generated levels during rain events, when corona noise is at its loudest, would reach approximately 25 dBA and would not generate noise exceeding the county's 45 dBA L_{eq} nighttime threshold.

The proposed changes to the PG&E Lockeford Substation and construction of the PG&E Thurman Switching Station include adding control and battery enclosures, which would generate noise during operations. The nearest sensitive receptor to the PG&E Lockeford Substation enclosures would be SR1, approximately 750 feet south of the enclosures. The nearest sensitive receptor to the PG&E Thurman Switching Station enclosures would be SR4, approximately 1,680 feet northeast of where the battery and control enclosures would be located. At 5 feet, the PG&E Lockeford Substation control enclosure and battery enclosure would generate noise levels of 79 dBA L_{eq} and 69 dBA L_{eq}, respectively (Jacobs Engineering Group 2023). At 5 feet, the PG&E Thurman Switching Station control enclosure and battery enclosure would generate noise levels of 74 dBA L_{eq} and 69 dBA L_{eq}, respectively. When attenuated to SR1, the loudest new stationary noise source would generate noise levels of 35.5 dBA L_{eq} and 42.2 CNEL and would be below the county's nighttime threshold of 45 dBA L_{eq} (for the Lockeford Substation) and the city's threshold of 60 CNEL (for the PG&E Thurman Switching Station). Table 3.13-12 provides a summary of expected noise levels from the proposed control and battery enclosures.

Maintenance activities at the PG&E facilities would include insulator washing and replacement; repair and replacement of transformers, switches, fuses, cutouts, meters, and insulators; and line repair, replacement, and reconductoring. Insulator washing and replacement would occur approximately every 5 years and include the use of a pumper truck or a helicopter to clean and replace the insulators. Typical minor maintenance tasks at substations include repair and replacement of transformers, switches, fuses, cutouts, meters, and insulators that would occur once per year and be confined to the substation property. Depending on the cause of the outage, repair may entail anything from reclosing a switch to replacing a transformer or pole. Each maintenance activity would occur over a short period of time, and none would generate substantial noise. Maintenance noise would also be exempt from noise standards through the county's Code of Ordinances Section 9-404.202(i), Public Works Construction Projects, Maintenance, and Repair.

Table 3.13-12 Battery and Control Enclosure Noise Levels

Equipment	Reference Noise Level at 5 feet (L_{eq})	Nearest Receptor	Distance to Nearest Receptor (feet)	Noise Level at Receptor dBA L_{eq}	Noise Level at Receptor dBA CNEL	Applicable Threshold[1]	Exceeds Threshold?
PG&E Lockeford Substation control enclosure	79	SR1	750	35.5	42.2	45 dBA L_{eq} 60 CNEL	NO
PG&E Lockeford Substation battery enclosure	69	SR1	750	25.5	32.2	45 dBA L_{eq} 60 CNEL	NO
PG&E Thurman Switching Station control enclosure	74	SR4	1,680	23.5	30.2	45 dBA L_{eq} 60 CNEL	NO
PG&E Thurman Switching Station battery enclosure	69	SR4	1,680	18.5	25.2	45 dBA L_{eq} 60 CNEL	NO

Notes: L_{eq} = noise equivalence level; dBA = A-weighted decibels; CNEL = community noise equivalent level.

[1] Applicable county threshold of 45 dBA nighttime L_{eq} and the city's threshold of 60 CNEL.

Source: Modeled by Ascent in 2024.

Implementation of APMs

APM NOI-1 would reduce construction noise by ensuring muffler equipment is in good condition and not creating unnecessary loud noise; turning off construction equipment when not in use; locating stationary equipment, staging areas, helicopter landing zones, and construction materials as far away from sensitive receptors as possible; and notifying residents of when construction activities would occur near them. With implementation of APM NOI-2, PG&E would install portable barriers within 200 feet of a residence to block construction noises from compressors and other small stationary equipment. APM NOI-3 would reduce construction noise by committing PG&E to using quiet equipment when possible. When in proximity to noise-sensitive uses, APM NOI-4 would direct exhaust stacks, vents, and noise away from sensitive receptors where feasible. APM NOI-5 would alert nearby sensitive receptors when nighttime construction activities could take place. In addition, APM NOI-6 would minimize the noise of the trenching and HDD by utilizing materials such as intermodal containers or frac tanks, plywood walls, mass-loaded vinyl (vinyl impregnated with metal), sound-absorbing blankets, hay bales, or similar materials to reduce noise generated by the auger bore operations. APM NOI-6 would also limit HDD activities to daylight hours unless a situation arises where ceasing the activity would compromise safety (both human health and environmental) and the integrity of the project. If nighttime HDD activities are required, actual noise levels from the HDD activities would be monitored between 10:00 p.m. and 7:00 a.m. Lastly, AMP NOI-7 would ensure the equipment is in working order, adequately muffed, and used in accordance with the manufacturers' recommendations. These APMs would be applied to all construction activities, including those that occur during exempt daytime hours and any limited equipment use associated with O&M activities.

As shown in Table 3.13-10, sensitive receptors would be subject to construction-generated noise levels up to 80.4 dBA L_{eq} under worst-case scenarios (i.e., when the loudest construction equipment types are used simultaneously at the project area boundary). However, construction activities occurring during daytime hours (6:00 a.m. to 9:00 p.m.) are exempt from city and county noise thresholds. Construction activities in the unincorporated county that take place outside of the county's acceptable construction hours of 6:00 a.m. to 9:00 p.m. would also be exempt from noise level standards and thresholds pursuant to Section 9.404-020 of the San Joaquin County Development Code. Implementation of APMs, which are not considered in the modeled noise levels reported, would reduce construction noise by establishing physical barriers and ensuring equipment is in proper operating condition. O&M activities would not introduce any substantial long-term noise sources that would exceed the county's threshold for long-term non-transportation noise sources of 50 dBA L_{eq} during daytime hours, 45 dBA L_{eq} during nighttime hours, or the city's threshold of 60 CNEL.

LEU Project Components

Construction Activities

Construction activities would occur at the existing LEU Industrial and the proposed LEU Guild Substations and along the transmission lines. These construction activities would include general construction with off-highway trucks and street sweepers, clearing of access roads and ROWs, structure assembly, conductor and structure installation, restoration, site preparation, grading and paving, foundation excavation and installation, landscaping, and expanding the existing substations. The loudest construction work for both the LEU Industrial Substation and the LEU Guild Substation would be the site preparation work, which would potentially use a bulldozer, dump truck, and roller simultaneously. As stated above, the nearest sensitive receptor to the LEU Industrial and Guild Substations would be SR3 located approximately 600 feet northeast from the project site.

Table 3.13-13 summarizes the loudest construction activities at each location and attenuated noise levels to the nearest sensitive receptor. Full modeling assumptions and results can be found in Appendix I.

Table 3.13-13 LEU Component Construction Noise Levels

Location	Loudest Construction Work	Reference Noise Level at 50 ft (dBA L_{eq})	Nearest Receptor	Distance to Nearest Receptor	Attenuated Noise Level (dBA L_{eq})
LEU Industrial Substation	Site prep	84.6	SR3	600 feet	63.0
LEU Guild Substation	Site prep	84.6	SR3	600 feet	63.0

Notes: ft = feet; L_{eq} = noise equivalence level; dBA = A-weighted decibels.
Source: Modeled by Ascent in 2024.

Nighttime Work

As described above for the PG&E project components, some construction activities at the LEU Industrial Substation and LEU Guild Substation could extend past the typical workday (which would conclude at 5:30 p.m.) into nighttime hours, which are defined by the city as occurring between 10:00 p.m. and 7:00 a.m. These activities include testing, wiring, and commissioning the new 230 kV line and trenching and HHD. The nearest residential land uses to both substations would be SR2, approximately 2,320 feet southeast of where nighttime work could occur.

However, Pacific Coast Producers' warehouse on 650 South Guild Avenue fully blocks the line of sight between the PG&E Thurman Switching Station and SR2. Provided that the warehouse is a solid structure that would block the line of sight between construction noise and the receiver, the warehouse would effectively act as a sound wall. Given the complexities in determining the exact level of noise reduction from an existing building (e.g., building material, building openings, building orientation), a conservative assumption of 10 dBA reduction was applied, which is the level of noise reduction generally accepted as readily achievable from a solid sound wall (FHWA 2010). Table 3.13-14 summarizes the noise levels that the nearby receptors could be exposed to after the reduction from the intervening structures.

Table 3.13-14 LEU Nighttime Construction Noise Levels

Phase	Noise Level (dBA L_{eq}) at 50 feet	Nearest Receptor	Distance to Receptor (feet)	Noise Level (dBA L_{eq}) at Receptor
LEU Guild Substation and LEU Industrial Substation				
Testing, wiring, and commissioning	83.3	SR2	2,320	40.0
Trenching and HDD	83.6	SR2	2,320	40.2

Notes: L_{eq} = noise equivalence level; dBA = A-weighted decibels.
Source: Modeled by Ascent in 2024.

As shown in Table 3.13-14, nighttime construction at LEU Guild Substation and Industrial Substation would generate noise levels of 40.0 and 40.2 dBA L_{eq} at SR2. As shown in Table 3.13-1, these noise levels would be similar to the noise levels experienced in a quiet urban area at nighttime and consistent with the existing ambient noise levels provided in Table 3.13-6. In addition, there is typically a 5–20 dBA L_{eq} reduction from interior to exterior noise levels if the windows are closed (FTA 2018: Table 4-35). Thus, the noise levels experienced at SR2 would range from 20.0–35.2 dBA L_{eq}, which would be the typical noise levels of a quiet urban or suburban area at night, according to Table 3.13-1.

Operation and Maintenance

Electrical equipment at the new LEU Guild Substation would include two 230/60 kV transformers and two HVAC units at the control enclosure located along the northern side of the yard. The two transformers are expected to have a maximum sound level of 76 dBA at 3 feet, and the two HVAC units are anticipated to have a maximum noise level of 70 dBA at 3 feet (Jacobs Engineering Group 2023). The nearest sensitive receptor to the transformers and HVAC units would be SR3, located approximately 900 feet northeast of the transformers and 850 feet northeast of the HVAC units. The combination of the four stationary sources would generate noise levels of 37.5 CNEL, which is under the city's noise exposure threshold of 60 CNEL (exterior) and 45 CNEL (interior). Table 3.13-15 summarizes the noise levels at the receptors for each piece of equipment, as well as the combined noise level of the four stationary pieces of equipment. Modeling results and assumptions can be found in Appendix I.

The relocated LEU 12 kV feeder line would be installed underground and would not be a substantial noise source because only transmission lines that are above ground and 345 kV or above would generate noise noticeable to human ears. LEU substation maintenance includes bushing cleaning, in-kind equipment replacement at the end of equipment life spans, and transformer oil testing. The substation yards and access road would be re-rocked as necessary. However, these maintenance activities would occur during the daytime hours (7:00 a.m. to 10:00 p.m.) and would be, therefore, exempt from the city's operational noise thresholds.

Table 3.13-15 LEU Components—Stationary Sources Noise Levels

Equipment Piece(s)	Reference Noise Level at 3 ft (dBA L_{max})	Nearest Receptor	Distance to Nearest Receptor	Combined Attenuated Noise Level (CNEL)	Exceeds Threhsold?[1]
Transformer	70	SR3	900 feet	—	NO
HVAC unit	76	SR3	850 feet	—	NO
Two transformers and two HVAC units	80	SR3	NA[2]	37.5	NO

Notes: ft = feet; L_{max} = maximum noise level; dBA = A-weighted decibels; CNEL = community noise equivalent level; HVAC = heating, ventilation, and air conditioning.

[1] City threshold of 60 CNEL.

[2] Noise from each source was attenuated to SR3 using the distances shown in Table 3.13-15; thus, noise at SR3 represents the combined noise levels from transformers and HVAC units at their respective distances to SR3.

Source: Modeled by Ascent in 2024.

Implementation of BMPs

BMP NOI-1 would ensure that muffler equipment is in good condition and not creating unnecessary loud noise; construction equipment is turned off when not in use; stationary equipment, staging areas, helicopter landing zones, and construction materials are located as far away from sensitive receptors as possible; and residents are notified of when construction activities would occur near them. BMP NOI-3 would reduce the impact from construction noise by using quiet equipment when possible. BMP NOI-4 would reduce this impact by directing exhaust stacks, vents, and thus noise away from sensitive receptors. BPM NOI-5 would alert nearby sensitive receptors when nighttime construction activities could take place. BMP NOI-6 would utilize temporary barriers when drilling takes place. And lastly, BMP NOI-7 would ensure the equipment is in working order, adequately muffed, and used in accordance with the manufacturers' recommendations.

As shown in Table 3.13-13, sensitive receptors would be subject to construction-generated noise levels of 63.0 dBA L_{eq} under worst-case scenarios without the implementation of the BMPs (i.e., when the loudest construction equipment is being used at the same time at the project area boundary). Implementation of BMPs, which are not considered in the modeled noise levels, would reduce construction noise by establishing physical barriers and equipment standards.

Construction activities, such as commissioning substation components, that occur outside of the city's acceptable construction hours of 7:00 a.m. to 10:00 p.m. would not exceed the nighttime noise threshold. BMP NOI-1 through BMP NOI-4 would include best practices to generally reduce noise exposure of nearby sensitive receptors during construction, and BMP NOI-5 would alert nearby residences of when nighttime work would be necessary.

Regarding operational noise, as presented in Table 3.13-15, the combination of the four pieces of stationary electrical equipment would generate a noise level of 37.5 CNEL, which is below the city's maximum allowable noise exposure for residential land uses of 60 CNEL (exterior) and 45 CNEL (interior).

Significance before Mitigation

Construction-related activities would generate noise levels up to 80.4 L_{eq} dBA from the mobilization stage of normal, daytime construction along the PG&E 230 kV transmission line alignment at the nearest sensitive receptor. These noise levels are under worst-case scenarios when the loudest pieces of equipment would be used closest to the sensitive receptors. Construction noise was evaluated separately for each construction phase and location based on anticipated activity types, noise sources and associated reference noise levels, and receptors nearest to project activities. In Lodi, in particular, construction activities associated with the LEU Guild Substation and the PG&E Thurman Switching Station, which are located next to each other, have the potential to generate combined noise levels. However, the noise modeling conducted used a worst-case scenario where multiple pieces of construction equipment could operate at the same time at the same location. Given the properties of noise, a doubling of a source results in a 3 dB increase, and noise sources that occur at farther distances from the same receptor contribute less to the perceived noise level. Thus, the combined effect of multiple pieces of equipment operating at one location would be the worst-case noise levels, even if additional construction activities were to occur at this location, at a different distance than what was modeled. Therefore, the modeling and analysis conducted represents the highest potential noise levels at nearby receptors.

Project construction is scheduled for a short period of time and would generally occur during daytime hours established in county and city regulations. However, some construction activities, such as installation of the guard netting on SR 88; testing, wiring, and commissioning the transmission lines; and trenching and HDD work, could occur at night. As described above, construction activities would be short term, of an intensity that is generally consistent with the existing noise environment, and below established thresholds for daytime construction. In addition, APMs and BMPs have been integrated into the project that incorporate actions with potential to reduce construction noise below modeled levels. Construction that occurs during the city's acceptable construction hours of 7:00 a.m. to 10:00 p.m. and the county's acceptable construction hours of 6:00 a.m. to 9:00 p.m. would be exempt from noise standards. Nighttime construction activity near SR5 could exceed the nighttime noise standard of 45 dBA $L_{eq.}$ However, the county's Code of Ordinances exempts construction of public utility projects that are undertaken by the state, as well as utility facilities more broadly, from the county's noise thresholds. In addition, the nature of the potential nighttime activities is narrow at SR5, consisting of several hours of work with approximately two vehicles, and would be located along the highway. This would not result in a substantial increase in noise.

Long-term operational noise from stationary equipment and maintenance would not result in a substantial increase in ambient noise levels in the vicinity of the project. The project would generate operational noise ranging from 18.5 dBA L_{eq} to 35.5 dBA L_{eq} and 37.5 CNEL and would be under the county's and city's thresholds and consistent with existing ambient noise levels.

For these reasons, construction and operation of the proposed project would not result in exposure of persons to or generation of any substantial temporary or permanent increase in ambient noise levels that exceed standards established in local noise ordinances. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact NOI-2: Expose Persons to or Generate Excessive Ground-Borne Vibration

PG&E Project Components

Project construction would not involve the use of ground vibration–intensive activities, such as pile driving or blasting. Pieces of equipment that generate lower levels of ground vibration, such as rollers and pavers, would be used during construction. These types of common construction equipment do not generate substantial levels of ground vibration that could result in structural damage, except at extremely close distances. The most ground vibration–intensive activity that could be performed during project construction would be the use of a vibratory roller during paving activities.

Vibratory rollers generate ground vibration levels of 0.21 in/sec PPV and 94 VdB at 25 feet (FTA 2018: 184). If vibration from construction activities were within 26 feet of sensitive receptors, construction activities would exceed FTA's threshold of significance of 0.2 in/sec PPV for building structural damage and would exceed the threshold of significance for human annoyance of 80 VdB if activities occurred within 73 feet of sensitive receptors. Vibratory rollers typically have a frequency of 20–36 Hz (NIH 2019).

The closest sensitive land uses (SR1) are located 140 feet from where construction activities could occur at the PG&E Lockeford Substation. Anticipated construction activities are only expected to exceed structural damage thresholds when they occur within 26 feet, human annoyance thresholds when they occur within 73 feet, and displacement threshold when they occur within 45 feet. Therefore, construction activities would not have the potential to result in substantial vibration exposure (annoyance and structural damage) at nearby residential structures. O&M would consist of insulator washing and replacement; repair and replacement of transformers, switches, fuses, cutouts, meters, and insulators; and line repair, replacement, and reconductoring. These activities would not use equipment associated with vibratory effects and would not generate substantial vibration. Thus, the PG&E project components would not result in the potential to expose nearby receptors to substantial vibration levels during construction.

Implementation of APMs

No applicable APMs are proposed as part of the project.

LEU Project Components

As described above for the PG&E project components, construction would not involve the use of ground vibration–intensive activities, such as pile driving or blasting. The most ground vibration–intensive activity that could be performed during project construction would be the use of a vibratory roller during paving activities.

Vibratory rollers generate ground vibration levels of 0.21 in/sec PPV and 94 VdB at 25 feet (FTA 2018: 184). If vibration from construction activities occurred within 26 feet of sensitive receptors, construction activities would exceed the threshold of significance of 0.2 in/sec PPV for building structural damage and would exceed the FTA threshold of significance for human annoyance of 80 VdB if construction activities occurred within 73 feet of activities. Vibratory rollers typically have a frequency of 20–36 Hz (NIH 2019).

The closest sensitive land uses (i.e., structures associated with SR3) are located 200 feet from where construction activities at the LEU Guild and Industrial Substations could occur. Therefore, construction activities would not be located within the 73-foot distance associated with potential for human annoyance. In addition, there is no potential for structural damage because the nearest structure is more than 26 feet from the nearest LEU work areas and the potential to result in substantial structural damage is generally limited to structures within 26 feet of the construction activities.

O&M would consist of insulator washing and replacement; repair and replacement of transformers, switches, fuses, cutouts, meters, and insulators; and access road maintenance. These activities would not use equipment associated with vibratory effects and would not generate substantial vibration. Because the nearest sensitive receptor, SR3, is located 200 feet away from project construction and operational activities, construction and operation of the LEU project components would not exceed applicable vibration limits.

Implementation of BMPs

No applicable BMPs are proposed as part of the project.

Significance before Mitigation

Construction of neither the PG&E nor LEU project components would be implemented close enough to any sensitive receptor to result in exceedance of vibratory thresholds. Operation of neither the PG&E nor LEU project components would use equipment associated with vibratory effects and would not generate substantial vibration. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.14 POPULATION, EMPLOYMENT, AND HOUSING

This section describes the existing population, employment, and housing conditions in the project vicinity; summarizes the applicable local regulations; and analyzes the potential population, employment, and housing impacts associated with implementation of the project. Potential growth-inducing impacts of the project are further addressed in Chapter 5, "Other CEQA Considerations."

No comments regarding population, employment, or housing were received in response to the notice of preparation. See Appendix A for all comments received during the public scoping period.

3.14.1 Environmental Setting

POPULATION

As part of its regional planning functions, the San Joaquin Council of Governments (SJCOG) develops regional population, employment, and housing forecasts for San Joaquin County and the Cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon, and Lathrop. The Housing Elements of the County's and Cities' general plans incorporate population and housing estimates from SJCOG into their overall planning efforts. A discussion of population and housing trends in unincorporated San Joaquin County and the City of Lodi is provided below.

Population Trends

As shown in Table 3.14-1, the unincorporated county's population increased from 147,127 residents in 2015 to 164,214 residents in 2020 (DOF 2024a). Between 2020 and 2024, however, the population decreased slightly to 160,163 people (DOF 2024b). Overall, the unincorporated county's population has increased 8.86 percent since 2015.

Table 3.14-1 Total Population in Unincorporated San Joaquin County and the City of Lodi

Jurisdiction	2015	2020	2024	Percent Growth (2015-2024)
City of Lodi	64,376	66,128	66,492	3.29
Unincorporated San Joaquin County	147,127	164,214	160,163	8.86

Sources: DOF 2024a; DOF 2024b.

The population of the City of Lodi has also increased steadily over time. As shown in Table 3.14-1, the city's population increased from 64,376 residents in 2015 to 66,128 residents in 2020 (DOF 2024a). Between 2020 and 2024, the population increased slightly to 66,492 residents (DOF 2024b). This represents an overall increase of 3.29 percent in the city's population compared to the 2015 population estimate.

Table 3.14-1 shows the population of the unincorporated county and the city in 2015, 2020, and 2024. The increase in population in the unincorporated county between 2015 and 2024 (8.86 percent) was more than double the increase of the city (3.29 percent).

Looking ahead, SJCOG estimates the unincorporated county's current annual growth rate to be 1.76 percent per year and projects the population of the unincorporated county will be approximately 177,838 residents by 2030 and 252,096 residents by 2050 (SJCOG 2022). The City of Lodi's current annual growth rate is approximately 2 percent per year (City of Lodi 2010; SJCOG 2020). Taking this into account, SJCOG estimates that the City of Lodi's population will be 75,445 residents in 2030 and 82,359 residents in 2050 (SJCOG 2020).

HOUSING

Approximately 30 percent of the housing units in San Joaquin County are in the unincorporated county and the City of Lodi (DOF 2024a, 2024b). As shown in Table 3.14-2, the unincorporated county experienced a housing growth rate of 9.15 percent between 2015 and 2024, and the city experienced a housing growth rate of 8.51 percent during the

same timeframe (DOF 2024a, 2024b). In total, 4,534 housing units have been constructed in the unincorporated county since 2015, and 2,022 housing units have been constructed in the city since 2015 (DOF 2024a, 2024b).

Table 3.14-2 Housing Units in Unincorporated San Joaquin County and the City of Lodi

County/City	Total Housing Units 2015	Total Housing Units 2020	Total Housing Units 2024	Percent Increase from 2015 to 2024
City of Lodi	23,755	24,766	25,777	8.51
Unincorporated San Joaquin County	49,571	52,544	54,105	9.15

Sources: DOF 2024a; DOF 2024b.

Vacancy Rates

The housing vacancy rate is a measure of general housing availability and represents the percentage of all available housing units that are vacant or unoccupied at a particular time. A low vacancy rate, 5 percent or less, suggests that housing availability is low; conversely, a high vacancy rate (more than 8 percent) may indicate that a high number of housing units are available for occupancy, a high number of seasonal units are vacant, or an oversupply of housing. By maintaining a "healthy" vacancy rate, between 5 and 8 percent, housing consumers have a more housing types and prices to choose from. As vacancy rates drop, shortages generally raise housing costs and limit choices.

The unincorporated county's housing vacancy rate has generally been consistent with or less than the state's vacancy rate. Between 2010 and 2020, the vacancy rate of the unincorporated county ranged from 8.3 percent to 5.7 percent, whereas California's vacancy rate ranged from 8.1 percent to 6.4 percent during that timeframe (DOF 2024a). In January 2024, the county had a vacancy rate of 5.7 percent compared to the state's vacancy rate of 6.4 percent (DOF 2024b). Also, as shown below in Table 3.14-3, in January 2024 approximately 94.3 percent of the total housing units in the unincorporated county were either owner- or renter-occupied (DOF 2024b).

Table 3.14-3 Housing Trends in Unincorporated San Joaquin County

	Population	Housing Units	Occupied	Vacancy Rate	Persons per Household
2015	147,127	49,571	46,087	7.0	3.17
2020	164,214	52,544	49,449	5.7	3.16
2024	160,163	54,105	51,037	5.7	3.02

Source: DOF 2024a; 2024b.

Similar to the unincorporated county, the City of Lodi's vacancy rate ranged from 7.1 percent in 2010 to 3.8 percent in 2020 and has generally been consistent with or less than the statewide vacancy rate (DOF 2024a). In January 2024, the city's vacancy rate was 3.8 percent (DOF 2024b). Also, as shown below in Table 3.14-4, in January 2024, approximately 96.2 percent of the total housing units in the city were either owner- or renter-occupied (DOF 2024b).

Table 3.14-4 Housing Trends in the City of Lodi

	Population	Housing Units	Occupied	Vacancy Rate	Persons per Household
2015	64,376	23,755	22,449	5.5	2.78
2020	66,128	24,766	23,655	3.8	2.74
2024	66,492	25,777	24,788	3.8	2.65

Source: DOF 2024a; 2024b.

Housing Trends

The 2023-2031 San Joaquin County Housing Element Update establishes the target number of housing units for each of its member jurisdictions based on the Regional Housing Needs Allocation (RHNA), which is assigned by the California Department of Housing and Community Development. The established target for unincorporated San Joaquin County is 8,808 new housing units for the period of January 1, 2023, to December 31, 2031 (San Joaquin County 2024). The established target for the City of Lodi is 3,909 for the same timeframe (San Joaquin County 2024). As shown above in Table 3.14-2, in 2015, the unincorporated county had 49,571 housing units, and in January 2024,

the county had 54,105 housing units, which is an increase of 4,534 units in the unincorporated county between 2015 and 2024 (DOF 2024a, 2024b). Likewise, the City of Lodi had 23,755 total housing units in 2015, and 25,777 at the start of 2024, an increase of 2,022 units from 2015 to 2023 (DOF 2024a; 2024b). In addition, the unincorporated county and the City of Lodi are projected to increase the total number of housing units to 62,913 and 29,686, respectively, by 2031 (SJCOG 2020, 2022).

The unincorporated county's average household sizes, or number of people occupying a dwelling unit, has typically been slightly greater than that of the state. As shown in Table 3.14-3, the unincorporated county has a current average household size of 3.02 persons (DOF 2024b). This is slightly higher than the average household size of California, which has typically ranged from 2.77 to 2.96 persons per household (DOF 2024a). There has been a decrease in household size in the county since 2010, when it was 3.14 persons per household (DOF 2024a).

The average household size of the City of Lodi, on the other hand, has typically been less than that of the state. As shown in Table 3.14-4, the city has a current average household size of 2.65 people (DOF 2024b). This is less than the average household size of California, which, as stated above, has typically ranged from 2.77 to 2.96 persons per household (DOF 2024a). There has also been a decrease in household size in the city since 2010, when it was 2.78 persons per household (DOF 2024a).

EMPLOYMENT

The State of California Employment Development Department (EDD) compiles current and historical employment data for California counties and metropolitan areas. According to EDD, employment in San Joaquin County increased approximately 20.3 percent (52,000 jobs) between 2010 and 2020. As of 2024, the top four industries in terms of share of total employment are trade, transportation, and utilities services (26.3 percent); government (13.9 percent); private education and health services (13.6 percent); and goods-producing services (11.4 percent). From 2010 to 2020, the trade, transportation, and utilities services industry gained 25,300 new employees, resulting in the highest share of new employment for the region (EDD 2024).

EDD data show the unemployment rate in the county has generally been 1 –3 percentage points above the state unemployment rate. In December of 2023, the statewide unemployment rate was 5.1 percent, and the countywide unemployment rate was 6.7 percent. The countywide unemployment rate has sharply decreased since the 2020 COVID-19 recession, when it peaked at 18.1 percent, and was at 7.1 percent as of March 2024 (EDD 2024).

3.14.2 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws are applicable to population, employment, or housing for the project.

STATE

California Housing Element Law

California's Housing Element Law (California Government Code Sections 65580 through 65589.8) recognized that early attainment of decent housing and a suitable living environment for every Californian, including farmworkers, was a "priority of the highest order." The law was enacted to ensure that counties and cities recognize their proportionate responsibilities in contributing to the attainment of state housing goals, to establish the requirement that all counties and cities adopt housing elements to help meet state goals, to recognize that each locality is best capable of determining what efforts it is required to take to contribute to attainment of state housing needs, and to encourage and facilitate cooperation between local governments to address regional housing needs. Section 65583 states "the housing element shall consist of an identification and analysis of existing and projected housing needs and a statement of goals, policies, quantified objectives, financial resources, and scheduled programs for the preservation,

improvement, and development of housing" and "the housing element shall identify adequate sites for housing, including rental housing, factory-built housing, mobile homes, and emergency shelters, and shall make adequate provision for the existing and projected needs of all economic segments of the community."

Regional Housing Needs Allocations Plan

California General Plan law requires each city and county to have land zoned to accommodate a fair share of the region's housing needs as part of its Housing Element. The share is known as the Regional Housing Needs Allocation (RHNA). As part of RHNA, the California Department of Housing and Community Development (HCD), determines the total number of new homes a region needs to build and the affordability of those homes, and the city's and county's fair share is determined by the respective metropolitan planning organization of the region.

LOCAL

With respect to PG&E, because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City and County) land use and zoning regulations or discretionary permits except for air districts and Certified Unified Program Agencies with respect to air quality and hazardous waste regulations. However, local land use plans and policies are considered for informational purposes and to assist with the CEQA review process, where feasible. Because the LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County General Plan

The San Joaquin County General Plan Housing Element (San Joaquin County 2024) contains the following policy that is relevant to the project:

- **Policy 1-2:** The County shall seek to identify and mitigate local governmental constraints to the development, improvement, and maintenance of the housing stock.

City of Lodi General Plan

The City of Lodi General Plan Land Use and Growth Management and Infrastructure Elements (City of Lodi 2010) contain the following policies that are relevant to the project:

- **Policy LU-G7:** Strengthen the City's economic base and provide employment opportunities for residents to achieve a more balanced jobs/housing ratio.
- **Policy GM-G2:** Provide infrastructure—including water, sewer, stormwater, and solid waste/recycling systems—that is designed and timed to be consistent with projected capacity requirements and development phasing.
- **Policy GM-P210:** Develop new facilities and rehabilitate existing facilities as needed to serve existing development and expected development, in accordance with the General Plan and relevant infrastructure master plans.

San Joaquin Council of Governments

SJCOG is an association of local governments from cities within San Joaquin County. The member agencies include the cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon, and Lathrop and unincorporated San Joaquin County. SJCOG is mainly responsible for transportation planning and programming for the region. Furthermore, SJCOG is responsible for and oversees the RHNA, a process mandated by California state law that requires each city and county to have land zoned to accommodate a fair share of the regional housing need.

Adopted on September 22, 2022, the San Joaquin County RHNA Plan covers the 8-year planning period between 2023 and December 31, 2031 (San Joaquin County 2024). The plan includes housing at four different income levels, including very low, low, moderate, and above-moderate.

Unincorporated San Joaquin County and the City of Lodi are not required to make development occur; however, the unincorporated county and the City of Lodi must facilitate housing production by ensuring that land is available and that unnecessary development constraints have been removed. The County is currently in the process of preparing the 2023-2031 Housing Element to show how it will accommodate the RHNA. The Public Review Draft Housing Element,

published in January 2024, showed capacity for 8,808 housing units in the unincorporated county, 3,909 housing units in the City of Lodi, and a surplus of capacity for all income levels in both the unincorporated county and the City (San Joaquin County 2024). However, the Housing Element is still in the process of being updated, and the capacity numbers are subject to change. This analysis assumes that the RHNA will be accommodated with sufficient housing.

3.14.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

To evaluate the potential impacts of the proposed project on population and housing, the existing populations and housing availability in San Joaquin County and the City of Lodi were compared to population and housing anticipated under buildout of the project. This examination of population, employment, and housing conditions is based on information obtained from review of the plans for the project and review of available population, employment, and housing projections from the City of Lodi, San Joaquin County, the US Census Bureau, Department of Finance, and other sources.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

No applicable applicant-proposed measures (APMs) or best management practices (BMPs) related to population and housing are proposed as part of the project.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to population, employment, and housing under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments.* A population, employment, and housing impact would be considered significant if implementation of the project would:

- induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure); or
- displace substantial numbers of existing people or homes, necessitating the construction of replacement housing elsewhere.

ISSUES NOT DISCUSSED FURTHER

Displace Substantial Numbers of Existing People or Homes

The construction and O&M of both the PG&E and LEU portions of the proposed project would not demolish or displace any existing housing or residential structures. Members of the community residing in or near the project vicinity would not be displaced by project activities, and no replacement housing would need to be constructed. Therefore, there would be no impacts associated with the displacement of substantial numbers of people or housing, and this topic is not discussed further.

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project

components would not result in physical environmental changes that could induce substantial unplanned population growth in an area or displace substantial numbers of existing people or homes, necessitating the construction of replacement housing elsewhere. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact POP-1: Directly or Indirectly Induce Substantial Unplanned Population Growth and Housing Demand

PG&E and LEU Project Components

The proposed project would involve the construction and O&M of new 230 kV lines and associated substation facilities to address reliability and capacity issues on the existing PG&E 230 kV and 60 kV systems in northeastern San Joaquin County and the City of Lodi. As described in Section 2.4, "Project Objectives," the existing PG&E 230/60 kV system in the vicinity of the project area is experiencing voltage issues and thermal overloads. Also, the area is growing in population and is forecasted to continue to grow its power load requirements, which would worsen these voltage and thermal overload issues over time and could consequently result in systemwide outages. Hence, the project would install power infrastructure in San Joaquin County and the City of Lodi to serve existing and planned future customers and prevent service interruptions.

Although the population in San Joaquin County and the City of Lodi is growing, current and projected growth has been anticipated and planned for in the San Joaquin County and the City of Lodi general plans. The project does not propose any new housing, businesses, or other land use changes that would induce substantial unplanned population growth or housing demand in or near the project vicinity. Construction of the proposed transmission line would be performed by approximately 66 construction workers per day during the peak months of construction. It is expected that construction of the PG&E and LEU project components would be carried out by current PG&E and LEU employees who are local to the area within and near the project vicinity. If the need arises to bring in workers from outside the project vicinity to assist with project construction, these workers would either commute to the project area from their current locations or relocate to the area temporarily. Neither PG&E nor LEU anticipates hiring new construction workers or permanently relocating construction workers to the project vicinity because of the project. In addition, operation and maintenance of the proposed transmission line would be performed by current PG&E and LEU employees who are local to the area. The proposed transmission line would not result in large numbers of people permanently moving to San Joaquin County or the City of Lodi. As a result, the project would not directly or indirectly induce substantial unplanned population growth or housing demand beyond what is forecasted in the County and City general plans.

Implementation of APMs

No applicable APMs or BMPs are proposed as part of the project.

Significance before Mitigation

The project does not propose new housing, businesses, or other land use changes, including roads or infrastructure, that would induce unplanned population growth or increase housing demand in the area. Any increase in housing demand from new or existing PG&E or LEU workers relocating to the area as a result of the project is already within the scope of the growth projections of the San Joaquin County and City of Lodi general plans. Thus, neither the PG&E nor the LEU portions of the project would directly or indirectly induce substantial unplanned population growth or housing demand beyond what is forecasted in the County and City general plans.

The project would not directly or indirectly induce substantial population growth or increase housing demand in the area. As a result, the impact would be less than significant.

Mitigation Measures

No mitigation is required.

3.15 PUBLIC SERVICES AND RECREATION

This section describes the existing public services and recreational facilities in the project area; describes the applicable federal, state, and local regulations addressing public services or recreation; and analyzes the potential environmental impacts associated with public services and recreation associated with the implementation of the project. Publicly provided utility services, such as water and wastewater treatment, stormwater management, solid waste disposal, and electricity and natural gas services, are addressed in Section 3.17, "Utilities and Service Systems."

No comments specifically regarding public services or recreational facilities were received in response to the notice of preparation (NOP). However, several comments were received that expressed concerns about the potential for the project to negatively affect agritourism and visitations to wine tasting facilities. This issue is addressed in the impact analysis below. The aesthetic impacts of the project on agritourism are discussed in Section 3.2, "Aesthetics," and the agricultural impacts of the project on agritourism are discussed in Section 3.3, "Agriculture." See Appendix A for all NOP comments received during the public scoping period.

3.15.1 Environmental Setting

FIRE PROTECTION

Mokelumne Rural and Clements Rural County Fire Protection Districts

The California Department of Forestry and Fire Protection (CAL FIRE) and independent special fire districts provide fire protection services to unincorporated areas of San Joaquin County. As described in Section 3.18, "Wildfire," the project area is not located in or near a State Responsibility Area. Therefore, CAL FIRE is not responsible for providing fire protection services to the project area. Fire protection services are provided to the part of the project area outside the City of Lodi by the Mokelumne Rural Fire Protection District (MRFPD) and, for the part of the project area east of North Tully Road, by the Clements Rural Fire Protection District (CRFPD).

In addition to fire prevention and protection services, MRFPD and CRFPD both provide emergency medical services, technical rescue operations, hazardous material mitigation, and water rescue operations. As a part of their mutual aid services, MRFPD and CRFPD have automatic aid agreements with neighboring jurisdictions, meaning local fire agencies will automatically help each other based on incident location, incident size, and available resources. MRFPD and CRFPD are also part of the San Joaquin County Mutual Aid Agreement, whereby participating agencies can request assistance from one another. Lastly, MRFPD and CRFPD also participate in the California Master Mutual Aid Agreement and can provide mutual aid to other jurisdictions in California upon request (San Joaquin LAFCo 2011).

Two fire stations are strategically located in the MRFPD and CRFPD service areas to aid area residents. The MRFPD fire station is located in the town of Lockeford, and the CRFPD fire station is located in the town of Clements. During 2023, MRFPD and CRFPD together responded to more than 750 calls with approximately 15–20 percent of these calls being incidents in mutual aid jurisdictions (Artiaga, pers. comm., 2024).

The two main apparatus of both MRFPD and CRFPD are engines (water) and trucks (ladder). Ambulance services are contracted out by MRFPD and CRFPD to third-party ambulance providers (Artiaga, pers. comm., 2024).

The fire stations closest to the portion of the project area in the unincorporated county are:

- the Mokelumne Fire Station, at 13157 East Brandt Road in Lockeford, which is located approximately 1 mile north of the project area, and
- the Clements Fire Station, at 18901 North Highway 88 in Clements, which is located approximately 6 miles northeast of the project area.

According to MRFPD, the Mokelumne Fire Station has three engines and three trucks for fire protection and suppression (Artiaga, pers. comm., 2024). CDFPD has three engines and two trucks (Artiaga, pers. comm., 2024).

CRFPD's average response time for fire emergencies is 5 minutes and 45 seconds; for medical emergencies, it is 5 minutes and 8 seconds. MRFPD's average response time for fire emergencies is 4 minutes and 33 seconds; for medical emergencies, it is 4 minutes and 16 seconds (San Joaquin LAFCo 2011).

An important requirement for fire suppression is adequate fire flow, which is the amount of water, expressed in gallons per minute, available to control a given fire and the length of time this flow is available. The total fire flow needed to extinguish a structural fire is based on a variety of factors, including building design, internal square footage, construction materials, dominant use, height, number of floors, and distance to adjacent buildings. Minimum requirements for available fire flow at a given building depend on standards set in the California Fire Code. Currently, adequate fire flow is provided in the portion of the project area in the unincorporated county (Artiaga, pers. comm., 2024).

Lodi Fire Department

The Lodi Fire Department (LFD) provides fire prevention and protection services to the City of Lodi, including the portion of the project area in the city. High-traffic areas within LFD's jurisdiction include Kettleman Lane/Highway 12, Ham Lane, Central Avenue, Cherokee Lane, Stockton Street, Blackbird Place, and Lower Sacramento Road. In addition to fire suppression, LFD provides emergency medical services, technical rescue operations, hazardous material mitigation, and water rescue operations. As a part of its mutual aid services, LFD has automatic aid agreements with neighboring jurisdictions. LFD is also part of the San Joaquin County Mutual Aid Agreement and participates in the California Master Mutual Aid Agreement (City of Lodi 2024a).

Four fire stations are strategically located throughout the city to provide assistance to area residents. A total of 51 firefighters are based out of the four fire stations in the city. Each fire station operates in a specific district that occupies the immediate geographic area around the station. One station is in the downtown section of the city, one station is on the east side of the city, and two stations are on the west side of the city. LFD responds to an average of 7,000 service calls every year (City of Lodi 2024a).

LFD's three main apparatus are engines (water), trucks (ladder), and rescue medics (ambulance). Engines and trucks are staffed with four personnel consisting of a fire captain, fire engineer, firefighter emergency medical technician, and a firefighter paramedic. Squads, also known as rescue medics, are staffed with one firefighter engineer and one firefighter paramedic (City of Lodi 2024a).

The fire stations in the City of Lodi closest to the project area are:

- Station 2, at 2 South Cherokee Lane, approximately 1 mile west of the project area;
- Station 1, at 201 West Elm Street, approximately 3 miles west of the project area; and
- Station 4, at 180 North Lower Sacramento Road, approximately 4.5 miles west of the project area.

According to LFD, Station 2 would provide first responder service to the project area, whereas Station 1 would be the second responder. Station 2 has an engine with four personnel (captain, engineer, firefighter, firefighter paramedic). Station 1 also has an engine with four personnel (captain, engineer, firefighter, firefighter paramedic), as well as a truck with four personnel (captain, engineer, firefighter, firefighter paramedic) and a rescue medic with two personnel (engineer, firefighter paramedic). The City of Lodi's response time for fire emergencies is 6 minutes for 90 percent of calls (City of Lodi 2024a). Currently, adequate fire flow is provided in the portion of the project area in the City of Lodi (2024a).

LAW ENFORCEMENT

San Joaquin County Sheriff's Office

The San Joaquin County Sheriff's Office (SJCSO) provides law enforcement services to all unincorporated areas of San Joaquin County, including the portion of the project area located in the unincorporated county. SJCSO is responsible for enforcing state and County laws, investigating crimes, apprehending criminals, maintaining ongoing crime prevention programs, and building ties with the community and other local law enforcement agencies.

Currently, the SJCSO includes one full-time sheriff, an undersheriff, two assistant sheriffs, sworn law enforcement personnel, and other professional staff. Law enforcement services in the unincorporated county are divided by the SJCSO into eight geographical areas or "beats." The project area is located in Beat 2 (San Joaquin County Sheriff's Office 2024). SJCSO operates one station in the unincorporated community of French Camp. The station, located at 7000 Michael Canlis Boulevard, is approximately 17 miles south of the project area. The SJCSO has no other offices or stations in the county. The average response time in the county is appropriately 15 minutes and increases to 24 minutes for nonemergency calls. Response times vary depending on the number of officers in a patrol area, size of the patrol area, density of the population being served, distance to the call, amount of traffic congestion during the response period, and number of incidents that are simultaneously occurring.

Lodi Police Department

The Lodi Police Department (LPD) provides law enforcement services to the City of Lodi, including the portion of the project located in the city. LPD is responsible for enforcing state and City laws, investigating crimes, apprehending criminals, reducing traffic collisions, maintaining ongoing crime prevention programs, and building ties with the community and other local law enforcement agencies. Currently, there are 71 sworn officers and 48 professional staff (City of Lodi 2024b). LPD has divided the city into three districts. The portion of the project area in the city is served by District 2 (City of Lodi 2024b). LPD operates one police station in the city, which is located at 215 West Elm Street, approximately 3 miles west of the project area. It is LPD's policy to respond to all emergency calls within 5 minutes. Response times vary depending on the number of officers in a patrol area, size of the patrol area, density of the population being served, distance to the call, amount of traffic congestion during the response period, and number of incidents that are simultaneously occurring.

California Highway Patrol

The California Highway Patrol (CHP) is responsible for traffic enforcement services on public streets and highways within unincorporated San Joaquin County. CHP traffic enforcement service for the portion of the project area in the unincorporated county is provided from the CHP office located in Stockton at 2720 North Wilcox Road. CHP also provides other special law enforcement services and mutual aid to the LPD and SJCSO upon request.

SCHOOLS

The Lodi Unified School District, the Linden Unified School District, two private schools, and one charter school serve the communities in the vicinity of the project area. The Lodi Unified School District serves the project area west of North Tully Road. The Lodi Unified School District includes 32 elementary schools, 15 middle and high schools, and four nontraditional schools in the City of Lodi, a northern area of the City of Stockton, and the surrounding communities (Lodi Unified School District 2024). The Linden Unified School District serves the project area east of North Tully Road. It includes four elementary schools, one high school, and one continuing education school (Linden Unified School District 2024). Together, the schools in the school districts, the two private schools, and the charter school serve more than 30,000 students (Lodi Unified School District 2024; Linden Unified School District 2024). The schools that serve the vicinity of the project area west of North Tully Road are Point Quest Education – Central Valley Campus, Harmony Grove Elementary School, Bidwell School (temporarily closed), Lawrence Elementary School, Heritage Elementary School, Lodi Seventh-Day Adventist Elementary School, Lois E. Borchardt Elementary School, Victor Elementary School, and Rio Valley Charter School. The schools that serve the vicinity of the project area east of North Tully Road include Clements Elementary School, and Tokay Colony Elementary School.

RECREATIONAL FACILITIES AND PARKS

In the City of Lodi, eight public parks and recreation areas are located within 1 mile of the project area. They include Blakely Park, Chapman Field, the Grape Bowl Stadium, the Lodi Grape Festival Grounds, Hale Park, Lawrence Park, Pixley Park, and Zupo Field. Blakely Park, located approximately 1 mile from the project area, includes a baseball diamond, a basketball court, picnic areas, a playground, and a pool. Chapman Field is a baseball diamond located 1 mile north of the project area, and the Grape Bowl Stadium is a football stadium located 1 mile northwest of the

project area. The Lodi Grape Festival Grounds, located 0.8 mile northwest of the project area, contain 75,000 square feet of inside space, a 1,500-seat outdoor amphitheater, and RV hookups. Hale Park is located 0.9 mile from the project area to the northwest and includes a basketball court, a playground, and picnic tables. Lawrence Park, located 1 mile northwest of the project area, includes a picnic area and playground. Pixley Park, located 0.4 mile southwest of the project area, is an undeveloped park used primarily for flying remote-controlled airplanes. Zupo Field is a baseball stadium located approximately 1 mile north of the project area (City of Lodi 2024c). The parks in the City of Lodi are maintained by the City of Lodi Parks and Recreation Department.

WINERIES

The project area is located in the heart of the Lodi wine region, an American Viticultural Area located in the Central Valley of California, at the northern edge of the San Joaquin Valley. The region gained approval as a designated wine growing area in 1986 and includes more than 85 commercial wineries operating on 551,000 acres of which 103,000 acres are currently planted with wine grapes. Known for its Mediterranean climate and diverse soil types, the region produces Zinfandel wines, as well as more than 100 other varieties of Spanish, Portuguese, German, and Italian wines. The Lodi wine region is one of the largest wine-producing regions in California, with many supermarket supply chains obtaining their wine products from commercial wineries in the area (Lodi Winegrape Commission 2024).

In addition to wine production, the commercial wineries in the Lodi wine region offer opportunities for agritourism where people can visit the wineries to learn about the wine-making process, taste different types of wine, and purchase wine products. Thousands of people from around the country are attracted to the region each year to see the wine-making facilities, taste the different wine products available, and spend time with friends and family. People also visit the wineries to enjoy the scenic views of the wine vineyards available from the patios of the wine tasting facilities. The Lodi wine region is culturally valuable because agritourism offers people opportunities to do things they enjoy, have fun with loved ones, and connect with the surrounding beauty of the vineyards. Moreover, agritourism generates more than $100 million for the local economy in the City of Lodi and San Joaquin County each year. Tourism related to wine tasting is highly seasonal, with peak visitation rates occurring in the fall and spring each year (Lodi Winegrape Commission 2024).

Many commercial wineries are located in the vicinity of the project area. The winery closest to the project area is Mettler Vineyards. The Mettler Vineyards wine tasting facilities are located approximately 0.4 mile south of the project area.

LIBRARIES

Library services in the unincorporated areas of San Joaquin County are provided by the Mountain House and Thornton Branch Libraries. The Mountain House Branch Library is located at 201 East Main Street in the unincorporated community of Mountain House, and the Thornton Branch Library is located at 26341 North Thornton Road in the unincorporated community of Thornton. The Mountain House and Thornton Branch Libraries are part of the Stockton-San Joaquin County Public Library System. Library services in the City of Lodi are provided by the Lodi Public Library, which is located at 201 West Locust Street.

3.15.2 Regulatory Setting

FEDERAL

No federal plans, policies, regulations, or laws are applicable to recreation or the provision of public services for the project.

STATE

California Fire Code

The 2019 California Fire Code, which incorporates by adoption the 2018 International Fire Code, contains regulations related to construction, maintenance, and use of buildings. Topics addressed in the California Fire Code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The California Fire Code contains specialized technical regulations related to fire and life safety.

California Health and Safety Code

State fire regulations are set forth in Section 13000 et seq. of the California Health and Safety Code, which includes regulations for building standards (as set forth in the California Building Code); fire protection and notification systems; fire protection devices, such as extinguishers and smoke alarms; high-rise building and childcare facility standards; and fire-suppression training.

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City and County) discretionary regulations. However, local plans and policies are considered in the analysis for informational purposes and to assist with the CEQA review process.

Because the LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County General Plan

The San Joaquin County General Plan (San Joaquin County 2016) contains the following policies that are relevant to the project:

- Policy IS-1.1: Essential Facilities and Services. The County shall strive to ensure that adequate public facilities and services essential for public health and safety are provided to all County residents and businesses and maintained at acceptable service levels. Where public facilities and services are provided by other agencies, the County shall encourage similar service level goals.
- Policy IS-1.4: Infrastructure Maintenance. The County shall work with agencies to maintain, improve, and replace public facilities as necessary to maintain adequate levels of service for existing and future development and reduce the need for new facilities. Where public facilities and services are provided by other agencies, the County shall encourage similar service level goals.
- Policy IS-1.13: Infrastructure Financing. The County shall approve new development only when financial mechanisms are in place to ensure that adopted County service standards are met and that long-term infrastructure and facility maintenance can be provided.
- Policy IS-1.14: Equitable Infrastructure Financing. The County shall ensure that infrastructure and facility financing mechanisms for urban services are imposed equitably and shall require reimbursement from subsequent developments which benefit from the improved system.
- Policy IS-1.17: Maximize Resources. The County shall make maximum use of federal, state, regional, local, and private resources to address local infrastructure and facility needs.
- Policy IS-5.6: Consistent Fire Protection Standards for New Development. The County, in coordination with local water agencies and fire protection agencies, shall ensure consistent and adequate standards for fire flows and fire protection for new development.

- **Policy PHS-1.1: Effective Emergency Response.** The County shall maintain adequate facilities, equipment and staffing to respond effectively to emergencies.
- **Policy PHS-4.6: Fire Protection Coordination.** The County shall encourage well-organized and efficient coordination between fire agencies, CalFire, and the County.

City of Lodi General Plan

The City of Lodi General Plan (City of Lodi 2010) contains the following policies that are relevant to the project:

- **Policy GM-G4:** Provide public facilities—including police and fire services, schools, and libraries—commensurate with the needs of the existing and future population.
- **Policy GM-P27:** Maintain sufficient fire and police personnel and facilities to ensure maintenance of acceptable levels of service. Provide needed facilities concurrent with phased development.
- **Policy P-G1:** Provide and maintain park and recreation facilities for the entire community.
- **Policy S-P26:** Coordinate with local, state, and federal agencies to establish, maintain, and test a coordinated emergency response system that addresses a variety of hazardous and threatening situations. Conduct periodic emergency response exercises to test the effectiveness of City emergency response procedures. Develop and implement public information programs concerning disaster response and emergency preparedness and develop mutual aid agreements and communication links with surrounding communities for assistance during times of emergency.
- **Policy S-P27:** Maintain and periodically update the City's Emergency Preparedness Plan, including review of County and State emergency response procedures that must be coordinated with City procedures.
- **Policy S-P28:** Ensure that major access and evacuation corridors are available and unobstructed in case of major emergency or disaster. Continue to identify appropriate road standards, including minimum road widths and turnouts to provide adequate emergency access and evacuation routes.
- **Policy S-P29**: Continue to use the San Joaquin County Hazard Mitigation Plan to reduce hazard risk and coordinate with the County on its update and implementation, consistent with the Federal Emergency Management Agency and the Disaster Act of 2000.

3.15.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

Evaluation of potential public service and recreation impacts was based on a review of documents pertaining to the proposed project, including the San Joaquin County General Plan and the City of Lodi General Plan; consultation with appropriate public service providers, such as the LFD, CHP, and SJCSO; and desktop review of the project area and surroundings. Impacts on public services and recreation resources that would result from implementation of the project were identified by comparing existing service capacity and facilities against future demand associated with project implementation.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

No applicable applicant-proposed measures (APMs) or best management practices (BMPs) related to public services and recreation are proposed as part of the project.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts on public services and recreation under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. An impact on public services or recreation would be significant if implementation of the project would:

- result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
  - fire,
  - police protection,
  - schools,
  - libraries,
  - parks, and
  - other public facilities;
- 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;
- include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment;
- reduce or prevent access to a designated recreation facility or area;
- substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas; or
- damage recreational trails or facilities.

ISSUES NOT DISCUSSED FURTHER

Fire and Police Protection, Schools, Libraries, Parks, and Other Public Facilities

The proposed project would include the construction, operation, and maintenance of a new electrical transmission line to better serve the energy needs of the growing population in unincorporated San Joaquin County and the City of Lodi. As explained in Section 3.14, "Population, Employment, and Housing," current and projected growth has been anticipated and planned for in the San Joaquin County and the City of Lodi General Plans. Thus, any increase in population from new or existing PG&E or LEU workers relocating to the area because of the project would be within the scope of the growth projections of the San Joaquin County and City of Lodi General Plans. Further, the project does not propose new housing, businesses, or other land use changes that would induce unplanned population growth or increase housing demand in the project area. Also, as discussed in Section 3.18, "Wildfire," the project would not increase the risk of wildfire. Therefore, the construction, operation, and maintenance of the proposed transmission line would not result in increased demand for fire and police protection services, schools, libraries, parks, or other public facilities. The construction, operation, and maintenance of the proposed project would not necessitate the construction of additional fire and police facilities, schools, libraries, parks, or other public facilities. No impact would occur. This issue is not discussed further.

Increased Use of Existing Parks or Other Recreational Facilities

The proposed project would include the construction, operation, and maintenance of a new electrical transmission line to better serve the energy needs of the growing population in unincorporated San Joaquin County and the City

of Lodi. As explained in Section 3.14, "Population, Employment, and Housing," current and projected growth has been anticipated and planned for in the San Joaquin County and the City of Lodi General Plans. Thus, any increase in population from new or existing PG&E or LEU workers relocating to the area because of the project would be within the scope of the growth projections of the San Joaquin County and City of Lodi General Plans. Further, the project does not propose new housing, businesses, or other land use changes that would induce unplanned population growth or increase housing demand in the project area. Therefore, the construction, operation, and maintenance of the proposed transmission line would not result in the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of such facilities would occur or be accelerated. No impact would occur. This issue is not discussed further.

Construction of New Recreational Facilities or Expansion of Existing Recreational Facilities

The proposed project would include the construction, operation, and maintenance of a new electrical transmission line to better serve the energy needs of the growing population in unincorporated San Joaquin County and the City of Lodi. As explained in Section 3.14, "Population, Employment, and Housing," current and projected growth has been anticipated and planned for in the San Joaquin County and the City of Lodi General Plans. Thus, any increase in population from new or existing PG&E or LEU workers relocating to the area because of the project would be within the scope of the growth projections of the San Joaquin County and City of Lodi General Plans. Further, the project does not propose new housing, businesses, or other land use changes that would induce unplanned population growth or increase housing demand in the project area. Therefore, the construction, operation, and maintenance of the proposed transmission line would not result in the need to construct new recreational facilities or expand existing facilities. No impact would occur. This issue is not discussed further.

Reduced or Prevented Access to Designated Recreation Facilities or Areas

There are numerous recreation areas in the vicinity of the project area. The recreation area closest to the portion of the project area in the City of Lodi is Pixley Park, which is located 0.4 mile from the project area. The project area does not cross over or overlap with any of these recreation areas. Project construction would not block roads used to access recreational areas. As a result, project activities would not affect the ability of community members to access and use recreation areas. The construction, operation, and maintenance of the proposed transmission line would not reduce or prevent access to any public park or other designated recreation facility or area, either temporarily or permanently. No impact would occur. This issue is not discussed further.

Damage to Recreational Facilities or Trails

The project area does not cross over or overlap with any recreational facilities or trails, and all construction, operation, and maintenance activities associated with the project would take place in the project area. As a result, project activities would not affect or damage recreational facilities.

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. The parks closest to the Clayton Hill Repeater Station are Mount Diablo State Park and Black Diamond Mines Regional Preserve. Mount Diablo State Park, a 20,000-acre park located approximately 2 miles from the remote-end facility, contains open space, hiking and biking trails, and Mount Diablo. Black Diamond Mines Regional Preserve, located approximately 0.5 mile from the facility, contains open space, as well as hiking and biking trails. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project components would not result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities; 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; include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment; reduce or prevent access to a designated recreation facility or area; substantially change the character of a recreational area by reducing the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of recreational facilities or areas; or damage recreational trails or facilities. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact PUB-1: Substantially Change the Character of a Recreational Facility or Area by Reducing the Scenic, Biological, Cultural, Geologic, or Other Important Characteristics That Contribute to the Value of Recreational Facilities or Areas

PG&E and LEU Project Components

As described above, implementation of the proposed project would not increase the use of parks or other recreational facilities, require the expansion or construction of such facilities, reduce or prevent access to such facilities, or result in damage to recreational facilities or trails in the vicinity of the project area. Also, as explained above, the project area is located in the Lodi wine region. Many commercial wineries located near the project area provide opportunities for agritourism, including recreational opportunities. This discussion examines the impact of the project on these recreational opportunities that could occur if the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of commercial wineries in the Lodi wine region are changed to such an extent that agritourism in the region would be discouraged.

The proposed project involves the construction, operation, and maintenance of a new electrical transmission line to better serve the energy needs of the growing population in unincorporated San Joaquin County and the City of Lodi. The project area overlaps with many vineyards associated with the production of wine for the wine tasting facilities in the region, and some areas planted with wine grapes would be affected by installation of electrical utility poles. However, only small portions of these individual parcels would be converted. Also, as discussed in Section 3.3, "Agriculture," electrical infrastructure is considered compatible with the agricultural use in the San Joaquin County zoning code and the project would not change the characteristics of the physical environment that support vineyards, such as soil quality, topography, and water supply. Therefore, the project would not substantially affect the ability of the wineries in the region to continue growing and producing wine products that entice people to come visit the wine tasting facilities in the area. Also, because the amount of ground disturbance would be minor, the project would not substantially alter the important physical characteristics (i.e. biological, geological) of the wine region such that opportunities for agritourism and recreation in the area would be diminished.

Further, as discussed in Section 3.2, "Aesthetics," sections of the proposed transmission line would be visible from key observation points in the vicinity of the project area, including North Jack Tone Road, Mettler Vineyards, Kettleman Lane, and East Thurman Road. The project components, however, would be minimally visible from off-site locations and generally would be compatible with the existing visual quality and character of the surrounding area. Therefore, changes to scenic views that people currently enjoy from winery facilities would be minimal. Ultimately, project activities would not substantially affect the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of commercial wineries and related recreational opportunities in the Lodi wine region.

Implementation of APMs or BMPs

No applicable APMs or BMPs are proposed as part of the project.

Significance before Mitigation

The construction, operation, and maintenance of the proposed transmission line would not change the characteristics of the physical environment that support agriculture. Further, although sections of the proposed transmission line may be visible from winery facilities in the region, the project components would not substantially affect the character of the region. As a result, the construction, operation, and maintenance of the project would not substantially affect

any of the important characteristics that contribute to the value of recreational opportunities in the Lodi wine region. This impact would be **less than significant.**

Mitigation Measures

No mitigation is required for this impact.

3.16 TRANSPORTATION

This section discusses the existing roadway network and transportation facilities in the vicinity of the project area; describes the applicable federal, state, and local transportation regulations and policies; and analyzes the potential transportation impacts associated with implementation of the project.

No comments related to transportation were received in response to the notice of preparation (NOP). See Appendix A for all NOP comments received during the public scoping period.

3.16.1 Environmental Setting

The environmental setting for transportation includes descriptions of the existing roadway, bicycle, pedestrian, and transit facilities in and connected to the project area.

ROADWAY SYSTEM

The project area encompasses a network of state, county, and city roadways. The Federal Highway Administration (FHWA) classifies urban and rural roadways by road function. The functional classification of roadways defines the role each element of the roadway network plays in serving the transportation system (FHWA 2023). FHWA defines each roadway classification as follows:

- Interstates: Interstates are the highest classification of arterials and were designed and constructed with mobility and long-distance travel in mind.
- Other freeways and expressways: Roadways in this functional classification category look very similar to interstates. While there can be regional differences in the use of the terms "freeway" and "expressway," for the purpose of functional classification, the roads in this classification have directional travel lanes, are usually separated by some type of physical barrier, and their access and egress points are limited to on- and off-ramp locations or a very limited number of at-grade intersections.
- Other principal arterials: These roadways serve major centers of metropolitan areas, provide a high degree of mobility, and can also provide mobility through rural areas. Unlike their access-controlled counterparts, abutting land uses can be served directly.
- Minor arterials: Minor arterials provide service for trips of moderate length, serve geographic areas that are smaller than their higher arterial counterparts, and offer connectivity to the higher arterial system. In an urban context, they provide intra-community connectivity and may carry local bus routes. In rural settings, minor arterials are typically designed to provide relatively high overall travel speeds, with minimum interference to through movement.
- Major and minor collectors: Collectors serve a critical role in the roadway network by gathering traffic from local roads and funneling them to the arterial network.
- Local roads: Locally classified roads account for the largest percentage of all roadways in terms of mileage. They are not intended for use in long distance travel, except at the origin or destination end of the trip, due to their provision of direct access to abutting land (FHWA 2023).

The following roadways are located in the vicinity of the project area:

- State Route (SR) 88 is an east-west two-lane arterial roadway that is part of the National Highway System. SR 88 would be used to access the proposed Pacific Gas & Electricity (PG&E) 230 (kilovolt) kV double-circuit line and PG&E Lockeford Substation during construction and operation and maintenance (O&M) activities. There are no existing pedestrian or bicycle facilities along SR 88.

- SR 99 is a north-south freeway that connects the City of Lodi with Sacramento County to the north and the City of Stockton to the south. SR 99 is part of the National Highway System. In the project vicinity, SR 99 is a four-lane freeway with two travel lanes in both directions. SR 99 would be used to access the project area during construction and O&M. There are no existing pedestrian or bicycle facilities along SR 99.
- SR 12 is an east-west two-lane arterial roadway. Between Interstate 80 and SR 88, which includes the project area, SR 12 is part of the National Highway System. SR 12 would be used to access the project areas in the City of Lodi during construction and O&M. There are no existing bicycle facilities along SR 12, but there are sidewalks present along the southern portion of SR 12 between North Guild Avenue and Beckman Road north of the project area.
- East Kettleman Lane is an east-west two-lane arterial roadway east of Pixley Parkway and a four-lane arterial west of Pixley Parkway. East of SR 99, within city limits, East Kettleman Lane is maintained by the City of Lodi. East of the City of Lodi limits, East Kettleman Lane is maintained by San Joaquin County. This roadway would be used to access proposed work areas during construction and O&M. There are no bicycle or pedestrian facilities located along this roadway.
- Beckman Road is a north-south two-lane collector roadway extending from East Victor Road to East Kettleman Lane. This roadway would be used to access project areas during construction and O&M activities. There is a dedicated Class II bicycle lane on the eastern side of Beckman Road, and sidewalks run parallel to the roadway on both sides between Auto Center Drive and East Victor Drive.
- North Guild/South Guild Avenue is a north-south two-lane local roadway. There are no bicycle facilities along this roadway. There are sidewalks along both sides of the roadway, and the Central California Traction (CCT) Railroad crosses South Guild Avenue approximately 100 feet south of East Lodi Avenue. North Guild Avenue would be used to access the project area during construction and O&M. Additionally, construction work would occur in this roadway during the extension of the existing PG&E service line on South Guild Avenue to the new PG&E Thurman Switching Station.
- East Sargent Road is an east-west two-lane local road maintained by San Joaquin County that would be used to access the project area during construction and O&M activities. There are no pedestrian or bicycle facilities along this roadway.
- East Pine Street is an east-west two-lane collector road. East Pine Street would be used to access proposed work areas during project construction. There are no bicycle facilities along this roadway; however, sidewalks are present along both sides of the roadway west of South Guild Avenue, outside of the project area. The Central California Traction Company (CCT) Railroad crosses East Pine Street approximately 1,300 feet east of South Guild Avenue. The City of Lodi maintains East Pine Street west of the CCT Railroad, and San Joaquin County maintains the portion east of the CCT Railroad.
- North Jack Tone Road is a north-south two-lane local road maintained by San Joaquin County north of the City of Ripon. North Jack Tone Road would be used to access proposed work areas during project construction and O&M activities. There are no pedestrian or bicycle facilities along this roadway.

RAILWAYS

There are several railroad lines and operators in San Joaquin County, including both passenger and freight rail services. The City of Lodi is served by two national freight rail lines, Union Pacific Railroad and Burlington Northern Santa Fe (BNSF), and by CCT, a freight rail line that runs contiguous to the city's industrial park areas (City of Lodi 2024a). The 703 San Joaquin Amtrak line offers daily passenger railway service between Lodi and Sacramento County. The Union Pacific Railroad and Amtrak operate on a track located approximately 1 mile west of the project area. The Union Pacific Railroad also operates on a track approximately 6 miles west of the project area, which is shared with the BNSF. As detailed above, the CCT crosses several roads in the project area including North Guild/South Guild Avenue and East Pine Street.

PUBLIC TRANSIT SYSTEM

San Joaquin County

The San Joaquin Regional Transit District (RTD) is the regional transit provider for the county, serving the Stockton Metropolitan Area and the county with intercity, interregional, and rural transit services (RTD 2021: 12). RTD operates over 63 bus routes (fixed-route, express routes, commuter routes, and on-demand) and Americans with Disability Act (ADA) paratransit services within a 1,426 square-mile service area. RTD Route 93 is a fixed-route bus service that operates between the City of Stockton and City of Lodi and is the closest RTD service to the project area. Route 93 buses operate daily between approximately 6:00 a.m. and 7:00 p.m. (RTD 2024). The closest Route 93 bus stop is located near the intersection of South Sacramento Street and West Oak Street in the City of Lodi, approximately 1.10 miles west of where project construction activity would occur.

City of Lodi

The Lodi Grapeline provides local fixed-route, Dial-a-Ride service, and paratransit bus service in the City of Lodi with approximately 30 vehicles in the system fleet (City of Lodi 2024c: 5-12). There are five weekday and four weekend fixed routes, which start and end at the Lodi Station. Fixed-route bus services are offered Monday through Friday between 6:30 a.m. and 7:30 p.m. and on weekends between 7:30 a.m. and 6:30 p.m. (City of Lodi 2024b). Route 5 is the closet public transit service to the project area and offers service approximately once per hour. The nearest Route 5 bus stop is approximately 0.50 miles north of the project area along Cluff Avenue and Lockeford Street.

BICYCLE AND PEDESTRIAN SYSTEM

San Joaquin County and City of Lodi provide bicycle facilities along several roadways in their jurisdictions. The California Department of Transportation (Caltrans) classifies bicycle facilities into the following types (Caltrans 2020a):

- **Class I Shared-Use Paths:** Paths completely separated from motor vehicle traffic used by people walking and biking, making them comfortable for people of all ages and abilities. Typically located immediately adjacent and parallel to a roadway or in its own independent right-of-way (ROW).
- **Class II Bicycle Lanes:** A dedicated lane for bicycle travel adjacent to traffic. A painted white line separates the bicycle lane from motor vehicle traffic.
- **Class III Signed Bicycle Routes:** Streets with signs and/or pavement markings that indicate people biking share the travel lane with motor vehicles.
- **Class IV Bikeways:** A bikeway for the exclusive use of bicycles and includes a separation between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible barriers, or on-street parking.

According to the most recent available information (San Joaquin County 2020a: Table 2-1), the unincorporated San Joaquin County bicycle system is comprised of 33.5 miles of bicycle and paved trail facilities; approximately 8.10 miles of Class I shared-use paths, 4.20 miles of Class II bicycle lanes, and 21.2 miles of Class III bicycle routes. There are no existing designated bicycle facilities within 1,000 feet of the project area in the unincorporated county. There are also no sidewalks present in the project area outside the City of Lodi limits.

The City of Lodi includes 47.5 miles of existing bikeways: approximately 0.10 miles of Class I bicycle paths, 46.4 miles of Class II bicycle lanes, and 1.0 mile of a Class III bicycle route (City of Lodi 2012: 12). There are no existing bicycle facilities within 0.5 miles of the project area in the City of Lodi. The City of Lodi maintains sidewalks along city streets. As detailed above under "Roadway Systems," several roadways have sidewalks along one or both sides of the road in the project area.

3.16.2 Regulatory Setting

FEDERAL

Federal Highway Administration

FHWA, an agency of the US Department of Transportation, provides stewardship over the construction and preservation of the nation's highways, bridges, and tunnels. FHWA also provides technical assistance to state and local agencies to improve safety, mobility, and livability and to encourage innovation in these areas. FHWA also provides regulation and guidance related to work zone safety, mobility, and temporary traffic control device implementation.

STATE

California Department of Transportation

Caltrans is the state agency responsible for the design, construction, maintenance, and operation of the California State Highway System, as well as the segments of the Interstate Highway System in California. Caltrans District 10 is responsible for the O&M of highways in the project area. Caltrans requires a transportation permit for any transport of heavy construction equipment or materials that necessitates the use of oversized vehicles on state highways, and an encroachment permit for any work in Caltrans ROW. Caltrans has established the following guidance related to the function of state roadways that are relevant to the project.

California Manual on Uniform Traffic Control Devices, Part 6: Temporary Traffic Control

California Manual on Uniform Traffic Control Devices (CA MUTCD) "Part 6: Temporary Traffic Control" provides principles and guidance for the implementation of temporary traffic control to ensure the provision of reasonably safe and effective movement of all roadway users (e.g., motorists, bicyclists, pedestrians) through or around temporary traffic control zones while reasonably protecting road users, workers, responders to traffic incidents, and equipment. Additionally, this document notes that temporary traffic control plans and devices shall be the responsibility of the public body or official having jurisdiction to guide road users (Caltrans 2024a: 1029).

Interim Local Development Intergovernmental Review Safety Review Practitioners Guidance

The purpose of the Interim Local Development Intergovernmental Review (LDIGR) Safety Review Practitioners Guidance is to provide instructions to Caltrans personnel, lead agencies, developers, and consultants conducting safety reviews for proposed land use projects and plans affecting the State Highway System. The LDIGR guidance establishes the safety impact review expectations for Caltrans and lead agencies to comply with CEQA; however, it does not establish thresholds of significance for determining safety impacts (Caltrans 2020b). The LDIGR guidance can also be used by lead agencies, developers, and consultants as a model for analyzing the safety impacts of proposed land use projects and plans on local roadways. The LDIGR guidance prioritizes vulnerable users and communities; enhances safety for pedestrians, bicycle, transit, and vehicular modes; and applies both reactive and systemic perspectives.

Encroachment Permits Manual

The Caltrans *Encroachment Permits Manual* provides information on the permitting process, describes departmental policies, and maintains uniform methods and procedures related to the issuance of encroachment permits (Caltrans 2024b). Section TR-0045 of the *Encroachment Permits Manual* describes the general provisions of a Caltrans encroachment permit including standards of construction and requirements for public traffic control (Caltrans 2022).

Standard Specifications

The Caltrans Standard Specifications provide detailed requirements and guidelines for the construction of transportation projects in California. These specifications cover a wide range of topics, including materials, construction methods, testing procedures, and quality assurance measures. They are intended to ensure that

transportation projects in the state are built to high standards and meet the necessary safety and performance criteria. Contractors, engineers, and other stakeholders involved in transportation projects funded or managed by Caltrans must adhere to these specifications during the planning, design, and construction phases. The specifications are periodically updated to reflect changes in technology, industry best practices, and regulatory requirements.

Highway Design Manual

The Caltrans *Highway Design Manual* establishes uniform policies and procedures intended to carry out state highway design functions but does not establish a legal standard for such function. Chapter 400 of the *Highway Design Manual* describes the design standards for at-grade intersections that are intended to balance the convenience, ease, and comfort of users (Caltrans 2020a).

California Fire Code

The 2022 California Fire Code, which is codified as Part 9 of Title 24 of the California Code of Regulations (CCR), incorporates by adoption the 2021 International Fire Code and contains regulations related to construction, maintenance, access, and use of buildings. Topics addressed in the California Fire Code include design standards for fire apparatus access (e.g., turning radii, minimum widths), standards for emergency access during construction, provisions intended to protect and assist fire responders, and several other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The California Fire Code contains specialized technical regulations related to fire and life safety. The California Building Standards Code, including the California Fire Code, is revised and published every 3 years by the California Building Standards Commission. San Joaquin County has adopted the 2022 California Fire Code by reference in Section 4-1000 of the San Joaquin County Code of Ordinances (County Code). The City of Lodi has also adopted the 2022 California Fire Code by reference in Section 15.20.010 of the City of Lodi Municipal Code (City Municipal Code). Therefore, PG&E and LEU would adhere to standards included in the 2022 California Fire Code as adopted by the County and City, respectively.

California Joint Utility Traffic Control Committee

PG&E is a member of the California Joint Utility Traffic Control Committee, which coordinates and prepares the *California Temporary Traffic Control Handbook* (CATTCH), previously known as the *California Joint Utility Traffic Control Manual*. The CATTCH provides basic standards for the safe movement of the public, motorists, bicyclists, pedestrians, and workers. It is intended to serve as a guide and does not establish or create a legal standard (SCE 2018). PG&E would adhere to the guidelines included in the CATTCH to ensure the safety of the traveling public during project construction and O&M activities.

California Code of Regulations Section 15064.3

On December 28, 2018, CEQA Guidelines Section 15064.3 was introduced to address the determination of significance for transportation impacts. This amendment mandates that transportation analyses be based on vehicle miles traveled (VMT) rather than congestion metrics, such as level of service (LOS). The shift in focus was a direct response to legislation, notably Senate Bill (SB) 743, passed in 2013, that required the Governor's Office of Planning and Research (OPR; now the Office of Land Use and Climate Innovation) to develop new CEQA Guidelines that address traffic metrics under CEQA. As stated in the legislation, upon adoption of the new guidelines, "automobile delay, as described solely by level of service (LOS) or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any."

Following approval by the Office of Administrative Law, the updated CEQA Guidelines took effect statewide on July 1, 2020, implementing the provisions outlined in CEQA Guidelines Section 15064.3. As a result, VMT analysis has become a crucial component of project evaluations under CEQA. Therefore, VMT is considered in the analysis of this project.

In December of 2018, OPR published the most recent version of the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory), which provides guidance for VMT analysis. The 2018 Technical Advisory provides guidance related to screening thresholds for small projects to indicate when detailed analysis is needed or if

a project can be presumed to result in a less-than-significant VMT impact. The Technical Advisory notes that projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact, absent substantial evidence indicating otherwise (OPR 2018).

REGIONAL/LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City of Lodi and San Joaquin County) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Because the LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin Council of Governments

The San Joaquin Council of Governments (SJCOG) is a joint-powers authority comprised of San Joaquin County and the cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon, and Lathrop (SJCOG 2024). As the metropolitan planning organization for the region, SJCOG is required to prepare a long-range transportation plan (i.e., the metropolitan transportation plan) for all modes of transportation, including public transit, automobile, bicycle, and pedestrian, every 4 years. In addition to preparing the region's long-range transportation plan, SJCOG assists in planning for transit, bicycle networks, clean air, and airport land uses.

Metropolitan Transportation Plan/Sustainable Communities Strategy

SJCOG is responsible for preparing and updating the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) for the San Joaquin region. The purpose of the MTP/SCS is to establish regional access and identify mobility goals; identify present and future transportation needs, deficiencies, and constraints within the transportation system; analyze potential solutions; estimate available funding; and propose investments. The MTP/SCS serves as a guide for achieving public policy decisions that will result in balanced investments for a wide range of multimodal transportation improvements (SJCOG 2022).

Regional Transportation Improvement Program

SJCOG is the regional transportation planning agency for the region and, as such, prepares and adopts the Regional Transportation Improvement Program (RTIP) every 2 years. The RTIP spans 5 years and includes a list of highway, local road, transit, and active transportation projects that would maximize mobility and accessibility; increase safety and security; preserve the efficiency of the existing transportation system; and improve the quality of life for residents. SJCOG adopted the 2024 RTIP in November 2023. The 2024 RTIP covers 4 years of programming: federal fiscal years 2024–2028. The project listing in the RTIP provides a detailed description for each individual project in the 2024–2028 RTIP, including those in San Joaquin County and the City of Lodi.

Regional Bicycle, Pedestrian, and Safe Routes to School Plan

SJCOG approved the *Regional Bicycle, Pedestrian, and Safe Routes to School Plan* in 2012. The plan envisions meeting the mobility needs for people of all ages and abilities in San Joaquin County by improving and enhancing the existing bicycle and pedestrian network (SJCOG 2012: 1-1). The *Regional Bicycle, Pedestrian, and Safe Routes to School Plan* identifies projects of regional significance and is intended to guide the prioritization of funding and facilitate project implementation. The plan also includes an implementation and funding strategy to help agencies involved in the implementation of the plan.

Regional Transit Systems Plan

In collaboration with the bus and rail transit operators in San Joaquin County, SJCOG prepared the *Regional Transit Systems Plan* (Systems Plan). The Systems Plan is a long-range transit plan that evaluates bus and rail transit needs, analyzes their related costs, and details a financial forecast of anticipated funding through 2024 (SJCOG 2016).

San Joaquin County General Plan

The General Plan serves as a blueprint for development and associated improvements in the county. The Transportation and Mobility Element sets goals and establishes policies to improve the county transportation network and enhance mobility for all users. The following General Plan Transportation and Mobility Element policies are applicable to the project (San Joaquin County 2016):

- Policy TM-1.1: Transportation System Safety. The County shall manage the transportation system to ensure safe operating conditions.
- Policy TM-1.7: Energy Conservation. The County shall develop the transportation system to reduce vehicle miles traveled, conserve energy resources, minimize air pollution, and reduce greenhouse gas emissions.
- Policy TM-1.12: Transportation and Land Use. The County shall ensure that transportation system investments and improvements support existing and future sustainable land use patterns.
- Policy TM-2.5: Reconstructed Rural Complete Streets. The County may require, based on community support and feasibility and the County's Bicycle Master Plan, reconstructed streets in rural areas to accommodate bicyclists and agricultural machinery, except where facility improvements are determined to be cost prohibitive.

San Joaquin County Bicycle Master Plan

The *San Joaquin County Bicycle Master Plan Update* (County Bicycle Master Plan Update) is the guiding document for achieving the County's goal to provide a safe, comfortable, and efficient bicycle network and bicycling experience for county residents and visitors (San Joaquin County 2020a). The County Bicycle Master Plan Update also includes an overview of existing bicycle facilities in the county and proposes additional bicycle facilities to create a more robust transportation network.

County Code of Ordinances

The County Code includes regulations regarding county streets, sidewalks, and public spaces. Section 10.3000 of the County Code details requirements for excavation and encroachments, including provisions regarding road encroachments for the purpose of protecting the safety of the public traveling on public roads. Section 8 of the County Code includes building standards, and Section 4-1000 adopts the 2022 California Fire Code.

San Joaquin County Encroachment Permit

The County Department of Public Works requires an encroachment permit for work conducted in the County ROW. The encroachment permit application specifically requires the preparation of four traffic control plans prepared in accordance with the latest edition of the CA MUTCD (San Joaquin County 2021). The County also provides regulatory guidance related to roadway rights-of-way.

San Joaquin County Improvement Standards

The San Joaquin County Improvement Standards establish minimum design standards and construction standards for development projects under the jurisdiction of San Joaquin County to provide for the coordinated development of facilities to be used by and for the protection of the public (San Joaquin County 2014). The San Joaquin County Improvement Standards set the guidelines for the design, plan preparation, and construction of roadways, drainage, and related improvements. Because the project could result in construction in public roadway ROWs, if roadway reconstruction were required, these standards could apply.

City of Lodi General Plan

The City of Lodi General Plan establishes policies that serve as a blueprint for physical development throughout the city and guide decisions by policymakers, such as the City Planning Commission and City Council (City of Lodi 2024c). The Transportation Element establishes existing conditions, proposes transportation system improvements, and sets forth policies to achieve a multimodal transportation network. The City of Lodi General Plan contains the following policies that are applicable to the project (City of Lodi 2010):

- **Policy T-G1:** Plan, develop, and maintain a comprehensive, coordinated transportation system to ensure the safe, efficient, and convenient movement of people and goods.
- **Policy T-G4:** Provide for safe and convenient pedestrian, bicycle, and transit circulation.
- **Policy T-G8:** Encourage reduction in vehicle miles traveled as part of a strategy to reduce greenhouse gas emissions.
- **Policy T-P2:** Review new development proposals for consistency with the Transportation Element and Capital Improvements Program. Ensure that new projects provide needed facilities to serve developments and/or contribute a fair share to the City's transportation impact fee.
- **Policy S-28:** Ensure that major access and evacuation corridors are available and unobstructed in case of major emergency or disaster. Continue to identify appropriate road standards, including minimum road widths and turnouts to provide adequate emergency access and evacuation routes.

City of Lodi Bicycle Master Plan

The *City of Lodi Bicycle Master Plan* (City Bicycle Master Plan) includes bicycle policies, programs, and standards intended to make bicycling in the City of Lodi more safe, comfortable, convenient, and enjoyable for all bicyclists (City of Lodi 2012: 1). The City Bicycle Master Plan analyzes existing bicycle conditions, proposes future bicycle facilities in the City of Lodi, and includes strategies to ensure implementation of these recommendations is manageable and fundable. The following objective could be applicable to the project (City of Lodi 2012:2).

- **Objective 2:** Coordinate with bicycle facilities that exist and are planned for construction in unincorporated San Joaquin County.

City of Lodi Short-Range Transit Plan

The City of Lodi Short-Range Transit Plan (SRTP) evaluates the effectiveness and efficiency of existing transit services, reviews transit needs, and recommends improvements to transit services in the City of Lodi. The SRTP provides a 10-year (i.e., 2019–2029) plan that focuses on concrete implementable steps toward the long-range vision for public transit services (City of Lodi 2019). The SRTP also recommends that an annual transit performance summary report be prepared and provided to the city council to evaluate performance measures and standards (City of Lodi 2019: 56).

City of Lodi Encroachment Permit

The City of Lodi encroachment permit application includes provisions for any activity in the public ROW. Street closure provisions include an emergency access lane that is required to be kept clear of construction and signage to notify roadway users of any street closures.

City of Lodi Construction Specifications

The City of Lodi has established construction specifications to guide construction activities in the city. Section 6-12 of the *Construction Specifications* contains requirements for construction in the public ROW, including proper notification of upcoming activity to residents and businesses, as well as notification to city service providers, such as the Lodi Fire Departments and Transit Departments (City of Lodi 2022: 6-12.1)

City of Lodi Design Standards

The City of Lodi *Public Improvement Design Standards* (City Design Standards) include requirements for street and sidewalk design as well as traffic control. The City Design Standards also include guidelines for the development approval process. Section 1.301, "General Design," details standards for bicycle facilities; Section 1.303 includes minimum requirements for driveway sight distances; and Section 5.400 lists requirements for traffic control measures.

City of Lodi Municipal Code

The City Municipal Code contains standards and regulations applicable to the project. Section 15 of the City Municipal Code adopts the 2022 California Fire Code by reference apart from Section 103.2 (published by the International Code Council).

3.16.3 Impacts Analysis and Mitigation Measures

This section describes the analysis techniques, assumptions, and results used to identify potentially significant impacts of construction, operation, and maintenance of the proposed project on the transportation system. Transportation impacts are described and assessed, and mitigation measures are recommended for impacts identified as significant.

ANALYSIS METHODOLOGY

The following methods were used to evaluate potential impacts of the project.

Bicycle and Pedestrian Analysis

The bicycle and pedestrian analysis (addressed in Impact TRA-1, below) evaluates whether implementing the project would, either directly or indirectly, disrupt existing bicycle or pedestrian programs or facilities; interfere with walking or bicycling accessibility; interfere with the implementation of a planned bicycle or pedestrian facility; or create a physical or operational transportation outcome that conflicts with applicable bicycle or pedestrian system plans, guidelines, policies, or standards.

Transit Analysis

The transit analysis (addressed in Impact TRA-1, below) evaluates whether the project would, directly or indirectly, disrupt existing transit services or facilities, substantially delay public transit, interfere with the implementation of a planned transit facility, or create physical or operational transportation outcomes that conflict with desired conditions expressed in transit policies adopted by the County, City, or RTD for their respective facilities.

Vehicle Miles Traveled Analysis

As detailed in the "Regulatory Setting" section, above, CEQA Guidelines Section 15064.3 was added December 28, 2018, to address the determination of significance for transportation impacts, which requires that the analysis is based on VMT instead of congestion (such as LOS). The change in the focus of transportation analysis is the result of legislation (i.e., SB 743) and is intended to shift the emphasis from congestion to, among other things, reducing greenhouse gas (GHG) emissions, promoting a diversity of land uses, and developing multimodal transportation networks. Pursuant to CEQA Guidelines Section 15064.3(c), CEQA required VMT analyses beginning July 1, 2020. Therefore, VMT is considered in the analysis of this project.

CPUC and City of Lodi have not adopted VMT guidelines or associated thresholds of significance. In 2020, San Joaquin County prepared a draft VMT Thresholds Study (San Joaquin County 2020c) but has not formally adopted VMT guidelines. In the absence of these, the VMT analysis herein (addressed in Impact TRA-2, below) relies on the guidance provided in CEQA Guidelines Section 15064.3 and the OPR Technical Advisory to analyze VMT impacts. The OPR Technical Advisory (OPR 2018) was issued in support of CEQA Guidelines Section 15064.3 and outlines recommended procedures and methods for evaluating transportation impacts for residential, office, and retail projects; however, it does not offer guidance for utility projects or the expansion of existing uses outside of residential, office, and retail land uses.

Relevant to calculating trips is CEQA Guidelines Section 15064.3(a), which states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks (OPR 2018). Heavy-duty truck VMT could be included for modeling convenience and ease of calculation (for example, where models or data provide combined auto and heavy truck VMT) but need not be. Therefore, larger on-road construction vehicles that do not fall in the categories of cars and light trucks do not need to be considered in calculations of trips or VMT. CEQA Guidelines Section 15064.3(b)(3), "Qualitative Analysis," states that if existing models or methods are not available to estimate the VMT for the project being considered, a lead agency may analyze project VMT qualitatively. Additionally, this section notes that for many projects, a qualitative analysis of construction traffic may be appropriate. Given the nature of the project, and the fact that any trip generation is almost entirely construction related, this section is applicable to the project. CEQA Guidelines Section 15064.3(b)(4) further explains that the lead

agency has discretion to choose the most appropriate methodology to evaluate VMT subject to other applicable standards, such as CEQA Guidelines Section 15151 (standards of adequacy for EIR analyses).

The OPR Technical Advisory notes that projects generating or attracting fewer than 110 trips per day generally may be presumed to result in a less-than-significant transportation impact, absent substantial evidence indicating otherwise (OPR 2018).

Transportation Hazards and Emergency Access Analysis

The transportation hazards analysis (addressed in Impact TRA-3, below) and emergency access analysis (addressed in Impact TRA-4, below) evaluate whether the project would, directly or indirectly, substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); create potentially hazardous conditions for people walking, bicycling, driving, or for public transit operations; or result in inadequate emergency access.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant-proposed measures (APMs) that are incorporated into the PG&E components of the project. Similarly, LEU has developed best management practices (BMPs) that would apply to the LEU components of the project. The project includes the following APMs and BMPs related to transportation.

PG&E APMs

- APM TRA-1: PG&E Temporary Traffic Controls. PG&E will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those permits related to state route crossings and the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. PG&E will develop traffic control plans to detail road and lane closure, or width reduction or traffic diversions as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area. PG&E will provide the CPUC with copies of permits obtained prior to construction activity in a given jurisdiction or location. If required for obtaining a local encroachment permit, PG&E will establish a Traffic Management Plan (TMP) to address haul routes, timing of heavy equipment and building material deliveries, potential street or lane closures, signing, lighting, and traffic control device placement. When working on state highways, PG&E will ensure traffic control operations are compliant with both the California Temporary Traffic Control Handbook, 2018 edition, and the California Manual on Uniform Traffic Control Devices, 2014 edition.
- APM TRA-2: PG&E Repair of Damaged Transportation Infrastructure. As part of the final construction activities of the project, PG&E will restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with PG&E activities.
- APM GHG-1: PG&E Minimize GHG Emissions. PG&E will implement the following to minimize GHG emissions:
  - Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.

- Maintain construction equipment in proper working conditions in accordance with manufacturer specifications.
- Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and manufactured in 2000 or later will be registered under the California Air Resources Board (CARB) Statewide Portable Equipment Registration Program.
- Minimize welding and cutting by using compression or mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

LEU BMPs

- **BMP TRA-1: LEU Temporary Traffic Controls.** LEU will obtain any necessary transportation and encroachment permits from Caltrans and the local jurisdictions, as required, including those permits related to the transport of oversized loads and certain materials, and will comply with permit requirements designed to prevent excessive congestion or traffic hazards during construction. LEU will develop traffic control plans to detail road and lane closure or with reduction or traffic diversions as required by the encroachment permits. Construction activities that are in, along, or cross local roadways will follow best practices and local jurisdictional encroachment permit requirements—such as traffic controls in the form of signs, cones, and flaggers—to minimize impacts on traffic and transportation in the project area. If required for obtaining a local encroachment permit, LEU will establish a TMP to address haul routes, timing of heavy equipment, and heavy building material deliveries, potential street or lane closures, signing, lightning, and traffic control device placement.
- **BMP TRA-2: LEU Repair of Damaged Transportation infrastructure.** As part of the final construction activities of the project, LEU will restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with LEU construction activities.
- **BMP GHG-1: LEU Minimize GHG Emissions.** LEU will implement the following to minimize GHG emissions:
  - Minimize unnecessary construction vehicle idling time. The ability to limit construction vehicle idling time will depend on the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel-powered vehicles, have extended warm-up times following start-up that limit their availability for use following start-up. Where such diesel-powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The project will apply a "common sense" approach to vehicle use, so that idling is reduced as far as possible below the maximum of 5 consecutive minutes allowed by California law; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction supervisors will include briefings to crews on vehicle use as part of pre-construction conferences. Those briefings will include discussion of a "common sense" approach to vehicle use.
  - Maintain construction equipment in proper working conditions in accordance with manufacture specifications.
  - Minimize construction equipment exhaust by using low-emission or electric construction equipment where feasible. Portable diesel fueled construction equipment with engines 50 horsepower or larger and

manufactured in 2000 or later will be registered under the CARB Statewide Portable Equipment Registration Program.

- Minimize welding and cutting by using compression of mechanical applications where practical and within standards.
- Encourage use of natural gas-powered vehicles for passenger cars and light-duty trucks where feasible and available.
- On road and off-road vehicle tire pressures will be maintained to manufacturer specifications. Tires will be checked and re-inflated at regular intervals.
- Use line power instead of diesel generators at construction sites where line power is available.
- If suitable park-and-ride facilities are available in the project vicinity, construction workers will be encouraged to carpool to the job site.
- Encourage the recycling of construction waste where feasible.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to transportation under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. A transportation-related impact would be significant if implementation of the project would:

- conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
  - substantially delay public transit;
- conflict or be inconsistent with CEQA Guidelines Section 15064.3(b);
- substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
  - interfere with walking or bicycling accessibility;
  - create potentially hazardous conditions for people walking, bicycling, or driving, or for public transit operations; or
- result in inadequate emergency access.

ISSUES NOT DISCUSSED FURTHER

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project components would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities; substantially delay public transit; substantially increase transportation hazards; interfere with walking or bicycling accessibility; create potentially hazardous conditions for people walking, bicycling, or driving, or for public transit operations; or result in inadequate emergency access.

Proposed work at the remote-end facilities would not result in environmental impacts related to these areas of evaluation and are not addressed further in this section.

Approximately two workers would access the remote-end stations. These worker trips are included in the total peak construction trips disclosed in the analysis below.

IMPACT ANALYSIS

Impact TRA-1: Conflict with a Program, Plan, Ordinance, or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle, and Pedestrian Facilities

PG&E Project Components

The project is not a land use development project that would result in increased demand for pedestrian, bicycle, or transit facilities, or increase transit ridership, as there would be no operational activity associated with the project that would generate such trips. There are no existing transit, bicycle, or pedestrian facilities in the PG&E portion of the project area. Therefore, implementation of the project would not damage or adversely affect any existing transit, pedestrian, or bicycle facilities, or substantially delay public transit. There are no planned or programmed transit or pedestrian facilities in the PG&E portion of the project area. The SJCOG *Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan* proposes Class III bicycle routes along North Jack Tone Road, which is adjacent to a proposed construction work area and a potential staging area. The project would not permanently alter the physical transportation network or adversely affect the implementation of the proposed bicycle facilities. However, O&M activities that require road closures could interfere with bicycling accessibility once the Class III bicycle facilities are implemented along North Jack Tone Road. Therefore, the project would potentially conflict with the goal of improving bicycle access and safety included in the SJCOG *Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan* (SJCOG 2012: 1-2).

Implementation of APMs

Implementation of the APMs would ensure the safe movement of the traveling public and minimize effects of project construction and O&M activities on existing and proposed transportation facilities. Implementation of APM TRA-1 would ensure that PG&E obtains a transportation permit for heavy vehicles navigating the transportation network and develops a traffic control plan to detail any roadway or lane closures, width reductions, or traffic diversions, as required by jurisdictional encroachment permits. Additionally, if required for obtaining a local encroachment permit, PG&E would establish a traffic management plan to address haul routes; timing of heavy equipment and heavy building material deliveries; potential street or lane closures; and signing, lighting, and traffic control device placement. The general provisions associated with a San Joaquin County encroachment permit include a requirement that the current and future safety and convenience of the traveling public (e.g., pedestrians and bicyclists) be considered in the location and methods of construction utilized (San Joaquin County 2020b: 1). The County encroachment permit application would also require PG&E to prepare and submit four sets of traffic control plans prepared in accordance with the latest version of the CA MUTCD (San Joaquin County 2021). The CA MUTCD includes guidance to ensure the safe movement of vehicles, bicyclists, and pedestrian traffic. For example, Section 6F of the CA MUTCD recommends implementing bicycle/pedestrian detour signs where flow is rerouted to ensure safe and effective movement during construction work in the public ROW. Implementation of APM TRA-2 would require PG&E to restore all removed or damaged curbs, gutters, sidewalks, and paved surfaces as necessary.

Therefore, project construction would not result in permanent changes to the transportation network that could interfere with proposed facilities included in transportation plans or programs. For these reasons, the project would not disrupt any existing or planned county transportation facilities and would not conflict with a program, plan, ordinance, or policy addressing such facilities.

LEU Project Components

The project would include the construction of a new LEU Guild Substation and a new PG&E Thurman Switching Station on a 5.75-acre parcel located approximately 130 feet south of East Lodi Avenue and approximately 480 feet

northwest of the intersection of South Guild Avenue and East Thurman Road (see Figure 2-6). Construction of the substation and switching station would include installation of vehicle access driveways along South Guild Avenue west into the stations, which would require cutting the curb and sidewalk.

There are no existing or proposed transit facilities or services located within 0.25 miles of the LEU portion of the project area. There are also no existing bicycle facilities within 0.25 miles of the LEU portion of the project. The nearest bicycle facilities are Class II bicycle lanes and Class III bicycle routes along Beckman Road located approximately 0.33 miles west of construction activities. Thus, project construction and O&M activities would not disrupt any existing bicycle or transit facilities or delay public transit.

There are sidewalks located along both sides of Guild Avenue and along the northern side of East Lodi Avenue between South Guild Avenue and Beckman Road. Construction activities in the public ROW could intermittently reduce, disrupt, or temporarily eliminate access to portions of these sidewalks. Additionally, the City Bicycle Master Plan proposes Class II bicycle lanes along South Guild Avenue between the southeastern city limits and Turner Road and along East Lodi Avenue between South Guild Avenue and Beckman Road, adjacent to the new substation and switching station site (City of Lodi 2012: 19). Construction of the vehicular access driveway along South Guild Avenue could alter the existing roadway, thus conflicting with the implementation of the proposed Class II bicycle lanes and City of Lodi General Plan Policy T-G4, which aims to provide safe pedestrian and bicycle circulation.

Implementation of BMPs

Implementation of BMP TRA-1 would ensure that LEU obtains all necessary transportation and encroachment permits and complies with all permit requirements. Per Section 12.04 of the City Municipal Code, an encroachment permit is required for any construction work that occurs in the city ROW. The general provisions of a City encroachment permit state that all construction work shall conform to the City of Lodi Construction Specifications and would be subject to approval by the director of public works (City of Lodi n.d.). Implementation of BMP TRA-2 would ensure that LEU restore all removed curbs, gutters, and sidewalks and repave all removed or damaged paved surfaces associated with construction activities in the public ROW.

In summary, implementation of BMPs TRA-1 and TRA-2 would ensure that safe access is provided to all pedestrians during project construction and O&M activities, and that all transportation infrastructure is returned to its original condition, such that the physical transportation network would not be adversely affected. Therefore, the proposed bicycle facilities along South Guild Avenue would not be adversely affected by project construction.

Significance Before Mitigation

Implementation of the project would not result in modifications to existing transit facilities that would disrupt existing service or interfere with the implementation of any planned pedestrian, transit, or bicycle facilities contained in adopted programs, plans, policies, or ordinances. The project would also not result in a population increase and, thus, would not generate additional demand for transit, bicycle, or pedestrian facilities and services. Implementation of APM TRA-2 and BMP TRA-2 would ensure that PG&E and LEU restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with project construction activities, respectively. For these reasons, the project would not adversely affect any existing or planned bicycle, pedestrian, or transit facilities or conflict with a program, plan, ordinance, or policy addressing transit, bicycle, or pedestrian facilities. This impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact TRA-2: Conflict or Be Inconsistent with CEQA Guidelines Section 15064.3(b) Regarding Vehicle Miles Traveled

As detailed above in the "Analysis Methodology" section, CEQA Guidelines Section 15064.3(b)(3), "Qualitative Analysis," states that a project may be analyzed qualitatively if modeling or methodology does not exist to adequately evaluate a particular project. Additionally, CEQA Guidelines Section 15064.3(b)(4), "Methodology," allows lead agencies the discretion to choose the most appropriate approach to analyze a project's impacts to VMT.

Because the project does not involve any development or land use changes, the VMT analysis herein relies primarily on construction worker commute trips and maintenance trips associated with project O&M activities.

PG&E Project Components

Construction Activities

Although different phases of construction would require different numbers of construction personnel, an estimated 66 workers per day are anticipated to be working during peak construction (i.e., 2027 quarter 2) with approximately three to 18 workers assigned to various project activities, and approximately 78 percent (i.e., 52 workers) of the workforce supporting the PG&E portion of the project. Therefore, construction workers for the PG&E portion of the project are expected to generate a total of 104 average daily trips during peak construction, assuming that they would not carpool and would generate two trips per worker per day. VMT generated by construction workers during project construction would not be newly generated; instead, it would be redistributed throughout the regional roadway network based on the different worksites to which workers travel each day. Because construction workers travel on the regional roadway network to access various sites and because the project area is in proximity to population centers (e.g., City of Stockton), construction workers would not generate a substantial number of new trips as compared to existing conditions. Additionally, redistributed VMT from construction worker commutes could increase or decrease depending on the locations of the workers' housing and the locations of the projects they are working on. It is possible that VMT could slightly increase given the rural location of the project site; however, due to the temporary nature of project construction activities, when construction is completed, construction-related vehicle trips and therefore VMT attributed to the project construction would cease.

Operation and Maintenance

O&M associated with the project would consist of routine inspection, repair, and maintenance activities. As detailed in Section 2.6.12, "Operations and Maintenance," substations would be operated entirely remotely, and no new full-time staff would be required for O&M of the PG&E portion of the project. Additionally, for existing facilities modified or expanded as part of the project, O&M activities would be conducted as they currently are for PG&E's existing facilities in the project area. Ongoing O&M activities require a relatively small number of trips and would not generate a substantial increase in VMT. New facilities would be incorporated into existing PG&E O&M procedures. Thus, existing utility worker or supplier trips would be to pre-existing, modified project components, or new project components that would be co-located with preexisting transmission infrastructure. For these reasons, O&M would not generate a substantial number of new trips or result in substantial increases in VMT.

Implementation of APMs

APM GHG-1 would encourage carpooling to the jobsite, which could result in a reduction in construction worker VMT. However, because carpooling would not be required, no carpooling is assumed for purposes of this analysis.

LEU Project Components

Construction Activities

As detailed above, an estimated 66 workers per day are anticipated to be working during peak construction activity (i.e., 2027 quarter 2), with approximately three to 18 workers assigned to various project activity sites. During the peak construction period, approximately 22 percent of the workforce (i.e., approximately 15 workers) would support the LEU portion of the project. Therefore, construction workers for the LEU portion of the project are expected to generate a total of 30 average daily trips during peak construction, assuming that they would not carpool and would generate two trips per worker per day. Additionally, construction trips and associated VMT would be temporary, minimizing the potential long-term impact of the project on GHG emissions. Furthermore, due to the temporary nature of project construction activities, when construction is completed, construction-related vehicle trips would cease, and VMT levels would return to pre-existing conditions.

Operation and Maintenance

O&M associated with the project would consist of routine inspection, repair, and maintenance activities. Monitoring of the LEU facilities would be performed remotely, and no new full-time staff would be required for O&M of the additional substation. New facilities would be incorporated into existing LEU operation and maintenance procedures. As a result, ongoing O&M activities require a small number of trips, and because most new project components would be co-located with preexisting infrastructure, the project would not generate a substantial increase in VMT.

Implementation of BMPs

BMP GHG-1 would encourage carpooling to the jobsite, which could result in a reduction in construction worker VMT. However, because carpooling would not be required, no carpooling is assumed for purposes of this analysis.

Significance before Mitigation

The OPR screening criteria for small projects (i.e., 110 trips per day) would only be exceeded during peak periods of construction (i.e., 2027 quarter 2) when total trips from PG&E project components (i.e., 104) and LEU project trips (i.e., 30) generate a combined 134 trips. However, as described above, construction worker travel is not considered a substantial increase in VMT in this analysis because construction VMT is temporary, and the VMT generated by construction workers during project construction would mostly be a redistribution of existing construction worker VMT, rather than a new source of VMT in the region. Based on the proximity of the various construction locations in the project site to population centers (e.g., the Cities of Lodi and Stockton), it can be reasonably assumed that trained construction personnel would reside in the general project region, such that the VMT typically generated by these workers would not substantially increase regional VMT. Additionally, the project would not generate a substantial number of new worker trips during O&M beyond existing conditions. For these reasons, the project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, and the impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact TRA-3: Substantially Increase Hazards Due to a Geometric Design Feature or Incompatible Uses

PG&E Project Components

Construction Activities

Many of the existing paved and unpaved roads in the project area that would be used to access worksites are currently used by large agricultural vehicles and equipment during field preparation, planting, maintenance, and harvesting. Thus, the project would not introduce incompatible uses from the use of heavy trucks or construction equipment on the surrounding roadway. There are no existing bicycle, transit, or pedestrian facilities in the vicinity of the PG&E portion of the project. Therefore, project construction would not create potentially hazardous conditions for people walking or bicycling or interfere with walking or bicycling accessibility.

Project construction would require minor modification of existing roadways to provide safe access for construction vehicles and equipment. Specifically, some agricultural roads that would be temporarily used to access work areas would require widening up to 16 feet to accommodate construction equipment that could be larger than the typical agricultural vehicle. Additionally, curve improvements at existing road intersections that cannot accommodate the turn radius of construction equipment may also be necessary. Finally, several unpaved roads may need to be winterized to accommodate heavy loads during the winter.

PG&E would be required to obtain an encroachment permit for any construction work that would occur in the public ROW per Section 1-2.04 of the County Improvement Standards, as well as a transportation permit for heavy vehicles navigating the transportation network. The general provisions of a County transportation permit address traffic safety and convenience and require the use of load signs and flags to ensure the safe navigation of roadway users (San Joaquin County 2009). The County encroachment permit application would require PG&E to prepare and submit four sets of traffic control plans prepared in accordance with the latest version of the CA MUTCD and four sets of

improvement plans that identify existing roadway design and the type of work proposed (San Joaquin County 2021). Preparation of a traffic control plan would ensure the safety of the traveling public and would allow for the safe and efficient movement of all modes of travel. Development and review of improvement plans would ensure that all transportation infrastructure improvements would be designed in accordance with applicable design and safety standards to minimize transportation hazards. The general provisions of a County encroachment permit also require that the permittee make, at its own expense, any repairs to the roadway network as deemed necessary by the County Department of Public Works (San Joaquin County 2020b). Compliance with the general provisions of the required encroachment permit would ensure that any disturbed transportation facilities would be returned to their original condition following project construction. Work in the Caltrans ROW would also require an encroachment permit and Caltrans review of potential hazards from proposed pole placement. Section TR-0045 of the Caltrans Encroachment Permits Manual would require PG&E to provide traffic control (e.g., warning signs, safety devices) and take all other measures necessary to ensure the safety of the traveling public (Caltrans 2022: 2). Review and approval from Caltrans would ensure that proposed pole placement would not interfere with the safety of the traveling public or increase transportation hazards.

Operation and Maintenance

Following project construction, O&M in the PG&E portion of the project would consist of routine inspection, repair, and maintenance activities. These activities currently occur for PG&E's existing facilities in the project area, and they would be conducted in the same way for all new, expanded, or modified facilities. They would not require the construction, redesign, or alteration of any public roadways, and the types of vehicles accessing the project area during operational activities would be similar to those under existing conditions (e.g., heavy-duty vehicles).

Implementation of APMs

APM TRA-1 would reinforces PG&E's commitment to obtain all necessary jurisdictional encroachment permits and develop a traffic control plan to detail any roadway or lane closures, width reductions, or traffic diversions, as required by jurisdictional encroachment permits. Additionally, for any work that would occur on state highways and where otherwise required, PG&E would ensure that traffic control operations are compliant with the CATTCH and CA MUTCD. As detailed in the regulatory setting, the CATTCH is prepared in compliance with the CA MUTCD. The CA MUTCD establishes principles and guidance for the implementation of temporary traffic control (e.g., warning signs, flaggers) that would ensure the provision of safe and effective movement of all roadway users (e.g., motorists, bicyclists, pedestrians) during construction and O&M. Thus, implementation of APM TRA-1 and compliance with permit provisions would ensure that PG&E implements proper traffic control measures that would minimize transportation conflicts and hazards during project construction activities in the public ROW. Implementation of APM TRA-2 would require PG&E to restore all removed or damaged curbs, gutters, sidewalks, and paved surfaces as necessary and to meet applicable roadway design standards, thus ensuring that any disturbed transportation facilities would be returned to their original or better condition promptly following project construction.

LEU Project Components

Construction Activities

In the City of Lodi, existing paved roads that would be used to access project work areas are used frequently by large vehicles accessing existing utility, industrial, and commercial properties. Thus, the use of heavy-duty construction equipment on the roadway network would not be considered an incompatible use. No new public roads would be constructed as part of the project; however, modification of existing roadways could occur to provide for the safe access of construction vehicles and equipment to work areas. The LEU portion of the project would include the construction of a new LEU station on a 5.75-acre parcel located approximately 130 feet south of East Lodi Avenue and approximately 480 feet northwest of the intersection of South Guild Avenue and East Thurman Road (see Figure 2-6). As described in Impact TRA-1, construction on the 5.75-acre parcel would involve the installation of vehicle access driveways along South Guild Avenue west into the new stations, which would require cutting the existing curb and sidewalk.

As detailed in Impact TRA-1, there are no existing bicycle or transit facilities located within 0.25 miles of construction activities in the City of Lodi. Therefore, construction activities would not interfere with bicycle or transit accessibility. However, as described in Chapter 2, "Project Description," project construction could require the closure of several pedestrian facilities. Specifically, during driveway construction, the sidewalk along the western side of South Guild Avenue would be closed for up to 1 month. During this closure, pedestrian traffic would be routed to the existing sidewalk on the eastern side of South Guild Avenue. Additionally, when the steel guy pole adjacent to the sidewalk near 1303 East Lodi Avenue is removed, pedestrians would be temporarily rerouted to Beckman Avenue. Because alternative routes would be provided during project construction, such activity would not substantially interfere with pedestrian accessibility. Additionally, pursuant to City Municipal Code Section 12.04.060, an encroachment permit would be required for any work in the City's ROW. Per Section 12.04.240 of the City Municipal Code, the encroachment permit requires the permittee to provide lights, barriers, warning signs, and other safeguards as necessary to protect the traveling public. The general provisions of a City encroachment permit also require that the permittee be responsible for restoring to its former condition, any portion of the street, sidewalk area, or other encroachment which has been disturbed by the permittee for 1 year after work has been completed and accepted by the City (City of Lodi n.d.). Thus, compliance with the general provisions of the required encroachment permit would ensure that any disturbed transportation facilities would be returned to their original condition following project construction.

Operation and Maintenance

All roadway modifications and improvements in City ROW would be subject to and comply with applicable City of Lodi Construction Specifications, Public Improvement Design Standards, and Standard Plans. Section 6073 of the City Construction Specifications include detailed requirements for the design and construction of curbs and sidewalks, and Section 1.303 of the City Design Standards includes requirements for intersection and driveway sight distance, with which the project would have to comply. Thus, all roadway improvements and modifications would be designed and constructed to allow for the safe and efficient movement of all modes of travel. O&M activities associated with the project would not require the construction, redesign, or alteration of any public roadways, and the types of vehicles accessing the project area during operational activities would be consistent with those used under existing conditions (e.g., heavy-duty vehicles).

Implementation of BMPs

BMP TRA-1 reinforces LEU's commitment to obtain any necessary transportation and encroachment permits and comply with permit requirements designed to prevent transportation hazards during construction. The general provisions of the City's encroachment permit require that adequate measures and safety devices (e.g., warning signs, barricades) be implemented for the protection of the traveling public and that any encroachment that has been excavated or disturbed the permittee be returned to its former condition. Compliance with all permit requirements, which includes approval by the director of public works, would ensure that if construction were to occur in the public ROW, it would not substantially increase transportation hazards. Implementation of BMP TRA-2 would ensure that LEU would restore all removed curbs, gutters, and sidewalks and repave all removed or damaged paved surfaces associated with LEU construction activities. All roadway improvements would be designed and constructed in accordance with City design standards and construction specifications. Therefore, any disturbed transportation facilities would be returned to their original or better condition promptly following project construction and would not result in transportation hazards during project operation.

Significance before Mitigation

The project would not introduce incompatible uses to the roadway network, and all transportation infrastructure improvements would be subject to and designed in accordance with applicable design and safety standards to minimize transportation hazards. The potential for the project to substantially increase hazards due to a design feature or incompatible use would be addressed through compliance with established standards and regulations. PG&E and LEU would be required to obtain encroachment and transportation permits for oversized vehicles using the transportation network from the appropriate jurisdiction prior to construction. Caltrans, County, and City permits require construction projects to implement traffic control measures to minimize transportation hazards, ensure the safety of the traveling public, and restore disturbed roadways to the satisfaction of jurisdictional staff (e.g., Public

Works Director). Compliance with APM TRA-1 and BMP TRA-1 would ensure that PG&E and LEU, respectively, adhere to encroachment permit provisions. Implementation of APM TRA-2 and BMP TRA-2 would ensure that PG&E and LEU address any alterations to the transportation network that would result from project construction. Additionally, the project would be required to comply with applicable roadway design standards when reverting work sites to their original condition. Compliance with applicable design standards would minimize transportation hazards. As a result, the project would not substantially increase hazards due to a design feature or incompatible use. For these reasons, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact TRA-4: Result in Inadequate Emergency Access

PG&E Project Components

Construction Activities

During construction of the PG&E portion of the project, the existing network of public and private roads would primarily be used to access stations, structure work areas, and staging areas. The project would modify some unpaved agricultural roads and certain roadway intersections to ensure the safe accommodation of construction equipment. All construction activities in the PG&E portion of the project would be required to comply with the standards set forth in the 2022 California Fire Code as adopted by reference in Section 4-1000 of the County Code. Section 3311.1 of the 2022 California Fire Code identifies minimum requirements to provide required emergency access during construction activities. Additionally, PG&E would obtain an encroachment permit for any construction work that would occur in County and Caltrans ROW. As part of the County encroachment permit application, PG&E would be required to prepare and submit four sets of traffic control plans prepared in accordance with the latest version of the CA MUTCD. Additionally, PG&E would adhere to the guidelines set forth in the CATTCH, which were developed in accordance with the CA MUTCD. Section 6B.01.7D of the CA MUTCD states that the needs of emergency service providers should be assessed and appropriate coordination made when developing a traffic control plan. Therefore, PG&E would coordinate any roadway or lane closures with local emergency service providers to ensure adequate emergency access during all construction activities.

Operation and Maintenance

Operational activities would include routine maintenance and would not result in permanent alterations to the physical transportation network; therefore, emergency access would not be affected. All O&M of the new and modified PG&E facilities would operate according to current CPUC standards, including CPUC General Order 95, which require that sufficient emergency access is provided.

Implementation of APMs

Through APM TRA-1, PG&E would obtain any necessary transportation and encroachment permits and comply with permit requirements designed to prevent inadequate emergency access during project activities. APM TRA-1 would require PG&E to develop traffic control plans to detail any road and lane closure or width reduction or traffic diversions as required by the encroachment permits. The County encroachment permit requires that traffic control plans are prepared and comply with the latest version of the CA MUTCD. Section 6B.01.7D of the CA MUTCD advises that the needs of emergency service providers are evaluated and incorporated into traffic control plans. Therefore, implementation of APM TRA-1 would ensure that emergency access and other needs of emergency service providers would be met.

LEU Project Components

Construction Activities

Lane closures associated with construction in the LEU portion of the project would be temporary and short term. All construction activities in the LEU portion of the project would be required to comply with the standards set forth in

the 2022 California Fire Code, as adopted by reference in Section 15.20.010 of the City of Lodi Municipal Code. Section 3311.1 of the 2022 California Fire Code identifies minimum requirements to provide required emergency access during construction activities. Additionally, the City of Lodi's street closure provisions require that a 24-foot emergency access lane always be kept clear of obstruction; thus ensuring that street closures due to construction activity would not hinder emergency service access. Therefore, although roadway or lane closures could be required, one lane for emergency access would be provided throughout project construction. Further, Section 6-12.01 of the City's *Construction Standards* states that the public works inspector will notify emergency service providers of any construction activity that would potentially impact their operations. Thus, coordination with local emergency service providers would reduce the potential temporary and short-term effects of construction on emergency access.

Operation and Maintenance

A new permanent access road with a secure vehicle gate would be constructed from South Guild Avenue to provide interior access to the LEU Guild Substation. As detailed above, the project would be designed in accordance with the 2022 California Fire Code. Section 503.6 of 2022 California Fire Code requires that the installation of security gates across a fire apparatus access road be approved by the fire code official and that when such gates are installed, they have an approved means of emergency operation. The new access road would be constructed to comply with all standards included in the City Municipal Code and 2022 California Code and thus would provide adequate emergency access during project O&M activities. Project operations at new or expanded facilities would be incorporated into existing LEU O&M procedures that consist of routine inspection, repair, and maintenance. These activities would not result in permanent physical alterations to the roadway network and thus would not adversely affect the surrounding transportation network.

Implementation of BMPs

In accordance with BMP TRA-1, LEU would comply with all permit requirements designed to reduce transportation hazards during project construction. As detailed above, the general provisions associated with an encroachment permit require that all construction work conforms to the City of Lodi *Construction Specifications*, *Design Standards*, and *Standard Plans*. Section 6-12.01 of the *Construction Specifications* states that a traffic control plan shall address traffic handling in the public ROW for all construction activities and shall comply with the latest version of the CA MUTCD. Additionally, Section 6-12.01 states that the construction contractor is required to submit the traffic control plan to the City engineer for approval prior to scheduling any construction work. If the submitted traffic control plan was determined to result in inadequate emergency access, it will not be approved. Thus, implementation of BMP TRA-1 would minimize any impediments to emergency access during project construction.

Significance before Mitigation

The project would involve the construction of temporary access roads for use during project construction, as well as the construction of permanent interior access roads. Work in the LEU portion of the project would be required to follow standards set forth in the 2022 California Fire Code, as adopted by the City of Lodi, which require that adequate emergency access is provided to facilities during construction and operation. Work in the PG&E portion of the project would be required to adhere to all standards set forth in the 2022 California Fire Code, as adopted by San Joaquin County, as well as those included in the CATTCH, which requires that the needs of emergency service providers be met during project construction. Implementation of the APMs and BMPs would also ensure that emergency access is provided during project construction and O&M activities, as detailed above. For these reasons, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

3.17 UTILITIES AND SERVICE SYSTEMS

This section describes the existing utility and service systems (water, wastewater, stormwater, electricity, and natural gas) that serve the project area; describes the applicable federal, state, and local regulations that govern utilities and service systems; and analyzes the potential environmental impacts associated with implementation of the project.

No comments regarding utilities and service systems were received in response to the notice of preparation (NOP). See Appendix A for all NOP comments received during the public scoping period.

3.17.1 Environmental Setting

Public utilities in the project area are provided by various entities, as identified in Table 3.17-1 and discussed in detail below.

Table 3.17-1 Utilities Providers for the Project Area

Utility	Agency/Provider
Water supply	North San Joaquin Water Conservation District; City of Lodi Water Utility
Wastewater collection and conveyance	San Joaquin County Department of Public Works, City of Lodi Utilities Department
Wastewater treatment	San Joaquin County Department of Public Works, City of Lodi Utilities Department
Stormwater conveyance	San Joaquin County Flood Control and Water Conservation District; City of Lodi Department of Public Works
Solid waste collection	San Joaquin County Department of Public Works, City of Lodi Public Works Department
Electrical service	PG&E, LEU
Natural gas	PG&E

Source: Data compiled by Ascent in 2024.

WATER SUPPLY

Potable water for domestic use and irrigation is provided in San Joaquin County through multiple agencies, including federal, regional, and local water districts and special districts, as well as private systems and wells (San Joaquin County 2014: 4.N-1). The project area is primarily located within the unincorporated area of northeastern San Joaquin County and partially within the City of Lodi. The portion of the project within the unincorporated county is served by the North San Joaquin Water Conservation District (NSJWCD), and the portion of the project within the City of Lodi is served by City of Lodi Water Utility. Each of these water supply agencies is described in detail below.

North San Joaquin Water Conservation District

Surface and groundwater water supply for the portion of the project area within San Joaquin County is provided by NSJWCD. The NSJWCD service area covers 150,000 acres in northeastern San Joaquin County, including approximately 70,000 acres of irrigated farmland, with the Mokelumne River running through the center of its jurisdiction (NSJWCD 2021: 1).

NSJWCD has a water right to divert up to 20,000 acre-feet of surface water per year from the Mokelumne River but has never fully used this right due to lack of efficient and functional water delivery infrastructure (NSJWCD 2021: 1). Most agricultural landowners within the NSJWCD rely exclusively on groundwater from individual wells, pumping an average of 140,000 acre-feet from the critically overdrafted Eastern San Joaquin Groundwater Subbasin every year (NSJWCD 2021). The Eastern San Joaquin Subbasin is not adjudicated and is currently managed under the *Eastern San Joaquin Groundwater Subbasin Groundwater Sustainability Plan* (Eastern San Joaquin Groundwater Authority 2022). Groundwater levels in the NSJWCD service area have been declining by an average of 1 foot per year. However, groundwater overdraft could be significantly reduced if landowners increased the use the surface water available from the NSJWCD's Mokelumne River surface water right (NSJWCD 2021). The NSJWCD does not have an

Urban Water Management Plan (UWMP); therefore, no water demand or supply projections are available for normal, single, or multiple-dry year scenarios. Although NSJWCD does not have an UWMP, the agency maintains a strategic plan that outlines its strategy for managing water resources within its jurisdiction.

Existing infrastructure that delivers water to northern San Joaquin County includes Camanche Reservoir, which is owned by East Bay Municipal Utility District and is used for seasonal water storage; NSJWCD's North Pump Station and pipeline on the Mokelumne River, which are non-operable; and NSJWCD's South Pump Station and pipeline on the Mokelumne River, which are partially operable (NSJWCD 2021). NSJWCD also owns two recharge facilities, the Tracy Lake Recharge Project and the Cal-Fed Recharge Project (NSJWCD 2021). NSJWCD's strategic plan includes actions to upgrade and expand its South Pump System and to improve and to make operable its North Pump System (NSJWCD 2021) so that it increases use of its surface water rights and reduces overdraft of the Eastern San Joaquin Groundwater Subbasin. The strategic plan also calls for funding and full operation of its existing recharge facilities. In addition, NSJWC is participating with the East Bay Municipal Utility District (EBMUD) and other agencies in the Demonstration Recharge, Extraction and Aquifer Management (DREAM) pilot project to diversify water supplies, enhance drought resilience, and restore the aquifer through groundwater recharge (San Joaquin County 2023).

The San Joaquin County Flood Control and Water Conservation District develops and maintains groundwater monitoring networks and data systems to support the Eastern San Joaquin Groundwater Sustainability Plan (SJCFCWCD 2023).

City of Lodi Water Utility

Unless noted otherwise, the following information is summarized from City of Lodi Water Utility's 2020 UWMP (City of Lodi 2021). The City of Lodi Water Utility currently uses both surface water and groundwater for drinking water supply and is the sole water purveyor for the City. The city's water supplies are derived from a combination of purchased water from the Woodbridge Irrigation District (WID) and NSJWCD and pumped groundwater. The City does not divert any surface water directly for municipal use. Although the Mokelumne River borders the city to the north, the City does not have any water rights to divert water from the Mokelumne River. Instead, the City purchases 6,000 acre-feet of surface water per year from WID, which is diverted from the Mokelumne River near Woodbridge Dam and then pumped into the Lodi Surface Water Treatment Plant (SWTP). In addition, the City's agreement with WID includes provisions allowing the City to carryover, or "bank," water that is not used. This water is not physically stored but is available to the City when WID has excess water supply. According to the 2020 UWMP, the City currently has a total banked water supply of 53,534 acre-feet per its agreement with WID; however, banked water is not included in the City's water supply calculations due to annual variability. The City also distributes recycled water for use on the land immediately surrounding the White Slough Water Pollution Control Facility (White Slough) for agricultural irrigation, power generation, and fishpond replenishment.

The city overlies the Eastern San Joaquin Subbasin of the San Joaquin Valley Groundwater Basin (City of Lodi 2021: 6-2), which is "critically overdrafted" as previously stated. The primary water supply in the city is provided by groundwater from a system of 28 groundwater production wells in the Eastern San Joaquin Subbasin and distributed throughout the water service area. This system has a combined capacity of 38,355 gallons per minute, with a maximum capacity of approximately 62,000 acre-feet of water per year. The wells operate automatically on water pressure demand and pump directly into the distribution system. In 2020, the City pumped 7,475 acre-feet of groundwater. In addition, the City has a system of pipelines and four water storage tanks to store treated water from the SWTP (City of Lodi 2021). The nearest tank to the project area is Storage Tank C, located on East Thurman Road directly south of PG&E Lodi Substation and west of the site for the proposed LEU Guild Substation and PG&E Thurman Switching Station. The City has a 12-inch water main in East Thurman Road and a 10-inch water main in South Guild Avenue that could provide up to 4,000 gallons per minute to the site (Jacobs Engineering Group 2023).

Not all water accounts in the city are metered. In response, the City began the Water Meter Program in 2010 to ensure that all accounts, including residential, commercial, and government accounts, are metered by 2025. Approximately 67 percent of accounts were metered as of 2020. Total water use in the city in 2020 was 13,429 acre-feet, consisting of approximately 70 percent from residential accounts, approximately 22 percent from commercial accounts, approximately 6 percent by government accounts, and approximately 2 percent from industrial accounts, estimated based on the usage of metered accounts.

The City's 2020 UWMP provides projected water demand and estimated supply between 2025 and 2045 under normal and dry year weather conditions (single and multiple), as shown in Table 3.17-2.

Table 3.17-2 City of Lodi Normal, Single-, and Multiple-Dry Year Water Supply and Demand (2025–2045) (afy)

	2025	2030	2035	2040	2045
Normal Year					
Supply	21,000	21,000	21,000	21,000	21,000
Demand	14,663	15,512	16,410	17,360	18,365
Difference	6,337	5,488	4,590	3,640	2,635
Single-Year Dry					
Supply	18,000	18,000	18,000	18,000	18,000
Demand	14,663	15,512	16,410	17,360	18,365
Difference	3,337	2,488	1,590	640	-365
Multiple-Year Dry (First Year)					
Supply	18,000	18,000	18,000	18,000	18,000
Demand	14,663	15,512	16,410	17,360	18,365
Difference	3,337	2,488	1,590	640	-365
Multiple-Year Dry (Second Year)					
Supply	17,250	17,250	17,250	17,250	17,250
Demand	14,296	15,124	15,999	16,926	17,906
Difference	2,954	2,126	1,251	324	-656
Multiple-Year Dry (Third Year)					
Supply	16,500	16,500	16,500	16,500	16,500
Demand	13,929	14,736	15,589	16,492	17,447
Difference	2,571	1,764	911	8	-947
Multiple-Year Dry (Fourth Year)					
Supply	15,750	15,750	15,750	15,750	15,750
Demand	13,563	14,348	15,179	16,058	16,987
Difference	2,187	1,402	571	-308	-1,237
Multiple-Year Dry (Fifth Year)					
Supply	15,000	15,000	15,000	15,000	15,000
Demand	13,196	13,960	14,769	15,624	16,528
Difference	1,804	1,040	231	-624	-1,528

Notes: afy = acre-feet per year.

Source: City of Lodi 2021, Tables 7-2 through 7-4.

As shown in Table 3.17-2, future demand would be met (and exceeded) by the water supply during a normal year in each 5-year increment through 2045. However, future demand would not be met throughout the planning period during single dry and multiple dry years. These water supply and demand projections are reevaluated for the reasonably foreseeable future (i.e., 20-year planning period) as part of the UWMP update process, which occurs every 5 years as required by the Urban Water Management Planning Act.

WASTEWATER

Wastewater collection and treatment within the project area is provided by the San Joaquin County Department of Public Works and the City of Lodi Utilities Department. Each of these agencies is described below.

San Joaquin County Department of Public Works

Most of the wastewater systems within the unincorporated area of San Joaquin County are provided by special districts including community service districts, public utility districts, sanitary districts, and sewer maintenance districts (San Joaquin County 2016). Some unincorporated communities lack wastewater infrastructure and are serviced by individual or community septic systems (San Joaquin County 2016). There are no community wastewater collection systems within the portion of the project area located in San Joaquin County (San Joaquin County Geographic Information Systems 2024).

City of Lodi Utilities Department

The City of Lodi Utilities Department is responsible for managing and maintaining the wastewater collection system in the city, including the area where the project is located. Wastewater treatment for the City of Lodi is provided by White Slough. White Slough has been expanded and improved over the years to meet the increasingly stringent environmental protection standards. The most recent project was completed in 2005 and modified the treatment process to include tertiary filtration and ultraviolet light disinfection, which replaces chlorine gas and is safer for the environment and City staff working at the facility.

The wastewater collection and conveyance system consists of 197 miles of residential pipelines and 6 miles of industrial pipelines, about 3,200 manholes, and nine neighborhood pumping or lift stations that convey an average dry weather flow of approximately 8.5 million gallons per day to White Slough (City of Lodi 2009: B-3). The City has two separate wastewater lines: one for municipal wastewater (i.e., from residential and commercial customers) and one for industrial wastewater (City of Lodi 2021: 6-9). White Slough either treats the wastewater to tertiary, UV disinfected standards or secondary, undisinfected levels and has adequate capacity to treat all wastewater flows to Title 22 standards for recycled water per Section 60301 of the California Code of Regulations (City of Lodi 2021: 6-9). The industrial wastewater, the majority of which comes from a fruit canning facility, is blended with treated flows and is stored for agricultural irrigation of neighboring City-owned land (City of Lodi 2021: 6-9).

Within the vicinity of the project, a City of Lodi 8-inch wastewater main has an access point on the northwest side of the intersection of East Lodi Avenue and South Guild Avenue. The wastewater main is mapped under the sidewalk or paved shoulder of the southbound lane of South Guild Avenue (City of Lodi 2024a). There are no wastewater maintenance holes, mains, services, or lift stations within the portion of the project area located in the City of Lodi (City of Lodi 2024a).

STORMWATER DRAINAGE

Stormwater drainage facilities within the project area are maintained by the San Joaquin County Department of Public Works and the City of Lodi Public Works Department. Each of these agencies is described below.

San Joaquin County Department of Public Works

The San Joaquin Valley contains major rivers and tributaries that flow into the San Joaquin River and into the San Joaquin Delta (SJCFCWCD 2024). Stormwater in the county is conveyed via storm drains into the Calaveras, Mokelumne, Old, and San Joaquin Rivers before discharging into the San Joaquin Delta, and the stormwater system is managed by the County's Public Works Department (San Joaquin County 2024a).

There are no community stormwater drainage systems within the portion of the project located in the county (San Joaquin County Geographic Information Systems 2024).

City of Lodi Public Works Department

Stormwater drainage within the City of Lodi is managed by the Public Works Department and is made up of street gutters that flow to catch basins, storm drain detention basins, pumps, and pipelines (City of Lodi 2021: 6-9). When water is collected into these catch basins, it is conveyed to the WID Canal, storm detention basins, Lodi Lake, or Mokelumne River (City of Lodi 2024b, 2021: 6–9).

Within the vicinity of the project, the City of Lodi storm drain access point in the southwest portion of the intersection of East Lodi Avenue and South Guild Avenue connects two 15-inch City of Lodi water mains located under the eastbound lane of East Lodi Avenue and under the southbound lane of South Guild Avenue, north of East Lodi Avenue. The South Guild Avenue 15-inch water main extends approximately 120 feet before connecting with two stormwater laterals and narrowing to a 12-inch main for the remainder of its length to the north. One of these stormwater laterals connects to a stormwater catch basin along the curb of the South Guild Avenue northbound lane approximately 80 feet south of the existing PG&E 12 kV pole.

There are no pump stations, outfalls, valves, storm drainage maintenance holes, or storm mains within the portion of the project located in the City of Lodi (City of Lodi 2024a).

SOLID WASTE

Solid waste and recycling collection services within the project area are provided by the San Joaquin County Department of Public Works and the City of Lodi Public Works Department, as described below.

San Joaquin County Department of Public Works

The San Joaquin County Department of Public Works manages the operation of solid waste facilities for the County by providing transfer, disposal, and recycling services for Stockton, Tracy, Lodi, Manteca, Ripon, Lathrop, Escalon, and unincorporated San Joaquin County. The Solid Waste Division within the Department of Public Works specifically oversees the operations of several solid waste facilities and sanitary landfills, administers state-mandated waste diversion programs, and provides and arranges for a wide range of services and outreach to the general public to conserve resources, and preserve public health, safety, and the environment (San Joaquin County 2024b).

There are two County-owned landfills that could provide service to the project: the County-operated North County Recycling Center and Sanitary Landfill (17720 East Harney Lane, Lodi, CA 95240) and the privately operated Foothill Sanitary Landfill (6484 North Waverly Road, Linden, CA 95236) (San Joaquin County 2024b). In addition, the County operates the Lovelace Materials Recovery Facility and Transfer Station (2323 East Lovelace Road, Manteca, CA 95336), which sends waste to Foothill Sanitary Landfill and also could serve the project. Treated wood waste would be taken to Forward Landfill, Chemical Waste Management—Kettleman Hills, or Clean Harbors Buttonwillow. Any contaminated soil or hazardous materials would likely be taken to Kettleman Hills or Clean Harbors Buttonwillow. The permitted capacities and estimated closure dates for each of these facilities are provided in Table 3.17-3.

Table 3.17-3 Landfills and Recycling Facilities

Landfill Name	Remaining Total Landfill Capacity (cu yd)	Landfill Average Daily Volume or Capacity	Estimated Closure Date	Accepts Construction Waste?
North County Recycling Center and Sanitary Landfill (Lodi)	35,400,000	1,200 tons per day	2048	Yes
Foothill Sanitary Landfill (Linden)	125,000,000	951 tons per day	2082	Yes
Lovelace Materials Recovery Facility and Transfer Station (Manteca)	NA (recovery and transfer)	743 tons per day	NA	Yes
Forward Landfill (Manteca)	24,720,669	4,000 tons per day	2043	Yes
Chemical Waste Management—Kettleman Hills (Unit B-18) (Kettleman Hills)	15,600,000	NA	2042	Yes (hazardous)
Clean Harbors Buttonwillow (Buttonwillow)	13,250,000 (maximum capacity)	10,500 tons per day	2040	Yes (hazardous)

Notes: cu yd = cubic yards; NA = not applicable.

Sources: San Joaquin County 2024b; CalRecycle 2019; DTSC 2014.

City of Lodi Public Works Department

The City of Lodi contracts with Waste Management to provide residential and commercial garbage collection, transportation, and disposal, as well as the collection of recyclable materials (City of Lodi 2024c). Waste Management also owns and operates the Lodi Recovery and Transfer Station Facility. Waste collected is disposed of at the area landfills identified in Table 3.17-3.

The City's industrial solid waste services are open market for designated industrial customers, and industrial solid waste customers may choose any of the City's approved industrial waste haulers. Industrial waste is defined by City Municipal Code Section 13.16.010 as solid waste originating from manufacturing facilities and factories within city limits, including construction and demolition projects, and solid waste produced by any person, form, or corporation primarily engaged in the business of processing and manufacturing for the purpose of wholesale (City of Lodi 2024d).

ELECTRICITY AND NATURAL GAS

PG&E provides electricity and natural gas to the service area that includes the portion of the project located in San Joaquin County (PG&E 2014a, 2014b), and LEU provides electricity to the City of Lodi (City of Lodi 2024e). Electricity distributed by LEU is generated by Northern California Power Agency's Lodi Energy Center, and sources include geothermal, hydroelectric, and natural gas (City of Lodi 2024f). LEU also obtains electricity from PG&E via 60 kV power lines. In addition, in 2023 the California Department of Water Resources (DWR) began construction of a 48-megawatt power-generating plant located adjacent to the City's Surface Water Treatment Facility on Turner Road, just west of Lodi Lake, This new power plant is designed to feed directly into the LEU grid as needed and at the direction of the California Independent System Operator in response to an emergency event when supplemental power supply is required (Dudek 2023).

TELECOMMUNICATIONS

Telecommunication services involve the transmission of information and include phone services (landlines and wireless services), internet (dial-up, fiber optics, broadband), television, AM/FM radio, and computer networking. As defined by Federal Standard 1037C, telecommunication facilities include the following:

- Any fixed, mobile, or transportable structure, including all installed electrical and electronic wiring, cabling, and equipment, and all supporting structures, such as utility, ground network, and electrical supporting structures.
- A network-provided service to users or the network operating administration; a transmission pathway and associated equipment.
- A real property entity consisting of one or more of the following: a building, a structure, a utility system, pavement, and underlying land.

A variety of wireless companies, including AT&T, Xfinity, Viasat, HughesNet, Softcom, Unwired, CalDSL, and other companies, provide wireless phone service, television, and internet in San Joaquin County and the City of Lodi (Broadbandnow 2022).

3.17.2 Regulatory Setting

FEDERAL

Clean Water Act

The Clean Water Act (CWA) employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The US Environmental Protection Agency (EPA) established primary drinking water standards in Section 304 of the CWA. States are required to ensure that the public's potable water meets these standards.

The National Pollutant Discharge Elimination System (NPDES) permit program was established under the CWA to regulate municipal and industrial discharges to surface waters of the US. NPDES permit regulations have been established for broad categories of discharges including point source waste discharges and nonpoint sources. Each NPDES permit identifies limits on allowable concentrations and mass loadings of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that EPA must consider in setting effluent limits for priority pollutants.

NPDES permits cover various industrial and municipal discharges, including discharges from storm sewer systems in larger cities, stormwater generated by industrial activity, runoff from construction sites disturbing more than 1 acre, and mining operations. Point source dischargers must obtain a discharge permit from the proper authority (usually a state, sometimes EPA, a tribe, or a territory). So-called "indirect" point source dischargers are not required to obtain NPDES permits. "Indirect" dischargers send their wastewater into a public sewer system, which carries it to the municipal sewage treatment plant, through which it passes before entering any surface water.

The CWA was amended in 1987 with Section 402(p) requiring NPDES permits for nonpoint source (i.e., stormwater) pollutants in discharges. Stormwater sources are diffuse and originate over a wide area rather than from a definable point. The goal of the NPDES stormwater regulations is to improve the water quality of stormwater discharged to receiving waters to the "maximum extent practicable" using structural and nonstructural best management practices (BMPs). BMPs can include educational measures (e.g., workshops informing the public of what impacts can result when household chemicals are dumped into storm drains), regulatory measures (e.g., local authority of drainage-facility design), public-policy measures (e.g., labeling storm-drain inlets as to impacts of dumping on receiving waters) and structural measures (e.g., filter strips, grass swales, and detention ponds).

Safe Drinking Water Act

As mandated by the Safe Drinking Water Act (SDWA) (Public Law 93-523), passed in 1974, EPA regulates contaminants of concern to domestic water supply. Such contaminants are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. These types of contaminants are regulated by EPA primary and secondary maximum contaminant levels (MCLs). MCLs and the process for setting these standards are reviewed every 3 years. Amendments to the Safe Drinking Water Act enacted in 1986 established an accelerated schedule for setting drinking water MCLs. EPA has delegated responsibility for California's drinking water program to the State Water Resources Control Board (SWRCB) Division of Drinking Water. This division is accountable to EPA for program implementation and for adoption of standards and regulations that are at least as stringent as those developed by EPA.

STATE

California Green Building Standards Code

With the adoption of the 2010 California Green Building Standards Code (CALGreen Code), California became the first state to incorporate green building strategies into its building code. The CALGreen Code comprises Part 11 of the California Buildings Standards Code in Title 24 of the California Code of Regulations. The CALGreen Code outlines mandatory and voluntary requirements for new residential and nonresidential buildings (e.g., retail, office, public schools, hospitals) throughout the state. The development and implementation of the CALGreen Code aims to (1) reduce greenhouse gas (GHG) emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to directives by the governor. Pursuant to the California Global Warming Solutions Act of 2006 (AB 32), CALGreen Code provides strategies to reduce building-related sources of GHG to attain California's 2020 and 2050 goals.

Updated every 3 years, the CALGreen Code was last updated in 2022 and became effective in January 2023. The CALGreen Code was developed to enhance the design and construction of buildings and the use of sustainable construction practices, through planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental air quality.

Chapter 4 (Division 4.3) of the 2022 CALGreen Code describes measures to reduce indoor demand for potable water and to reduce landscape water usage. Divisions 4.4 and 5.4 require a minimum of 65 percent of all nonhazardous construction and demolition waste for residential and nonresidential development, respectively, to be recycled or salvaged for reuse. Code requirements include preparing a construction waste management plan that identifies the materials to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale; determining whether materials will be sorted on-site or mixed; and identifying diversion facilities where the collected materials will be taken. In addition, CALGreen Code requires that 100 percent of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is the principal state law governing water quality regulation in California and applies to surface waters, wetlands, and groundwater, as well as regulation of both point and nonpoint sources of pollution. The Porter-Cologne Act implements provisions of the CWA, such as the NPDES permitting program, through the SWRCB and nine regional water quality control boards (RWQCBs), which issue permits for point source discharges. Other state agencies with jurisdiction over water quality regulation in California include the California Department of Health Services (DHS) (for drinking water regulations), the California Department of Pesticide Regulation, and the Office of Environmental Health and Hazard Assessment.

California Safe Drinking Water Act

The SWRCB Division of Drinking Water is responsible for implementing the federal SDWA and its updates, as well as California statutes and regulations related to drinking water. State primary and secondary drinking water standards are promulgated in CCR Title 22, Sections 64431–64501 (described in greater detail below).

The California Safe Drinking Water Act (CA SDWA) was passed in 1976 to build on and strengthen the federal SDWA. The CA SDWA authorizes DHS to protect the public from contaminants in drinking water by establishing MCLs that are at least as stringent as those developed by EPA, as required by the federal SDWA.

Title 22 Water Recycling Criteria

The California Department of Public Health (formerly the Department of Health Services) is responsible for establishing criteria to protect public health in association with recycled water use. The criteria issued by this department are found in the California Code of Regulations, Title 22, Division 4, Chapter 3, entitled Water Recycling Criteria. Commonly referred to as Title 22 Criteria, the criteria contain treatment and effluent quality requirements that vary based on the proposed type of water reuse. Title 22 sets bacteriological water quality standards on the basis of the expected degree of public contact with recycled water. For water-reuse applications with a high potential for the public to come into contact with the reclaimed water, Title 22 requires disinfected tertiary treatment. For applications with a lower potential for public contact, Title 22 requires three levels of secondary treatment, differing by the amount of disinfectant required.

Title 22 also specifies the reliability and redundancy for each recycled water treatment and use operation. Treatment plant design must allow for efficiency and convenience in operation and maintenance and provide the highest possible degree of treatment under varying circumstances. For recycled water piping, the department has requirements for preventing backflow of recycled water into the public water system and for avoiding cross-connection between the recycled and potable water systems. The Department of Public Health does not have enforcement authority for the Title 22 criteria; instead, the RWQCBs enforce the criteria through enforcement of their permits containing the applicable criteria.

Urban Water Management Planning Act

In 1983, the California Legislature enacted the Urban Water Management Planning Act (UWMPA) (California Water Code Sections 10610–10656). The UWMPA states that every urban water supplier that provides water to 3,000 or more customers, or that provides more than 3,000 acre-feet of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years. This effort includes the adoption of an urban water management plan

(UWMP) by every urban-water supplier and an update of the plan every 5 years on or before December 31 of every year ending in a five or zero. The UWMPA has been amended several times since 1983 with the most recent amendment occurring with the enactment SB 318 in 2004. The UWMPA and SB 610, described below, are interrelated; the UWMP is typically relied upon to meet the requirements for SB 610.

Senate Bill 610

SB 610 (Stats. 2001, ch. 643) made changes both to the UWMPA and to the rules governing the preparation of "water supply assessments" (WSAs), as originally enacted in 1995 via SB 901 (Stats.1995, c. 881). The rules governing WSA preparation are set forth in Water Code sections 10910–10915, which are referenced in CEQA Guidelines Section 15155, promulgated in 2007 and amended in 2018. Pursuant to SB 610 and Section 15155, cities and counties acting as lead agencies are required to identify the public water system that would serve a defined "water-demand project" and to request that such public water system prepare a WSA addressing whether the public water system has a water supply is sufficient to provide for projected water demand associated with a project when existing and future uses are also considered (CWC Section 10910 [c] [3]). Where a city or county acts as its own public water system, the obligation to prepare the WSA falls onto the city or county. A "water-demand project" includes a residential project proposing more than 500 dwelling units, an office project employing more than 1,000 people or having more than 250,000 square feet of floor space, and a project that would demand an amount of water equivalent to or greater than the amount of water required by a 500 dwelling unit project. The definition of a water-demand project is the same under CEQA Guidelines Section 15155.

California Code of Regulations, Title 17, Section 8007

CCR Title 17, Section 8007 requires the contents of chemical tanks to be disposed of by draining or pumping into a sanitary sewer, an approved septic tank of sufficient capacity to handle the wastes, a suitably sized and constructed holding tank, approved by the local health department, or by any other method approved by the local health department.

California Government Code Section 4216

Section 4216 of the California Government Code protects underground structures during excavation. Under this law, excavators are required to contact a regional notification center at least 2 days prior to excavation of any subsurface installations. In the project area, Underground Service Alert (USA) is the regional notification center. USA notifies utility providers with buried lines within 1,000 feet of the excavation, and those providers are required to mark the specific location of their facilities prior to excavation. The code also requires excavators to probe for and expose existing utilities, in accordance with state law, before using power equipment.

California Health and Safety Code, Chapter 6.5, Section 25143 (Hazardous Waste Fee)

California Health and Safety Code, Chapter 6.5, Section 25143 et seq. (Hazardous Waste Fee) provides definition and guidance on wood waste and its disposal. Wood waste is defined in part as poles, crossarms, pilings, and fence posts that have been previously treated with a preservative.

Wood waste materials removed from electric, gas, or telephone service are exempt from the requirements for disposal provided certain conditions are met, including the following:

- If the wood waste is not subject to regulation as a hazardous waste under a federal act and it is disposed of in a composite-lined portion of a municipal solid waste landfill that meets any requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code.
- If the solid waste landfill used for disposal is authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code.

California's Integrated Waste Management Act of 1989

The California Integrated Waste Management Act (CIWMA) of 1989 created the California Integrated Waste Management Board, which was subsequently abolished, with its duties now carried out by the California Department

of Resources Recycling and Recovery (CalRecycle). CalRecycle is the agency designated to oversee, manage, and track California's 92 million tons of waste generated each year. CalRecycle provides grants and loans to help cities, counties, businesses, and organizations meet the state's waste reduction, reuse, and recycling goals. CalRecycle promotes a sustainable environment in which these resources are not wasted but can be reused or recycled. In addition to many programs and incentives, CalRecycle promotes the use of new technologies to divert resources from landfills. CalRecycle is responsible for ensuring that waste management programs are carried out primarily through local enforcement agencies.

The CIWMA was intended to minimize the amount of solid waste that must be disposed of through transformation and land disposal by requiring all cities and counties to divert 25 percent of all solid waste from landfill facilities by January 1, 1995, and 50 percent by January 1, 2000.

The 50 percent diversion requirement is measured in terms of per capita disposal expressed as pounds per day per resident and per employee. The per capita disposal and goal measurement system uses an actual disposal measurement based on population and disposal rates reported by disposal facilities, and it evaluates program implementation efforts.

Senate Bill 1374

SB 1374 (statutes of 2002), Construction and Demolition Waste Materials Diversion Requirements, requires that jurisdictions summarize their progress realized in diverting construction and demolition waste from the waste stream in their annual AB 939 reports. SB 1374 required CalRecycle to adopt a model construction and demolition ordinance for voluntary implementation by local jurisdictions.

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City and County) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Because LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County General Plan

The San Joaquin County General Plan (San Joaquin County 2016) contains the following policies related to utilities and service systems that are relevant to the project:

- Policy IS-1.1: Essential Facilities and Services. The County shall strive to ensure that adequate public facilities and services essential for public health and safety are provided to all County residents and businesses and maintained at acceptable service levels. Where public facilities and services are provided by other agencies, the County shall encourage similar service level goals.
- Policy IS-1.2: Infrastructure Standards. The County shall require new developments that include improvements to existing infrastructure or new infrastructure to meet the requirements and standards of the County or other agencies providing services.
- Policy IS-1.3: Facilities and Services Deficiencies. The County shall coordinate with other public facilities districts and agencies (e.g., special districts, community service districts) to identify and find solutions to key infrastructure deficiencies in the County.
- Policy IS-1.4: Infrastructure Maintenance. The County shall work with agencies to maintain, improve, and replace public facilities as necessary to maintain adequate levels of service for existing and future development and reduce the need for new facilities. Where public facilities and services are provided by other agencies, the County shall encourage similar service level goals.

- **Policy IS-1.5: Infrastructure and Service Expansions.** The County shall base the expansion of public facilities and services on current needs and planned or projected development patterns.
- **Policy IS-1.6: Efficient Infrastructure and Facilities.** When performing maintenance, upgrading, or expanding infrastructure and facilities, the County shall use technologies that improve energy efficiency and conserve water, when feasible.
- **Policy IS-7.1: Adequate Stormwater Facilities.** The County shall require that stormwater drainage facilities are properly designed, sited, constructed, and maintained to efficiently capture and dispose of runoff and minimize impacts to water quality.

San Joaquin County Construction, Demolition, and Landscaping Debris Recycling and Diversion Ordinance

San Joaquin County implements Ordinance No. 4370, also known as the Construction, Demolition, and Landscaping Debris Recycling and Diversion Ordinance (C&D Ordinance), which requires that all applicable projects divert 50 percent of all construction and demolition debris, and 90 percent of inert and organic materials from landfills through reuse and recycling (San Joaquin County 2024c). "Applicable projects" under the C&D Ordinance include projects greater than 1,200 square feet as proposed.

City of Lodi General Plan

The City of Lodi General Plan (City of Lodi 2010) contains the following policies related to utilities and service systems that are relevant to the project:

- **Policy GM-G3:** Promote conservation of resources in order to reduce the load on existing and planned infrastructure capacity, and to preserve existing environmental resources.
- **Policy GM-P8:** Ensure that public facilities and infrastructure—including water supply, sewer, and stormwater facilities—are designed to meet projected capacity requirements to avoid the need for future replacement and upsizing, pursuant to the General Plan and relevant master planning.
- **Policy GM-P12:** Require water conservation in both City operations and private development to minimize the need for the development of new water sources and facilities. To the extent practicable, promote water conservation and reduced water demand by:
  - Requiring the installation of non-potable water (recycled or gray water) infrastructure for irrigation of landscaped areas over one acre of new landscape acreage, where feasible. Conditions of approval shall require connection and use of nonpotable water supplies when available at the site.
  - Encouraging water-conserving landscaping, including the use of drought-tolerant and native plants, xeriscaping, use of evapotranspiration water systems, and other conservation measures.
  - Encouraging retrofitting of existing development with water-efficient plumbing fixtures, such as ultra low-flow toilets, waterless urinals, low-flow sinks and showerheads, and water-efficient dishwashers and washing machines.
- **Policy GM-P15:** Require water meters in all new and rehabilitated development.
- **Policy GM-P18:** Explore a program of complete wastewater reclamation and reuse at the White Slough Water Pollution Control Facility.
- **Policy GM-P20:** Continue to improve waste diversion rates through recycling and resource conservation measures. Support waste reduction and recycling programs through public education.

City of Lodi Industrial Hauler Permit

Within the city, those interested in collecting and transporting industrial waste within city limits must first obtain an Industrial Hauler Permit from the Public Works Department (City of Lodi 2024d). The City of Lodi requires an Industrial Waste Hauler Permit for any construction and demolition projects as part of its Solid Waste Ordinance.

Waste Management, the contracted solid waste provider for the city, is a permitted industrial hauler under the City's Industrial Hauler Permit program. PG&E and LEU each may obtain the permit directly, or a PG&E or LEU contractor or vendor may obtain the required permit for industrial waste hauling activities from the project work within the City of Lodi.

3.17.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

The analysis of impacts associated with utilities and service systems (wastewater, water, stormwater, solid waste, natural gas, electricity, and telecommunications) resulting from the project generally includes a comparison of the demand generated by the project and the existing supply and storage capacities. In the case of water supply, this comparison also considers future water supply conditions. This information was used to determine whether new or expanded facilities would be required to meet the utility demand of the proposed project.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

No APMs or BMPs related to utilities and service systems are proposed as part of the project.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to utilities and service systems resources under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments*. A utilities and service systems impact would be significant if implementation of the project would:

- require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years;
- result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand, in addition to the provider's existing commitments;
- generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or
- not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

ISSUES NOT DISCUSSED FURTHER

Wastewater Treatment Capacity

Portable toilets would be provided for construction workers during construction of the project. All portable toilets would be maintained by a licensed sanitation contractor who would dispose of the sanitary waste at the closest wastewater treatment district facility, such as the City of Lodi's White Slough Water Pollution Control Facility, in accordance with CCR Title 17, Section 8007. This temporary and short-term use would not require expansion of existing wastewater treatment facilities or construction of new facilities. In addition, the project does not include components that would generate wastewater during O&M. Therefore, no impact would occur, and this issue is not discussed further.

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. Because all work would occur within the existing facility footprints and would be consistent with the type of activities conducted for ongoing maintenance with limited potential for ground disturbance, the remote-end PG&E project components would not require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects; increase demand for water or wastewater services; generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or not comply with federal, state, and local management and reduction statutes and regulations related to solid waste. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact UTL-1: Result in Relocated, New, or Expanded Water, Wastewater Treatment, Stormwater Drainage, Electric Power, Natural Gas, or Telecommunications Facilities That Could Cause Significant Environmental Effects

PG&E and LEU Project Components

The project involves planned modification of existing electric power facilities, including the relocation and expansion of existing facilities, as well as construction of new electric transmission, power, and distribution facilities. The relocation and expansion of existing electric facilities and construction of new electric facilities is necessary to address reliability and forecasted capacity increases identified by the California Independent System Operator (CAISO). The proposed electrical infrastructure would not result in the construction of new utilities due to project-generated demand but would result in modifications to some related power and communications infrastructure and has the potential to conflict with existing water and wastewater infrastructure.

PG&E has communicated with LEU, Comcast, and NSJWCD about the potential need to relocate their facilities to accommodate the proposed PG&E project components. NSJWCD has indicated that the PG&E transmission line spanning its water pipelines appears to be compatible and no relocation is expected. LEU plans to relocate an existing 12 kV feeder line segment in service and remove its 12 kV feeder spans that are not in service on the joint utility poles of PG&E's Lockeford-Industrial Line. Comcast would remove its telecommunication lines from the PG&E joint utility pole and reconfigure them as needed at the time of construction (Jacobs Engineering Group 2023). Similarly, LEU has communicated with PG&E about the proposed modification to LEU Industrial Substation and relocation of the connections with existing PG&E 60 kV lines that would no longer be needed.

The effects of these utility modifications are within the project area and have been evaluated throughout this EIR. For example, Section 3.4, "Air Quality," Section 3.9, "Greenhouse Gas Emissions," and Section 3.13, "Noise," evaluate increases in air pollutant and GHG emissions and noise levels associated with constructing, operating, and maintaining the proposed utility improvements. Section 3.5, "Archaeological, Historical, and Tribal Cultural Resources," evaluates the potential impacts that trenching and excavation for utility installation may have on buried resources. Section 3.8, "Geology, Soils, and Mineral Resources," Section 3.10, "Hazards and Hazardous Materials," and Section 3.11, "Hydrology and Water Quality," evaluate the potential impacts of trenching and excavation for utility installation related to geologic hazards, the release of contamination into the environment, erosion and siltation, and degradation of water quality. The project would not require relocation and construction of new or expanded utility facilities beyond those proposed as part of the project.

The proposed locations of the PG&E 230 kV transmission line structures are intended to avoid known groundwater well locations. Two groundwater wells are identified within the proposed PG&E transmission line ROW. Appropriate vertical and horizontal clearances have been accounted for in the PG&E transmission line design to provide adequate clearance for well maintenance equipment at known groundwater well locations. Therefore, groundwater wells would not need to be relocated as part of the proposed project. Similarly, the PG&E 230 kV transmission line is designed to safely span above other existing PG&E distribution and power lines with regulated line clearance distance. The overhead PG&E 230 kV transmission line would span underground water lines and therefore would not impact underground water line facilities. The final design of the extended PG&E 12 kV service line would be coordinated with the City of Lodi to avoid impacts on existing underground water, stormwater, and wastewater facilities in South Guild Avenue.

Installation of new PG&E 230 kV transmission lines and reconductoring of existing PG&E power lines would not require stormwater drainage facilities. However, the project would construct new stormwater containment facilities at PG&E Thurman Switching Station and expand existing containment facilities at PG&E Lockeford Substation. In addition to an expanded PG&E Lockeford Substation stormwater basin, the existing stormwater drainage ditch would be relocated and extended on the substation parcel. The expanded stormwater drainage facilities would collect additional stormwater generated by the expanded substation. The project would also result in construction of new stormwater containment facilities at LEU Guild Substation. During construction of new and expanded stormwater facilities, the mandatory preparation of a stormwater pollution prevention plan (SWPPP) and implementation of erosion and sediment control measures would minimize construction impacts on surface water quality, as well as reduce the potential for stormwater to impact adjacent properties. The relocation and construction of new and expanded stormwater facilities within the substation footprints would not cause significant environmental effects beyond those disclosed throughout this EIR. As required by state law, PG&E and LEU would notify other utility companies to locate and mark existing underground structures at proposed work areas prior to any ground-disturbing activities.

Although project construction would require the use of water and temporary wastewater facilities (i.e., portable toilets) for construction workers, this use would be temporary and short term. Water trucks, typically with a capacity of up to approximately 3,000 gallons, would support project construction activities and dust suppression. As many as approximately three or four water trucks may be used daily for dust suppression during the peak periods of construction when ground disturbance may occur. However, the total volume available within the trucks on-site is not expected to be used daily. Water use would vary with type of activities (use could increase when activity is ground disturbing) and other daily site conditions, such as wind speed. Up to approximately 8,000 to 12,000 gallons of water may be needed daily for dust suppression during peak periods of construction. Furthermore, the construction workforce would be relatively small (up to approximately 66 people during the peak of project construction), so minimal water use and wastewater generation would occur. Wastewater service would be provided by portable toilets, and waste would be disposed of at appropriately licensed off-site facilities in accordance with CCR Title 17, Section 8007. Construction-related water use and wastewater generation would be temporary and short term and would not require construction of new water and wastewater treatment facilities.

As discussed in greater detail in Impact UTL-2, the minimal amount of water for transmission line conductor washing during O&M would be required infrequently (i.e., 45,0000 gallons every 5 years) and would not require construction of new water facilities. Once the project components are operational, ongoing O&M would not involve any activities that would require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Implementation of APMs and BMPs

No applicable APMs or BMPs are proposed as part of the project.

Significance before Mitigation

Because the project involves the relocation and construction of new and expanded utilities, the potential impacts associated with these improvements have been analyzed throughout this EIR. The implementation of these utility

improvements would not result in any additional impacts beyond those analyzed and disclosed in this EIR. Construction and O&M associated with the project would not require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, natural gas, or telecommunications facilities that could cause significant environmental effects. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact UTL-2: Have Insufficient Water Supplies Available to Serve the Project and Reasonably Foreseeable Future Development

As noted in Section 3.17.2, "Regulatory Setting," industrial projects are required to prepare a WSA if the project site is planned to house more than 1,000 people, occupy more than 40 acres of land, or have more than 650,000 square feet of floor area. The project would not house any new employees or residents or include any building floor area. The total acreage of land occupied by new project facilities would be approximately 14 acres. In addition, the project's operational water use, approximately 45,000 gallons every 5 years for cleaning, would be significantly less than the water required by a 500-dwelling-unit project. For comparison, the average household water use in the City of Lodi was approximately 132,751 gallons per year,[1] which would translate to more than 66 million gallons per year for 500 households. For these reasons, a water supply assessment according to California Water Code Section 10910 is not required for the project. The following sections evaluate whether sufficient water supplies are available to serve the project and reasonably foreseeable future development during normal and dry-year scenarios.

PG&E and LEU Project Components

Construction Activities

The project's primary water demand would be for construction-related dust control activities. Water required for construction may come from several sources, including a municipal water source, delivery by water supply vendor trucks, or Lodi Lake, which is located on the north side of Lodi. Depending on availability and distance to active construction, supplemental project water needs may be met by using recycled water available through the City's newly upgraded wastewater treatment plant. All the water sources described have adequate capacity to serve the project either independently or in combination, as detailed further below. In addition, although dewatering is not anticipated, any groundwater that would need to be removed from the project area would be pumped into a containment vessel and tested and, as permitted, may be used for dust control.

A minor amount of potable water would be supplied to construction workers for drinking and would be delivered to work areas by construction vehicles and equipment. Water trucks, typically with a capacity of up to approximately 3,000 gallons, would support project construction activities and dust suppression. As many as approximately three or four water trucks may be used daily for dust suppression during the peak periods of construction when ground disturbance may occur at 230 kV structure locations and PG&E and LEU stations. However, the total volume available within the trucks on-site is not expected to be used daily.

Water use would vary with type of activities (use could increase when activity is ground disturbing) and other daily site conditions, such as wind speed. Up to approximately 8,000 to 12,000 gallons of water may be needed daily for dust suppression during peak periods of construction. LEU estimates that construction of LEU Guild Substation would require approximately 40,000 gallons of water (approximately 3 acre-feet) during the peak of construction. However, daily water use during the LEU construction period would vary based on the construction phase. It is estimated that the average water use per day would be approximately 200 gallons over the course of the estimated total of approximately 7 months of construction with ground-disturbing activities.

Even at the peak of project construction, the daily amount of water needed for dust suppression (i.e., 12,000 gallons per day) would be equivalent to the daily use of approximately 33 local households in Lodi and would only occur for

[1] This value was calculated based on Tables 4-1 and 4-2 in the City of Lodi 2020 UWMP and includes metered accounts for single-family and multifamily residential uses for 2020 (City of Lodi 2021).

short periods. According to the City's 2020 UWMP, it was estimated that sufficient supplies would be available in normal, single-, and multiple-dry year scenarios at least through 2035 (see Table 3.17-2), which covers the construction period of the project. The overall minimal water needed for dust control and construction crew consumption would not exceed available supplies. Existing water supply resources would be sufficient to accommodate the project's minor temporary and short-term water demand and relatively small number of construction workers.

Operation and Maintenance

PG&E O&M activities would be conducted occasionally, and insulator washing is the only activity that would require water. If, as a result of the 5-year inspection findings, an inspector requires that insulators be washed, a pumper truck (3,000-gallon volume) would be used to clean insulators that required washing. Approximately 45,000 gallons of water would be required for the washing. This water demand would occur in 5-year increments, which would average approximately 9,000 gallons per year over the 5-year period. According to the City's 2020 UWMP, sufficient supplies would be available in normal, single-, and multiple-dry year scenarios at least through 2035 (see Table 3.17-2). In the event the City's water supply is constrained in later years because of a multiyear drought (e.g., 2040, 2045 as shown in Table 3.17-2), the small amount of water needed would be obtained from other sources, such as recycled water or water trucked in from areas with sufficient supplies. LEU O&M activities would be conducted occasionally but would not require the use of water.

Implementation of APMs and BMPs

No applicable APMs or BMPs are proposed as part of the project.

Significance before Mitigation

The project would require the use of water during construction and O&M activities. This water would be provided via pumper truck and could be derived from any regional source with adequate capacity. According to the City's 2020 UWMP, it was estimated that sufficient supplies would be available in normal, single-dry, and multiple-dry year scenarios at least through 2035 (see Table 3.17-2), which covers the construction period of the project. During O&M, in the event the City's water supply is constrained in later years because of a multiyear drought (e.g., 2040, 2045 as shown in Table 3.17-2), the small amount of water needed would be obtained from other sources, such as recycled water or water trucked in from areas with sufficient supplies. Therefore, sufficient water supplies would be available to serve the project and reasonably foreseeable future development during normal, single-, and multiple-dry years. Therefore, this impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact UTL-3: Exceed Capacity of Solid Waste Facilities and Be Incompliant with Solid Waste Statutes and Regulations

PG&E Project Components

Construction Activities

Construction debris, including recyclables (metal poles, pole framing, fencing, and pavement), untreated wood, and clean soil, would be taken to a licensed recycling facility, such as North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station. Construction debris would be picked up regularly from construction areas and stored in approved on-site containers; the debris would be hauled away for recycling or disposal periodically during construction. At construction staging areas, crews would gather and sort recyclable and salvageable materials into bins. When possible, various waste materials generated during construction would be recycled and salvaged. Salvageable items (such as usable conductor, steel, and hardware) would be taken to recycling facilities or sold through available markets. Some examples of items that may be recycled include damaged steel from pole assemblies, conductor segments, conductor reels, pallets, and broken hardware. Construction-generated waste materials that cannot be reused or recycled, such as soil and sanitation waste, would

be taken to waste management facilities for disposal. The facilities that would accept the waste for composting, recycling, or disposal have sufficient capacity to accommodate the project construction waste (see Table 3.17-3).

Wood guard poles would either be reused or recycled. If a pole's condition does not allow reuse, the pole would be recycled or disposed of in an appropriate manner by PG&E. Treated wood waste has the potential to be classified as hazardous waste if it contains elevated levels of arsenic, chromium, copper, pentachlorophenol, or creosote. Treated wood waste often can be identified visually by tags or markings on the wood, when cut staining is visible around the perimeter only, or by discoloration or odor.

If encountered during the removal or topping of PG&E 60 kV poles, treated wood waste removed from the project area during construction would be managed under the utility exemption of the California Health and Safety Code, Chapter 6.5, Section 25143 et seq. (Hazardous Waste Fee). Treated wood waste would be transported off-site and would be collected in project-specific containers either at a PG&E service center that is designated as a PG&E consolidation site or the project's primary staging area. When the containers are full, the waste would be transported to an appropriate licensed Class I or Class II landfill or the composite-lined portion of a solid waste landfill that meets requirements imposed by the state policy adopted pursuant to Section 13140 of the Water Code and regulations adopted pursuant to Sections 13172 and 13173 of the Water Code. Furthermore, the solid waste landfill used for disposal would be authorized to accept the wood waste under waste discharge requirements issued by the RWQCB pursuant to Division 7 (commencing with Section 13000) of the Water Code. Forward Landfill, Kettlemen Hills, or Buttonwillow Landfill would be used for the disposal of the treated wood poles generated by this project. All landfills have sufficient capacity to accept this waste.

Approximately 8 yd3 of pavement would be cut and removed by PG&E for the horizontal directional drilling (HDD) excavations for its secondary service line extension. PG&E estimates that approximately 1 yd3 of 60 kV conductor and guy wire would be recycled or reused by PG&E after being removed as part of the PG&E 60 kV reconfiguration. In addition, four sets of metal framing would be removed from the underbuild position on PG&E Lockeford-Industrial 60 kV Line. Ten percent of the metal framing removed from PG&E's 60 kV poles is expected to be recycled (approximately 0.05 yd3) and 90 percent (approximately 0.50 yd3) disposed as construction waste. The approximately 3,150 feet of fence material removed from PG&E Lockeford Substation perimeter fence would be recycled. Clean fill would be required for PG&E Thurman Switching Station, and the cut volume of approximately 3,206 yd3 would be hauled for disposal. Spoils that are not useable or are identified as contaminated through appearance would be tested to characterize before appropriate transportation to a licensed landfill facility.

PG&E estimates that vegetation, including trees removed for site preparation, would generate approximately 3,550 yd3 of agricultural and green waste. Vegetation would be taken to a suitable facility, such as North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station.

Project construction would also generate approximately 38 tons of solid waste from the food, glass, paper, plastic, and packing materials consumed by the construction workers who would be on-site for PG&E's portion of the project. Construction generated waste materials that cannot be reused or recycled (such as wood, soil, vegetation, and sanitation waste) would be taken to waste management facilities for disposal or composting.

PG&E would comply with the San Joaquin County C&D Ordinance by planning and reporting on its reuse and recycling to divert the required amount of debris from landfill disposal. As required by the C&D Ordinance, PG&E would divert 50 percent of all construction and demolition debris, excluding inert and organic material, and 90 percent of inert and organic material from the landfill through reuse and recycling. Compliance with these regulatory requirements would reduce the amount of solid waste that would be disposed of in landfills from project construction activities.

Because a majority of the waste generated during construction of the PG&E project components would be recycled or salvaged for reuse in compliance with existing local and state regulations, the project would not substantially diminish the remaining capacity available at the North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station, and new or expanded landfills would not be required to accommodate project construction-related solid waste. Therefore, construction associated with the PG&E

project components would not generate solid waste in excess of state or local standards or local capacity, or otherwise impair solid waste reduction goals.

Operation and Maintenance

PG&E O&M activities would be conducted occasionally. The amount of solid waste generated during these activities would be minimal and would not impact landfill capacity. In the event O&M activities would require the disposal of industrial waste, PG&E or its designated and licensed hauler would apply for a City of Lodi Industrial Waste Hauler Permit(s) as needed. PG&E would comply with all applicable federal, state, and local statutes and regulations related to solid waste. Therefore, O&M associated with the PG&E project components would not generate solid waste in excess of state or local standards or local capacity, or otherwise impair solid waste reduction goals.

Implementation of APMs

No applicable APMs are proposed as part of the project.

LEU Project Components

Construction Activities

Similar to what was described for the PG&E project components, construction debris generated by the LEU project components, including recyclables (metal poles, pole framing, fencing, and pavement), untreated wood, and clean soil, would be taken to a licensed recycling facility, such as North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station. Construction debris would be picked up regularly from construction areas and stored in approved on-site containers; the debris would be hauled away for recycling or disposal periodically during construction. At construction staging areas, crews would gather and sort recyclable and salvageable materials into bins. When possible, various waste materials generated during construction would be recycled and salvaged. The facilities that would accept the waste for composting, recycling, or disposal have sufficient capacity to accommodate the project construction waste (see Table 3.17-3).

Wood guard poles would either be reused or recycled. LEU's existing wood training poles on the LEU Guild Substation site are not treated wood and would not be managed as hazardous waste. Approximately 8 yd^3 of LEU wood training poles are estimated to be removed, and all are expected to be reused or recycled.

LEU estimates that approximately 1,000 feet of 12 kV electrical conductor would be removed. Approximately 1 yd^3 of pavement would be cut and removed by LEU for the HDD excavations for its feeder line relocation. LEU's relocation of its existing 12 kV feeder line would generate approximately 1.5 yd^3 of solid waste for disposal or recycling. The approximately 400 feet of fence material removed from LEU Industrial Substation eastern perimeter fence would be recycled. LEU estimates that 2,550 yd^3 of excess cut material would be hauled for disposal due to construction of LEU structures. Spoils that are not useable or are identified as contaminated through appearance would be tested to characterize before appropriate transportation to a licensed landfill facility.

Project construction would also generate approximately 11 tons of solid waste from the food, glass, paper, plastic, and packing materials consumed by construction workers for LEU's portion of the project. Construction generated waste materials that cannot be reused or recycled (such as wood, soil, vegetation, and sanitation waste) would be taken to waste management facilities for disposal or composting.

Although the City of Lodi does not have a separate ordinance for construction and demolition debris recycling, the City adopted the 2022 edition of CALGreen (CCR, Part 11 of Title 24) as its Green Building Code (Chapter 15.18). Divisions 4.4 and 5.4 of CALGreen require a minimum of 65 percent of all nonhazardous construction and demolition waste for residential and nonresidential development, respectively, to be recycled or salvaged for reuse. Code requirements include preparing a construction waste management plan that identifies the materials to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale; determining whether materials will be sorted on-site or mixed; and identifying diversion facilities where the materials collected will be taken. Compliance with these regulatory requirements would reduce the amount of solid waste that would be disposed of in landfills from project construction activities.

Because a majority of the waste generated during construction of the LEU project components would be recycled or salvaged for reuse in compliance with existing local and state regulations, the project would not substantially contribute to the remaining capacity available at the North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station, and new or expanded landfills would not be required to accommodate project construction-related solid waste. Therefore, construction associated with the LEU project components would not generate solid waste in excess of state or local standards or local capacity, or otherwise impair solid waste reduction goals.

Operation and Maintenance

LEU O&M activities would be conducted occasionally. The amount of solid waste generated during these activities would be minimal and would not impact landfill capacity. In the event O&M activities would require the disposal of industrial waste, LEU or its designated and licensed hauler would apply for a City of Lodi Industrial Waste Hauler Permit(s) as needed. LEU would comply with all applicable federal, state, and local statutes and regulations related to solid waste. Therefore, O&M associated with the LEU project components would not generate solid waste in excess of state or local standards or local capacity, or otherwise impair solid waste reduction goals.

Implementation of BMPs

No applicable BMPs are proposed as part of the project.

Significance before Mitigation

PG&E and LEU would manage solid waste generated during construction and O&M by hauling it to appropriate landfills. Because a majority of the waste generated during construction of the project would be recycled or salvaged for reuse in compliance with existing local and state regulations, the project would not substantially contribute to the remaining capacity available at the North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station, and new or expanded landfills would not be required to accommodate project construction-related solid waste. In addition, the amount of solid waste generated during O&M activities would be minimal and would not impact landfill capacity. Therefore, the project would not generate solid waste in excess of state or local standards or local capacity, or otherwise impair solid waste reduction goals. Therefore, solid waste impacts would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

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3.18 WILDFIRE

This section provides background and context related to wildfires, such as wildfire regime, wildfire behavior, and wildfire management practices, as well as the applicable state and local regulations that address wildfire. This section also evaluates the potential impacts associated with implementation of the project on wildfire risk and exposure.

No comment letters regarding wildfire or wildfire risk were received in response to the notice of preparation (NOP). See Appendix A for all NOP comments received during the public scoping period.

3.18.1 Environmental Setting

The topography in the project vicinity is generally flat with rolling hills increasing to the east. Elevation in the project area ranges from approximately 135 feet above sea level at the eastern end to approximately 60 feet above sea level at the western end of the project area. Northern San Joaquin County is predominantly agricultural, with retail wineries; rural and semirural residential development outside of the City of Lodi; and small, concentrated areas of industrial and commercial businesses along transportation corridors. The majority of upland habitat located along the project area is either hardscaped or otherwise developed/landscaped, agricultural land, or is disturbed habitat consisting of primarily ruderal or nonnative species. Vegetation in the project area consists primarily of agriculture; landscaping associated with residences or businesses; riparian habitat associated with creeks and streams; annual grasslands in pastures along roadsides and in other undeveloped, disturbed areas; and ruderal habitat in highly disturbed areas, including along linear infrastructure and at the edges of hardscape development.

California Department of Forestry and Fire Protection (CAL FIRE) identifies Fire Hazard Severity Zones at the local, state, and federal level, all of which cover fire-prone areas in the state regardless of land ownership or responsibility. According to mapping conducted by CAL FIRE and CPUC, the project area has a low risk for wildland fire. The project area is located entirely within a Local Responsibility Area (LRA) and outside of a State Responsibility Area (SRA). Additionally, as shown on the Local Responsibility Area Fire Hazard Severity Zones map for San Joaquin County, the project area is not located within a High Fire Hazard Severity Zone (HFHSZ) or Very High Fire Hazard Severity Zone (VHFHSZ) (CAL FIRE 2024). The nearest CAL FIRE designated VHFHSZ is located approximately 24.3 miles northeast of the project area (CAL FIRE 2024). The San Joaquin County GIS has also mapped fire severity zones, and there are no portions of the project within an identified severity zone. The nearest San Joaquin County GIS–designated VHFHSZ is located approximately 38.5 miles southwest of the project area (San Joaquin County 2014).

CPUC has adopted fire hazard mapping most recently with its High Fire-Threat Map in 2021, which designates fire-threat areas that require enhanced fire safety. The project components are located outside of any mapped fire hazard zones on CPUC's High Fire-Threat Map. For the main project components within northern San Joaquin County, the nearest CPUC-designated Tier 3 Extreme fire zone is located approximately 42.5 miles northeast of the project area (CPUC 2021). Furthermore, PG&E has not independently identified an area with high fire hazards risks within the vicinity of the project area.

The potential risk of wildfire to occur in the project area is considered low due to the developed industrial nature within the City of Lodi and the cultivated landscape, maintained with primarily vineyards, in the portions of the project area in San Joaquin County. Several portions of the project area where urbanized areas transition to the natural environment, also known as the Wildland-Urban Interface, intersect the project area, and are further described below.

WILDLAND URBAN INTERFACE

The Wildland Urban Interface (WUI) is the zone of transition between unoccupied land and human development. It is the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. Communities adjacent to and surrounded by wildland are at varying degrees of risk from wildfires (US Fire Administration 2024). Three types of WUI are identified by CAL FIRE: Interface, Intermix, and Influence zones (CAL FIRE 2019a, as cited in Jacobs Engineering Group 2023). Influence and Intermix zones occur within the proposed project area. These are shown on Figure 3.18-1 and explained below.

The Wildfire Intermix Zone of WUI is housing development interspersed in an area dominated by wildland vegetation subject to wildfire; it must meet these criteria:

- not in a Wildfire Interface Zone;
- housing density class 2;
- housing density class 3 or 4 dominated by wildland vegetation;
- in Moderate Fire Hazard Severity Zone (MFHSZ), HFHSZ, or VHFHSZ;
- improved parcels only; and
- spatially contiguous groups of 30-meter cells that are 25 acres and larger.

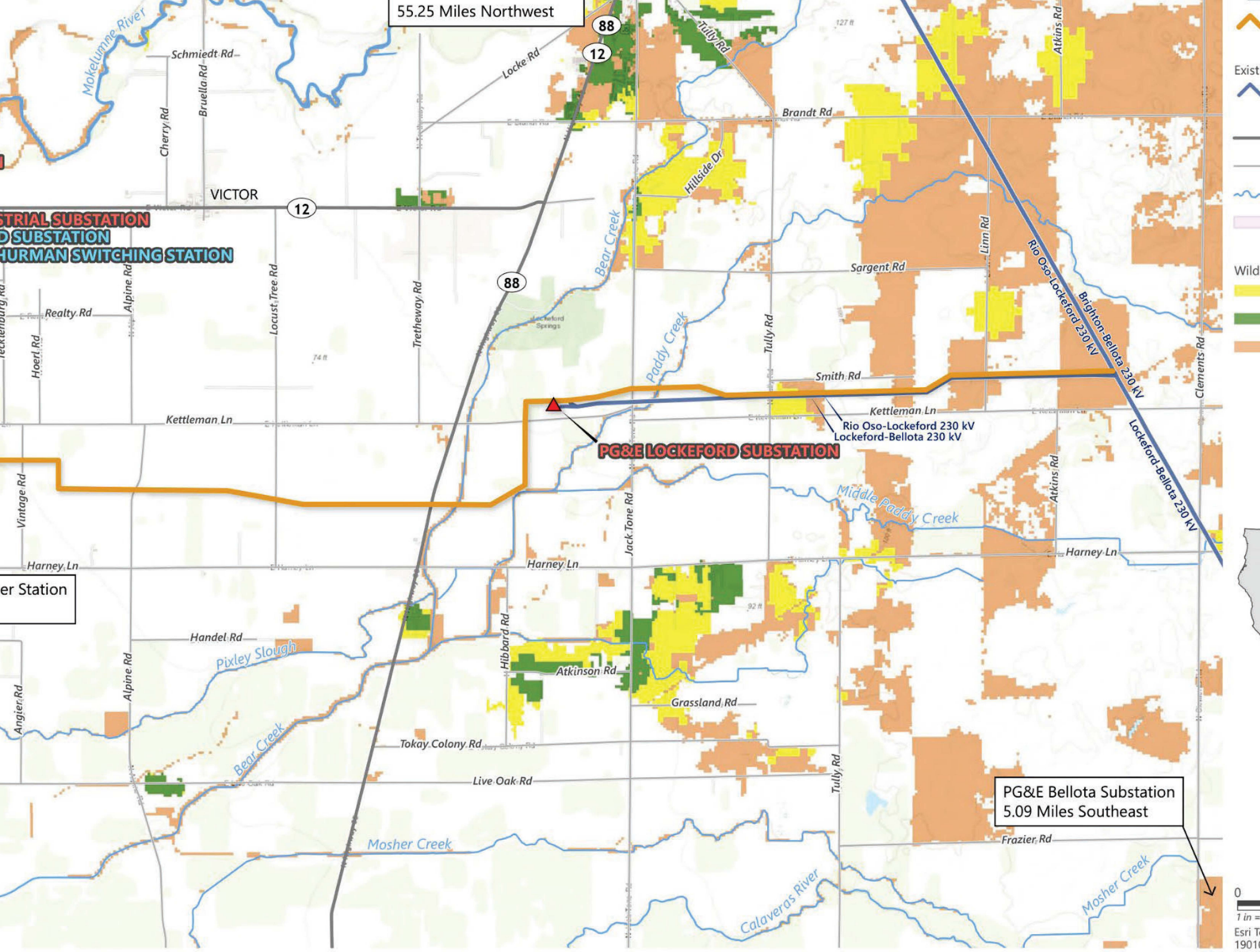
The Wildfire Influence Zone is wildfire-susceptible vegetation; it must meet this criterion:

- wildland vegetation up to 1.5 miles from Wildfire Interface or Intermix Zones.

FIRE RISK

The topography in the area generally is flat with rolling hills increasing toward the east. Elevation ranges from approximately 135 feet above sea level at the eastern end to approximately 60 feet above sea level at the western end of the project area. The vegetation surrounding the project area is primarily agricultural.

The windier part of the year in the project vicinity occurs between mid-April to early September, with average wind speeds of 6.3 miles per hour (mph). From early September to mid-April, wind speed is calmer, with average hourly wind of approximately 5.5 mph in October. During typical hot afternoons in summer when the air is drier, relative humidity ranges between approximately 54 and 58 percent, increasing to a range of approximately 64 to 84 percent in the wetter months (Jacobs Engineering Group 2023).


55.25 Miles Northwest
88
12
Mokelumne River
Schmiedt Rd
Cherry Rd
Bruella Rd
Locke Rd
Tully Rd
Atkins Rd
Brandt Rd
Hillside Dr
VICTOR
12
STRIAL SUBSTATION
D SUBSTATION
HURMAN SWITCHING STATION
Alpine Rd
Locust Tree Rd
Tretheway Rd
88
Bear Creek
Linn Rd
Rio Oso-Lockeford 230 kV
Brighton-Bellota 230 kV
Sargent Rd
Realty Rd
Hoerl Rd
Paddy Creek
Tully Rd
Clements Rd
Smith Rd
Kettleman Ln
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
PG&E LOCKEFORD SUBSTATION
Lockeford-Bellota 230 kV
Vintage Rd
Middle Paddy Creek
Atkins Rd
Harney Ln
Jack Tone Rd
Harney Ln
Harney Ln
er Station
Handel Rd
Pixley Slough
Hibbard Rd
Atkinson Rd
Alpine Rd
Angier Rd
Grassland Rd
Bear Creek
Tokay Colony Rd
Live Oak Rd
Tully Rd
PG&E Bellota Substation
5.09 Miles Southeast
Mosher Creek
Frazier Rd
Calaveras River
Mosher Creek

3.18.2 Regulatory Setting

FEDERAL

There are no federal regulations related to wildfire that apply to the proposed project.

STATE

California Building Code

The California Building Standards Code (CBC) (California Code of Regulations, Title 24) provides minimum standards for the design and construction of buildings and structures in California. Minimum standards are organized under Part 1 to 12 and include code standards for buildings, mechanical, plumbing, energy, historical buildings, fire safety, and green building standards. State law mandates that local government enforce these regulations. Title 24 is applicable to all occupancies, or structures, throughout California, whether or not the local government takes an affirmative action to adopt Title 24.

California Fire Code

The California Fire Code (CFC) provides standards related to construction, maintenance, and use of buildings. Topics addressed in the CFC include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazard safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises. The CFC contains specialized technical regulations related to fire and life safety. It is in Part 9 of Title 24 of the CCR.

CFC Chapter 49: Requirements for Wildland-Urban Interface Areas

CFC Chapter 49 provides minimum standards to increase building resistance to the intrusion of flame or burning embers projected by a vegetation fire and identifies performance and prescriptive requirements. Section 4906 provides vegetation management requirements for landscaping in proximity to buildings and structures located in SRA and LRA land designated as VHFHSZ. In addition, Section 4907 requires the local entity with jurisdictional authority over areas designated VHFHSZ in LRAs to maintain defensible space near buildings and structures.

California Public Resources Code

The California Public Resources Code (PRC) provides regulations to enhance safety with regard to the operation and management of electrical transmission lines. The PRC includes fire safety regulations that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment that has an internal combustion engine; specify the requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided onsite for various types of work in fire-prone areas.

Specifically, Sections 4292, 4293, and 8387 of the PRC address vegetation management in transmission line corridors as follows:

- **PRC Section 4292:** This section requires the clearing of flammable vegetation around specific structures that support certain connectors or types of electrical apparatus. An approximately 10-foot radius around such structures must remain clear of vegetation for the entirety of the fire season.
- **PRC Section 4293:** This section requires specific clearances between conductors and vegetation. As the line voltage increases, the clearance radius also increases. In addition, some trees must be removed if they pose the potential to fall on an electrical transmission line and cause damage.

- PRC Section 8387: This section requires that the local publicly owned electric utility or electrical cooperative prepare an annual wildfire mitigation plan which includes how to construct, maintain, and operate its electrical lines and equipment in a manner that will minimize the risk of wildfire posed by those electrical lines and equipment.

CPUC General Order 95: Rules for Overhead Electric Line Construction

GO 95 regulates the design, construction, operation, and maintenance of overhead electric lines in California. This order includes safety standards such as minimum conductor ground clearance, electric line inspection requirements, and vegetation clearance requirements. Rule 35 (Tree Trimming) defines minimum vegetation clearances around power lines and requires 10 feet of radial clearances for any conductor of a line operating at more than 110,000 volts and less than 300,000 volts. This rule also requires that utility providers remove dead, rotten, and diseased trees that overhang or lean toward a span of an electric line. Rule 31.2 (Inspection of Lines) requires that lines be inspected frequently to ensure that they are in good condition and that lines temporarily out of service be inspected and maintained to prevent a hazard.

CPUC GO 166: Standards for Operation, Reliability, and Safety during Emergencies and Disasters

GO 166 applies to all electric utilities subject to the jurisdiction of CPUC and addresses electric service reliability and safety. The purpose of this order is to ensure that jurisdictional electric utilities are prepared for emergencies and disasters to minimize damage and inconvenience to the public that may occur as a result of electric system failures, major outages, or hazards posed by damage to electric distribution facilities. Investigations required by this order are conducted following every major outage, pursuant to and consistent with Public Utilities Code Section 364(c) and CPUC policy.

LOCAL

Because CPUC has exclusive jurisdiction over project siting, design, and construction, PG&E's portion of the project is not subject to local (City and County) discretionary regulations. However, local plans and policies are considered for informational purposes and to assist with the CEQA review process.

Because the LEU is not subject to the CPUC's jurisdiction, the LEU portions of the proposed project are subject to all applicable local plans and policies.

San Joaquin County Local Hazard Mitigation Plan

The San Joaquin County Local Hazard Mitigation Plan (LHMP), adopted in April of 2023, provides strategies for the County and other local jurisdictions to identify and implement mitigation actions for reducing damages from various natural and technological disasters. The LHMP outlines a process for assessing and analyzing hazards to which San Joaquin County is most vulnerable. The process improves the county's resilience by performing a hazard risk assessment, using available tools to complete a capabilities assessment and then identifying mitigation actions for these hazards. The LHMP analyzes the risk posed to people and property by natural hazards and considers mitigation actions that the County could implement before such events to reduce the risk to life and safety and the risk of property damage and service disruption caused by these natural hazards (San Joaquin County 2023).

San Joaquin County Emergency Operations Plan

The San Joaquin County Emergency Operations Plan outlines the County's strategic response to extraordinary emergency situations arising from various hazards, including natural disasters, technological emergencies, and civil disturbances. This comprehensive plan serves as the principal guide for mitigating, responding, and recovering from such events. It was developed using generally accepted emergency management principles and practices, and incorporates planning elements derived from Federal Emergency Management Agency and California's emergency planning documents. Additionally, this plan identifies major transportation routes throughout the county that would be used by both county residents and tourists as possible evacuation routes in the event of an emergency (San Joaquin County 2022).

San Joaquin County General Plan

The San Joaquin County General Plan (San Joaquin County 2016) contains the following policies that are relevant to the project:

- **Policy PHS-4.3: Fire Prevention Measures.** The County shall implement State recommendations for fire prevention in Fire Hazard Severity Zones and require new and/or existing development to provide clearance around structures, use fire-resistant ground cover, build with fire-resistant roofing materials, participate in fuel load reduction, and take other appropriate measures.
- **Policy PHS-4.6: Fire Protection Coordination.** The County shall encourage well-organized and efficient coordination among fire agencies, CalFire, and the County.

City of Lodi General Plan

The City of Lodi General Plan (City of Lodi 2010) contains the following policies that are relevant to the project:

- **Policy S-G1:** Ensure a high level of public health and safety.
- **Policy S-G2:** Prevent loss of lives, injury, illness, and property damage due to flooding, hazardous materials, seismic and geological hazards, and fire.
- **Policy S-G3:** Protect the public from disasters and provide guidance and response in the event [of] a disaster or emergency.
- **Policy S-G4:** Minimize vulnerability of infrastructure and water supply and distribution systems.
- **Policy S-P25:** Maintain a vegetation management program to ensure clearing of dry brush areas. Conduct management activities in a manner consistent with all applicable environmental regulations.
- **Policy S-P26:** Ensure that major access and evacuation corridors are available and unobstructed in case of major emergency or disaster. Continue to identify appropriate road standards, including minimum road widths and turnouts to provide adequate emergency access and evacuation routes.
- **Policy S-P27:** Continue to use the San Joaquin County Hazard Mitigation Plan to reduce hazard risk and coordinate with the County on its update and implementation, consistent with the Federal Emergency Management Agency and the Disaster Act of 2000.

APPLICABLE MITIGATION PROGRAMS

PG&E 2019 Wildfire Safety Plan

Wildfire risks are differentiated across California, and more than half (52 percent) of PG&E's service area statewide is identified as extreme (Tier 3) or elevated (Tier 2) fire-threat according to the CPUC's High Fire Threat District (HFTD) Map, which depicts the physical and environmental conditions associated with an elevated potential for utility-associated wildfires. The 2019 Wildfire Safety Plan describes the wildfire safety strategies and programs that are specifically intended to address PG&E's unique geographic 70,000-square-mile service area. To develop the plan, PG&E extensively analyzed wildfire risk factors to determine which factors have the highest incident rates and potential fire spread characteristics and the potential additional operational actions, enhancements to existing programs, and other measures that will most effectively address those risks (PG&E 2019).

PG&E Wildfire Mitigation Plan

PG&E's objective for the 2023-2025 Wildfire Mitigation Plan (WMP) is to use risk-informed decision making to minimize ignition risk and outage impacts. The WMP includes a balanced portfolio of mitigation initiatives centered around comprehensive monitoring and data collection, operational mitigation strategies, and system resilience that work together to reduce wildfire risk and strengthen the resiliency of PG&E's electric distribution and transmission systems and reduce impacts of public safety power shutoff events (PG&E 2024).

Lodi Electric Utility Wildfire Mitigation Plan

The LEU Wildfire Mitigation Plan (WMP) describes the range of activities that LEU is taking to mitigate the threat of power-line-ignited wildfires, including its various programs, policies, and procedures. Additionally, LEU WMP aims to improve the resiliency of the electric grid by implementing new industry practices and technologies that reduce the likelihood of an interruption in service, improve the restoration of service, and increase public safety during high wildfire risk conditions (City of Lodi 2024).

Lodi Electric Utility Electric Emergency Plan

The LEU Electric Emergency Plan (EEP) is an operational plan consisting of descriptions and actions taken by LEU in response to specific emergency situations. In the case of a city-wide blackout, the EEP governs the order in which loads are restored to service. The EEP shows the order in which circuits are to be brought up following a city-wide blackout. Vital loads are restored first followed by non-vital loads. In the event of a partial outage, circuits will be brought back as conditions permit in the order of priority listed in the EEP (City of Lodi 2024).

3.18.3 Impact Analysis and Mitigation Measures

ANALYSIS METHODOLOGY

The impact analysis considers the potential for increased wildfire risk from the implementation of the proposed project in terms of exposure of more people and structures to wildfires, and of the potential for increased wildfire frequency and intensity. It also evaluates the effects of emergency planning and evacuation in the event of a wildfire and any conflicts with existing emergency plans and policies. Natural conditions and existing features of the project vicinity contributing to wildfire risk, as well as emergency ingress and egress, and other emergency planning features that reduce risks, are presented and discussed in the impacts below.

The potential for the project's construction and operation activities and equipment to pose wildfire hazards was evaluated by reviewing the following:

- fire hazard maps, fire occurrence maps, and GIS data from CAL FIRE and CPUC;
- information provided in the Safety Elements of the San Joaquin County General Plan and City of Lodi General Plan;
- CPUC, PG&E, and LEU fire hazard rules and policies, including PG&E's and LEU's current WMP; and
- San Joaquin County's and City of Lodi's emergency plans and evacuation routes.

APPLICANT-PROPOSED MEASURES AND BEST MANAGEMENT PRACTICES

PG&E has developed applicant proposed measures (APMs) that are incorporated into PG&E's components of the proposed project. Similarly, LEU has developed best management practices (BMPs) that would apply to the LEU components of the proposed project. The project includes the following APMs and BMPs related to hazards and hazardous materials.

PG&E APMs

- **APM WFR-1. PG&E Construction Fire Prevention Plan.** A project-specific *Construction Fire Prevention Plan* for construction of the project will be prepared prior to initiation of construction by PG&E. The PG&E plan will be provided to the CPUC and the local fire agencies with jurisdiction over the areas where the project is located at least 90 days prior to the initiation of construction activities in areas designated as very high or high FHSZs. Plan reviewers also will include federal, state, or local agencies with jurisdiction over areas where the project is located. The final plan will be approved by the CPUC at least 30 days prior to the initiation of construction activities. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:

- The purpose and applicability of the plan;
- Incorporation of the requirements in PG&E's current Utility Standard for *Preventing and Mitigating Fires While Performing PG&E Work*;
- Responsibilities and duties for compliance;
- Preparedness training and drills;
- Procedures for fire reporting, response, and prevention that include:
  - Identification of daily site-specific risk conditions;
  - The tools and equipment needed on vehicles and on hand at sites;
  - Reiteration of fire prevention and safety considerations during tailboard meetings;
  - Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity;
- Coordination procedures with federal, state, and local fire officials;
- Crew training, including the construction fire prevention practices described in APM WFR-2;
- Method(s) for verifying that all plan protocols and requirements are being followed;
- A project Fire Marshal or similar qualified person will be responsible for training project personnel and enforcing all provisions of the PG&E Construction Fire Prevention Plan, as well as performing other duties related to fire detection, prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.

▸ APM WFR-2. PG&E Fire Prevention Practices. PG&E will implement the following fire prevention practices at active construction sites and during maintenance activities:

- Existing PG&E personnel conducting maintenance on the project are trained on the PG&E Utility Standard TD-1464S for Preventing and Mitigating Fires While Performing PG&E Work and will follow the standard in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including National Weather Service (NWS) events, and PG&E's work restrictions and fire mitigation required for elevated PG&E Utility fire potential index (FPI) ratings (R4, R5, or R5-Plus).
- Construction personnel will be trained in fire-safe actions, including PG&E's current Utility Standard for Preventing and Mitigating Fires While Performing PG&E Work, Wildfire Prevention Contract Requirements, and the project's PG&E Construction Fire Prevention Plan concerning initial attack, firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
- All construction personnel will carry a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and define immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers will be updated as needed and redistributed to all construction personnel prior to the day the information change goes into effect.
- PG&E will coordinate with the applicable local fire departments prior to construction activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities as part of the PG&E Construction Fire Prevention Plan review.
- Construction personnel will have fire suppression equipment on all construction vehicles and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
- All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication

pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each work site. All fires will be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.

- While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
- PG&E General Requirements for wildfire mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from a fire index area (FIA) when the nearest FIA has an elevated FPI rating (R4, R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations will apply.
- At PG&E's Clayton Hill Repeater Station, which is within an FIA, during Red-Flag Warning and Fire Weather Watch events, as issued by the NWS, and elevated PG&E Utility FPI rating (R4, R5, or R5-Plus), all construction activities will refer to the current PG&E Standard TD-1464S and related requirements such as PG&E Wildfire Prevention Contract Requirements, Attachment 1 – Wildfire Mitigation Matrix, and Attachment 2 – Wildfire Risk Checklist Fire Mitigations. With increased potential fire risk of R4, additional water resources are required, and a working fire watch is assigned to be able to continue work as long as the weather conditions are evaluated to ensure it remains safe to continue work.
- For R5 and R5-Plus ratings, mitigation beyond R1 to R4 levels includes a dedicated fire watch at the jobsite, a trailer-mounted water tank or alternative water delivery method at the jobsite, and modifying the fuel sources surrounding the jobsite. All planned work is suspended during an R5-Plus fire rating. During all emergency work being performed for an R5-Plus fire rating, personnel must have a PG&E Safety and Infrastructure Protection Team on standby or a 300-gallon water tender available. Use of heavy equipment (blades, dozers, skid steers, excavators, back hoes), construction hot work, and electrical equipment work (including tasks related to conductors, pole, and overhead equipment from which a spark, fire, or flames may originate) are allowed with the R5 mitigations in place but not allowed during R5-Plus conditions.

LEU BMPs

- **BMP WFR-1. PG&E Construction Fire Prevention Plan.** A project-specific *Construction Fire Prevention Plan* for construction of the project will be prepared prior to initiation of construction by LEU. The plan will be provided to the City of Lodi Fire Department, which has jurisdiction over the areas where LEU's project activities are located, none of which are within very high or high FHSZs. The plans will be provided to the department at least 90 days prior to the initiation of construction activities for review and approval. The plan will be fully implemented throughout the construction period, and it will include the following at a minimum:
  - The purpose and applicability of the plan;
  - Incorporation of the requirements in LEU's current WMP;
  - Responsibilities and duties for compliance;
  - Preparedness training and drills;
  - Procedures for fire reporting, response, and prevention that include:
    - Identification of daily site-specific risk conditions;
    - The tools and equipment needed on vehicles and on hand at sites;
    - Reiteration of fire prevention and safety considerations during tailboard meetings;
    - Daily monitoring of the Red-Flag Warning System with appropriate restrictions on types and levels of permissible activity;
  - Coordination procedures with federal, state, and local fire officials
  - Crew training, including the construction fire prevention practices described in BMP WFR-2;

- Method(s) for verifying that all plan protocols and requirements are being followed;
- A project Fire Marshal or similar qualified person will be responsible for training project personnel and enforcing all provisions of the *LEU Construction Fire Prevention Plan*, as well as performing other duties related to fire detection, prevention, and suppression for the project. Construction activities will be monitored to ensure implementation and effectiveness of the plan.

- BMP WFR-2. LEU Construction Fire Prevention Practices. LEU will implement the following fire prevention practices at active construction sites and during maintenance activities:
  - Existing LEU personnel conducting maintenance on the project are trained on the LEU WMP and will follow the plan in regard to training, preparation, communication methods and means, observations of and alerts concerning weather conditions including NWS events, and LEU's work restrictions and fire mitigation required for elevated fire potential.
  - Construction personnel will be trained in fire-safe actions, including LEU project Construction Fire Prevention Plan, initial attack firefighting, and fire reporting. Construction personnel will be trained and equipped to extinguish small fires to prevent them from growing into more serious threats.
  - All construction personnel will carry a laminated card and be provided a hard hat sticker that list pertinent telephone numbers for reporting fires and defining immediate steps to take if a fire starts. Information on laminated contact cards and hard hat stickers will be updated as needed and redistributed to all construction personnel prior to the day the information change goes into effect.
  - LEU will coordinate with the City of Lodi Fire Department prior to construction activities to determine the appropriate amounts of fire equipment to be carried on vehicles and, should a fire occur, to coordinate fire suppression activities as part of the LEU Construction Fire Prevention Plan review.
  - Construction personnel will have fire suppression equipment on all construction vehicles and will be required to park vehicles away from dry vegetation. Water tanks and/or water trucks will be sited or available at active project sites for fire protection during construction.
  - All construction crews and inspectors will be provided with radio and cellular telephone access that is operational in all work areas and access routes to allow for immediate reporting of fires. Communication pathways and equipment will be tested and confirmed operational each day prior to initiating construction activities at each work site. All fires will be reported to the fire agencies with jurisdiction in the area immediately upon discovery of the ignition.
  - While performing stationary ground-level jobs or activities from which a spark, fire, or flame may originate (for example, welding, cutting, grinding), all flammable material (for example, grass, leaf litter, dead or dying tree) must be removed down to the mineral soil around the operation for a minimum of 10 feet.
  - PG&E General Requirements for wildfire mitigation (R1 to R3) apply for PG&E work areas located farther than 5 miles from a fire index area (FIA) when the nearest FIA has an elevated FPI rating (R4, R5, or R5-Plus), except during NWS Red-Flag Warnings and Fire Weather Watch events when R5 mitigations will apply.
  - The risk for potential fire hazards associated with the construction of the new substation is low because the setting has no known potential wildfire risk. Given the surrounding settings of urban development, LEU does not expect any restrictions to be used for "high-risk days." LEU will continue to comply with its 2024 WMP, as updated yearly.

SIGNIFICANCE CRITERIA

The significance criteria used to evaluate the project impacts to wildfire under CEQA are based on Appendix G of the CEQA Guidelines and CPUC's *Guidelines for Energy Project Applications Requiring CEQA Compliance: Pre-Filing and Proponent's Environmental Assessments.* An impact related to wildfire would be significant if implementation of the project would:

- impair an adopted emergency response plan or emergency evacuation plan;
- due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
- require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
- expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

The California Supreme Court concluded in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369, 377–378, "agencies subject to CEQA generally are not required to analyze how existing environmental conditions will impact a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project's impact on the environment—and not the environment's impact on the project—that compels an evaluation of how future residents or users could be affected by exacerbated conditions." With this ruling, CEQA does not consider the impact of the environment on a project (such as the impact of existing wildfire hazards on new project receptors) to be an impact requiring consideration under CEQA, unless the project could exacerbate those risks.

ISSUES NOT EVALUATED FURTHER

Substantially Impair an Adopted Emergency Response Plan or Emergency Evacuation Plan

As described above in Section 3.18.2, "Regulatory Setting," there are two applicable emergency plans in unincorporated San Joaquin County and no applicable plan within the City of Lodi. The San Joaquin County LHMP analyzes the risk posed to people and property by natural hazards and considers mitigation actions that the County could implement before such events to reduce the risk to life and safety and the risk of property damage and service disruption caused by these natural hazards (San Joaquin County 2023). The San Joaquin County Emergency Operations Plan outlines the County's strategic response to extraordinary emergency situations arising from various hazards, including natural disasters, technological emergencies, and civil disturbances. The plan identifies major transportation routes throughout the county that would be used as possible evacuation routes in the event of an emergency (San Joaquin County 2022) The closest evacuation route is Victor Road, located approximately 0.5 miles north of the project area (San Joaquin County 2019). The project would not substantially impair implementation of the San Joaquin Emergency Operations Plan because it would not create substantial hazards, modify or obstruct evaluation routes, or induce substantial unplanned population growth.

Although the City of Lodi does not have an emergency operations plan in effect and has not identified evacuation routes, the City of Lodi's street closure provisions require that a 24-foot emergency access lane be kept clear of obstruction, which limits the potential that street closures due to LEU construction activity in the City of Lodi would hinder emergency service access. Any lane closures would be temporary and coordinated with the California Department of Transportation. Furthermore, all construction activities would be required to comply with the standards set forth in the 2022 California Fire Code and LEU would also be required to comply with the City Municipal Code. Section 3311.1 of the 2022 California Fire Code identifies minimum requirements and general hazard standards to provide required emergency access during construction activities. For these reasons, should an evacuation event occur, construction and O&M activities would not interfere with efficient evacuation of the public and project personnel. Additionally, all O&M of new and modified LEU facilities would operate according to existing LEU O&M procedures, which require that sufficient emergency access is provided. Moreover, no permanent physical alterations to the roadway network would occur. No impact would occur, and this issue is not evaluated further.

Expose People or Structures to Significant Risks, Including Downslope or Downstream Flooding or Landslides, as a Result of Runoff, Post-Fire Slope Instability, or Drainage Changes

Construction and operation of uses identified as part of the project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. As discussed in more detail in Section 3.8, "Geology, Soils, and Mineral Resources," the existing topography of the project area is relatively flat (less than or equal to 2-percent slope) and is not susceptible to landslides. Additionally, the relatively flat nature of the project area would not result in post-fire slope instability or substantial runoff. As described in Section 3.11, "Hydrology and Water Quality," and shown in Figure 3.11-2, portions of the project area are located within the 100-year floodplain, 500-year floodplain, and the Camanche Dam inundation zone, and therefore could experience occasional flooding. However, the project would comply with the conditions of the National Pollutant Discharge Elimination System General Permit requirements, including implementation of a stormwater pollution prevention plan, which would help to reduce stormwater runoff during construction. Additionally, PG&E and LEU facilities in the project area have existing stormwater systems on-site. Furthermore, the existing storm drain system at the proposed site of PG&E Thurman Switching Station and LEU Guild Substation would direct water that falls on impervious surfaces into the City of Lodi stormwater drain system. Therefore, construction and operation of the project would not expose people or structures to significant downslope or downstream flooding or landslides, stormwater runoff, post-fire slope instability, or drainage changes. No impact would occur, and this issue is not evaluated further.

PG&E Remote End Facilities

As part of the proposed project, PG&E would update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), which are located in Linden, Sacramento, Lodi, and Rio Oso, respectively. The Bellota, Brighton, Lodi, and Rio Oso substations are within LRAs, but not located within an identified severity zone (CAL FIRE 2024). PG&E would also install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme. The existing PG&E Clayton Hill Repeater Station is in an SRA and identified as being in a high fire hazard severity area. The access road to the facility is paved, has no public vehicle access, and is not identified as a vehicle evacuation route by an emergency plan. Although the Clayton Hill Repeater Station is within an area with known wildfire potential, as described in Chapter 2, "Project Description," PG&E would follow construction fire prevention and response procedures, which are consistent with applicable regulation and best practice innovations, during construction. Project-related work at PG&E remote-end stations would not include "hot" work and would occur within the existing facility footprints.

Five large fires have occurred within 5 miles of project components, with only one destroyed structure reported. Two large fires occurred approximately 5 miles from PG&E Bellota Substation. In 2013, the Shelton Fire off North Shelton Road burned 303 acres, which started from an unknown cause. In 2018, the Waverly Fire off North Waverly Road and North Shelton Road burned 12,300 acres and destroyed one structure. Three large fires occurred within 5 miles of PG&E Clayton Hill Repeater Station. In 2013, the Kirker Fire burned 478 acres due to a downed powerline, and the Morgan Fire, with a miscellaneous cause, burned 3,108. In 2019, the Marsh Creek 3 Fire, caused by arson, burned 340 acres.

Evacuation from PG&E remote-end substations (Bellota, Brighton, and Rio Oso) would begin by exiting the station to the paved road adjacent to the station in Linden, Sacramento, or Rio Oso, and evacuation would continue from the station at the direction of emergency personnel. Evacuation by vehicle from PG&E Clayton Hill Repeater Station in Contra Costa County would likely follow the paved access road to Nortonville Road; however, evacuation routes could include fire roads in the vicinity if identified for use by emergency personnel.

The construction activities at the remote-end facilities would be consistent with the type of activities conducted for ongoing operations and maintenance, and the remote-end PG&E project components would not result in physical environmental changes that could impair an adopted emergency response plan or emergency evacuation plan; would not exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire; would not require the installation or maintenance of associated infrastructure

(such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; and would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. For these reasons, proposed work at the remote-end facilities would not result in environmental impacts and are not addressed further in this section.

IMPACT ANALYSIS

Impact WFR-1: Exacerbate Wildfire or Uncontrolled Spread of Wildfire due to Slope, Prevailing Winds, and Other Factors

PG&E Project Components

None of the PG&E portions of the project are located within an SRA or a VHFHSZ, and the local topography is generally flat with minimal slope (less than or equal to 2 percent). As discussed in Section 3.18.1, "Environmental Setting," the highest wind speeds in the project area average 6.3 mph. According to the National Weather Service (NWS), wind speeds between 8 and 12 mph are defined as a "gentle breeze" (NWS 2024). Furthermore, the proposed PG&E Lockeford Substation and Thurman Switching Station would be fenced and the roads will be crushed rock, resulting in minimal combustible areas. Additionally, project-related activities would be limited in duration and would not include ground-disturbing activities that would produce a spark, fire, or flames.

Implementation of APMs

During construction, PG&E would implement APM WFR-1 and APM WFR-2, requiring workers to be trained in fire prevention practices and to carry emergency fire suppression equipment to reduce the wildland fire risk in the project area. Through APM WFR-1, a construction fire prevention plan would be required prior to construction of the project, which would include procedures for fire reporting, response, and prevention to further reduce the wildland fire risk in the project area. Additionally, the construction fire prevention plan would require that vehicles not be parked on dry vegetation and that a minimum 10-foot area be cleared of all flammable material for any stationary ground-level activities that have the potential to create a spark, fire, or flame. Additional wildfire mitigation actions such as a working or dedicated fire watch with at least 120 gallons of water, 200 feet of hose, and 40 pounds per square inch at the nozzle are required for elevated fire risk conditions. APM WFR-2 identifies construction fire prevention and response procedures that would be implemented during construction. Procedures are updated per regulation and best practice innovations. The procedures include fire prevention and suppression methods training and briefing for construction workers. Procedures for minimizing potential ignition, including vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions would be included in worker training. Additionally, construction personnel would be trained to observe alerts concerning weather conditions as well as be equipped to extinguish small fires to prevent them from growing into more serious threats.

LEU Project Components

No LEU portions of the project are located within a VHFHSZ, and the local topography is generally flat with minimal slope (less than 1 percent), with wind speeds averaging 5.9 mph annually. Additionally, the LEU portion of the project area is located within a previously developed industrial area and is primarily surrounded by pavement, thereby reducing the spread and speed of potential future wildfires. Furthermore, the project would include grading or blading within the LEU portion of the project area and removing the potential fuel associated with the existing ruderal grassland.

Implementation of BMPs

During construction, LEU will implement BMP WFR-1 and BMP WFR-2, requiring workers to be trained in fire prevention practices and to carry emergency fire suppression equipment to reduce the wildland fire risk in the project area. Through BMP WFR-1, a construction fire prevention plan would be required prior to construction of the project, which would include procedures for fire reporting, response, and prevention to further reduce the wildland fire risk in

the project area. BMP WFR-2 identifies construction fire prevention and response procedures that would be implemented during construction. Procedures are updated per regulation and best practice innovations. The procedures include fire prevention and suppression methods training and briefing for construction workers. Procedures for minimizing potential ignition, including vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions would be included in worker training. Additionally, construction personnel would be trained to observe alerts concerning weather conditions as well as be equipped to extinguish small fires to prevent them from growing into more serious threats.

Significance before Mitigation

The project area has a low risk of wildland fire based on mapping conducted by CAL FIRE and CPUC. None of the project components are designed for human occupation. The existing topography of the project area is relatively flat (less than or equal to 2-percent slope). Wildfire risk in the project area is minimal because it is not located in an area of slope, prevailing winds, or other known factors that would exacerbate wildfire risks. The project area is not located in or near SRAs or land classified as VHFHSZ, and the topography consists of minimal slope and wind speeds averaging 5.9 mph annually. Additionally, wildfire risk due to prevailing winds would be reduced through the implementation of the APMs and BMPs described above. Furthermore, implementation of APM WFR-1 and APM WFR-2 and BMP WFR-1 and WFR-2 would further reduce wildland fire risk due to slope and prevailing winds in the project area during construction and operation. Therefore, development and operation of the project would not expose people or structures to wildfires or to the potential risk of increased wildfire frequency and intensity due to slope, prevailing winds, or other factors. The impact would be **less than significant**.

Mitigation Measures

No mitigation is required for this impact.

Impact WFR-2: Require the Installation or Maintenance of Associated Infrastructure That May Exacerbate Fire Risk or That May Result in Temporary or Ongoing Impacts to the Environment

PG&E and LEU Project Components

The PG&E portion of the project will require the installation and maintenance of electrical infrastructure, including new overhead transmission and power lines, that could pose a wildfire ignition risk. Project construction activities, including laying down temporary access roads and installing new electrical and communication infrastructure, may exacerbate wildfire risk resulting from the use of equipment that contains combustible materials, such as fuels and oils, which could create sparks during use. However, PG&E and LEU will comply with all applicable California Health and Safety Codes and ordinances regulating the handling, storage, and transportation of hazardous materials, which would help to minimize the potential for accidental conditions, including fire. As discussed in Section 2.6.2, "System Design," the design for each structure within the PG&E portion of the project would adhere to CPUC's GO 95 and PG&E's Overhead Transmission Line Design, including the design criteria developed for the project. Additionally, LEU will implement wildfire prevention practices provided in the LEU WMP, including identifying and removing fire-fuels such as dead trees or underbrush which may have accumulated near project components, as well as installing bushing covers and covered leads to prevent direct contact with outside objects. As a result, PG&E and LEU would be required to maintain acceptable clearances around substations and between power lines to minimize the risk of the energized lines igniting wildfires. No permanent roads outside of stations, fuel breaks, emergency water sources, or other utilities that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment are required. Moreover, LEU has implemented an EEP, which governs the order in which electric loads are restored to service following a city-wide blackout, using a combination of human resources and certain new technology. Furthermore, PG&E and LEU project components would be located entirely within CAL FIRE designated LRAs and are not located within or near an SRA or within lands classified as VHFHSZ. The new and modified PG&E electrical infrastructure would be similar in nature to existing electrical infrastructure and would result in a negligible increase to potential for wildfire risk compared to existing conditions within the project area.

Implementation of APMs and BMPs

During construction, PG&E would implement APM WFR-1 and APM WFR-2 and LEU would implement BMP WRF-1 and BMP WRF-2, requiring workers to be trained in fire prevention practices and to carry emergency fire suppression equipment to reduce the wildland fire risk in the project area. Through APM WFR-1 and BMP WRF-1, a Construction Fire Prevention Plan would be required prior to construction of the project, which would include procedures for fire reporting, response, and prevention to further reduce the wildland fire risk in the project area. In addition, the Construction Fire Prevention Plan requires that vehicles not be parked on dry vegetation and that a minimum 10-foot area be cleared of all flammable material for any stationary ground-level activities that have the potential to create a spark, fire, or flame. Additional wildfire mitigation actions, such as a working or dedicated fire watch with at least 120 gallons of water, 200 feet of hose, and 40 pounds per square inch at the nozzle, are required for elevated fire risk conditions. Through APM WFR-2 and BMP WRF-2, PG&E and LEU would identify construction fire prevention and response procedures that would be implemented during construction. Procedures are updated per regulation and best practice innovations. The procedures include training on fire prevention and suppression methods and briefing for construction workers. Procedures for minimizing potential ignition, including vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions would be included in worker training.

Significance before Mitigation

The project is located in an area with a low wildland fire risk based on mapping conducted by CAL FIRE and CPUC. PG&E and LEU project components would not be located within or near lands classified as VHFHSZ. However, project construction activities, including work areas, staging areas, laydown areas, and temporary access associated with installation of the electrical and communication infrastructure could cause a temporary increase in fire risks from overland travel, the use of equipment that may create sparks, and construction equipment and vehicles, which would contain combustible materials, such as fuels and oils and ignition sources. Construction and O&M of the project in accordance with established procedures and regulations would limit the potential for installation and monitoring activities of electrical infrastructure to generate fire ignition risk. Implementation of APM WFR-1 and APM WFR-2, as well as BMP WFR-1 and BMP WFR-2, would further reduce wildland fire risk in the project area during construction and operation. As a result, wildland fire risk during construction and operation would be **less than significant**.

Mitigation Measures

No mitigation is required.

4 CUMULATIVE IMPACTS

4.1 APPROACH TO THE CUMULATIVE EFFECTS ANALYSIS

This section presents an analysis of the cumulative impacts of the proposed Northern San Joaquin Transmission Project considered together with other past, present, and probable future projects producing related impacts, as required by Section 15130 of the State CEQA Guidelines. The goal of such an exercise is twofold: first, to determine whether the overall long-term impacts of all such past, present, and probable future projects are cumulatively significant; and second, to determine whether the proposed project's incremental contribution to any such cumulatively significant impacts would be "cumulatively considerable" (and therefore significant). (See State CEQA Guidelines Sections 15130[a]–15130[b], Section 15355[b], and Section 15064[h] and *Communities for a Better Environment v. California Resources Agenc*y [2002] 103 Cal. App. 4th 98, 120.)

Cumulative impacts are defined in State CEQA Guidelines Section 15355 as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." A cumulative impact occurs from "the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (State CEQA Guidelines Section 15355[b]).

The State CEQA Guidelines identify two basic methods for establishing the cumulative environment in which the project is to be considered: the use of a list of past, present, and probable future projects (the "list approach") or the use of adopted projections from a general plan, other regional planning document, or certified EIR for such a planning document (the "plan approach"). Projects included in the cumulative impact assessment were identified by using a list approach (State CEQA Guidelines Section 15130[b][1][A]), including all pending development projects within an approximately 2-mile radius of the project area. This area includes portions of unincorporated San Joaquin County and the city of Lodi.

4.1.1 Geographic Scope

The geographic area that could be affected by the project and is appropriate for a cumulative impact analysis varies depending on the environmental resource topic. The geographic area considered in the cumulative impact analysis of each resource topic is presented in Table 4-1.

Table 4-1 Geographic Scope of Cumulative Impacts

Resource Topic	Geographic Area
Aesthetics	Immediate viewshed (approximately 0.5 miles)
Agricultural	San Joaquin County
Air Quality	SJVAPCD air basin
Archaeological, Historical, and Tribal Cultural Resources	Regional: Central Valley and San Joaquin Valley
Biological Resources	Greater project area vicinity, including adjacent migration and movement corridors
Energy	State of California
Geology, Soils, and Mineral Resources	Immediate vicinity of the project/San Joaquin Valley for paleontological resources
Greenhouse Gas Emissions	State of California
Hazardous Materials	Within 0.25 miles of the project area
Hydrology and Water Quality	Northern San Joaquin County, including Lodi
Land Use and Planning	San Joaquin County, including Lodi
Noise	Within 2,000 feet of the project
Population, Employment, and Housing	Northern San Joaquin County, including Lodi
Public Services and Recreation	Northern San Joaquin County, including Lodi
Transportation	Northern San Joaquin County, including Lodi
Utilities and Service Systems	Northern San Joaquin County, including Lodi
Wildfire	Northern San Joaquin County, including Lodi

Note: SJVAPCD = San Joaquin Valley Air Pollution Control District.

Source: Compiled by Ascent in 2024.

4.2 RELATED PROJECTS AND PLANS

The effects of past projects on the environment are reflected in the descriptions provided in the "Environmental Setting" subsection in each resource evaluation section of Chapter 3, "Environmental Impacts and Mitigation Measures." Table 4-2 provides the list of present (i.e., implementation/construction is underway or recently completed) and reasonably foreseeable future projects considered in this cumulative impact analysis. The information provided in Table 4-2 was compiled based on data presented in the Proponent's Environmental Assessment (PEA) and updated during preparation of this Draft EIR to reflect conditions at the time the notice of preparation was released. The projects listed in Table 4-2 were obtained from available information on websites, including the City of Lodi, San Joaquin County Community Development, San Joaquin Council of Governments, California Department of Transportation (Caltrans), and other sources, such as the Governor's Office of Land Use and Climate Innovation CEQANet website, and based on the best information available at the time of EIR preparation. The locations of these present and reasonably foreseeable future projects are shown in Figure 4-1. Some projects listed in Table 4-2 might not be approved or could be modified prior to approval; however, for the purpose of this analysis, it is assumed that approval and construction of identified projects will occur.

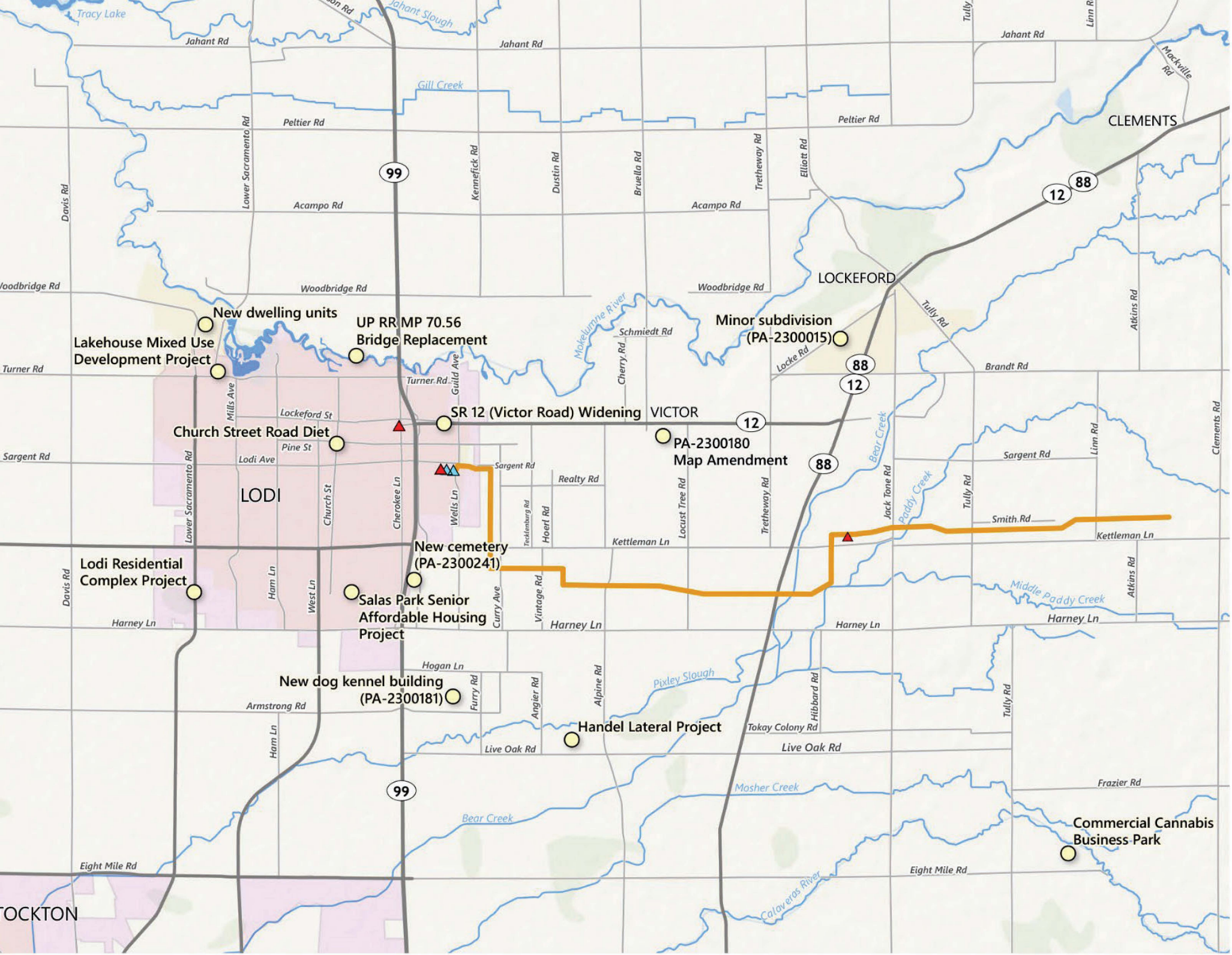
Table 4-2 Cumulative Projects List

Map No.	Project Name	Description/Location	Location (in Proximity to the Project)	Project Status and Construction Duration
1	Handel Lateral Project (Demonstration Recharge, Extraction, and Aquifer Management [DREAM] Project)	Installation of approximately 2 miles of underground irrigation pipeline, a new pump station, and a control structure, which would provide expanded water delivery services to agricultural lands within a surrounding 700- to 1,000-acre area.	The northern extraction well is located approximately 1.62 miles south of the 230 kV transmission line, southeast of Lodi.	Unknown
2	Union Pacific Railroad Milepost 70.56 Bridge Replacement, Fresno Subdivision	Project by the Central Valley Flood Protection Board (CVFPB) to replace the existing 14-span, 439-foot-long single-track railroad bridge spanning the Mokelumne River.	Approximately 1 mile northeast of PG&E Lodi Substation	Unknown; Notice of Exemption posted November 23, 2022
3	Map Amendment, a minor subdivision application, and a designated remainder for construction of a minor subdivision (PA-2300180)	The project would divide a 12.47-acre parcel zoned Rural Residential (R-R) into four parcels. The resulting parcels will use on-site private wells and septic systems for residential development. The project is located at 9296 E. State Route 12, Lodi.	Approximately 1.5 miles north of the new 230 kV line, near the community of Victor	Unknown; project approved February 2024
4	New cemetery (PA-2300241)	The project would require a Conditional Use Permit application to develop a 5,000-plot cemetery on a 6.32-acre parcel. No structures are proposed with this application. The project is located at 14341 N. Beckman Road, Lodi.	Approximately 1 mile southwest of the new 230 kV line, and approximately 1.8 miles south of PG&E Thurman Switching Station, and LEU Guild Substation	Unknown; application submitted for approval February 2024
5	Interstate 5 Commerce Center (15CC) Project (PA-2200217, PA-2200220, and PA-2200230)	The project consists of a Zone Reclassification, Williamson Act Cancellation, and Site Approval for a new industrial and warehousing development with 3.1 million square feet of building space on 194.49 acres. The project is located northeast of the intersection of State Route 12 and Thornton Road.	Approximately 7.5 miles west of the new 230 kV line, PG&E Thurman Switching Station, and LEU Guild Substation	Unknown; NOP filed June 2023
6	New dwelling units (PA-2200277, PA-2200278, and PA-2300162)	The project consists of three applications to develop a multiunit residential project to include a two-story four-plex totaling 4,184 square feet and an 822 square foot accessory dwelling unit. In addition, the project proposes to demolish four existing single-family residences and an accessory storage structure. The project also proposes to construct two single family residences, two accessory dwelling units, and two duplexes. The project is located on the northeast corner of North Lilac Street and East Augusta Street, Woodbridge.	Approximately 3.4 miles northwest of the new PG&E Thurman Switching Station and LEU Guild Substation	Unknown; environmental review completed February 2024
7	New dog kennel building (PA-2300181)	The project consists of an Administrative Use Permit application to allow a small boarding facility for up to nine dogs within a proposed 536-square-foot kennel building at an existing residence. The project is located at 12302 Mundy Road, Lodi.	Approximately 1.7 miles southwest of the new 230 kV line	Unknown; conditions of approval effective March 2024
8	PG&E Bellota-Warnerville 230 kV Reconductor	Reinforcement of approximately 23 miles of the Central Valley's 230 kV transmission system from Bellota Substation to Warnerville Substation.	Will connect to the eastern end point of the new NSJ 230 kV transmission line.	Estimated construction from 2021 to 2024

Map No.	Project Name	Description/Location	Location (in Proximity to the Project)	Project Status and Construction Duration
9	Commercial Cannabis Business Park (PA-20000007 and PA-200094)	The project consists of scaling down an existing winery and proposes the construction of a 371,918-square-foot building to be used for the cannabis operation at full buildout. The project is located at 16701 E. Eight Mile Rd., Linden.	Approximately 4.4 miles southeast of the new 230 kV line	Unknown; the NOI was submitted in June 2023
10	Minor subdivision (PA-2300015)	The project consists of a variance application to reduce the minimum required parcel size in order to subdivide a 37.52-acre parcel into two separate parcels. The resulting subdivision would allow for 2 additional dwelling units. The project is located at 12470 E. Locke Rd., Lockeford.	Approximately 2.3 miles north of the new 230 kV line	Unknown; conditions of approval effective July 2021
11	SR 99/120 Interchange Connector Reconstruction	Addition of lanes to SR 99 and SR 120 interchange in the city of Manteca	Approximately 20 miles south of project	Bids for construction of the first phase were accepted in spring 2024
12	Church Street Road Diet	Installation of Class II bike lanes, pedestrian facilities, intersection crossings, and reduction of roadway from four lanes to two lanes on Church Street between Lodi Ave and Lockeford Street in Lodi	Approximately 0.5 miles southwest of PG&E Lodi Substation and 0.75 miles west of new PG&E Thurman Switching Station and LEU Guild Substation	Unknown
13	SR 12 (Victor Road) Widening	Widen from 2 to 4 lanes approximately between SR 99 and the eastern boundary of Lodi General Plan	Approximately 0.25 miles east of PG&E Lodi Substation and 0.5 miles north of new PG&E Thurman Switching Station and LEU Guild Substation	Construction scheduled to start in 2032
14	Lodi Residential Complex Project	The project proposes three, four-level apartment buildings with a total of 48 apartments, 30 one-bedroom units, 12 two-bedroom units, and 6 three-bedroom units on a 1.53-acre site. The project is located at 2057 Lower Sacramento Road, Lodi.	Approximately 3.5 miles west of the new 230 kV line	Unknown; environmental review completed September 2023
15	Salas Park Senior Affordable Housing Project	The project proposes a 110-unit senior affordable housing project on a 3.0-acre site. The project is located North of Salas Park in the former Century Boulevard Right-of Way, Lodi.	Approximately 3.5 miles west of the new 230 kV line	Unknown; environmental review completed February 2024
16	Lakehouse Mixed-Use Development Project	The project proposes the development of a four-story resort hotel, a separate standalone 150-unit residential apartment complex, and approximately 18,500 square feet of retail commercial space on a 9.75-acre site. The project is located at 1018 North Lower Sacramento Road, Lodi.	Approximately 3.0 miles northwest of the new PG&E Thurman Switching Station and LEU Guild Substation	Unknown; environmental review completed August 2023
Not shown on map. Final route not yet established.	California High-Speed Rail: Merced-to-Sacramento Route	Draft route map published in July 2018. This phase of the High-Speed Rail Project is still in the early planning stages. A specific location for the rail route has not been identified, and funding has not yet been secured.	Draft route appears to cross the project alignment east of Lodi.	Unknown

Note: kV = kilovolt.

Source: Compiled by Ascent in 2024.


New dwelling units
Lakehouse Mixed Use Development Project
UP RR MP 70.56 Bridge Replacement
SR 12 (Victor Road) Widening
Church Street Road Diet
PA-2300180 Map Amendment
Minor subdivision (PA-2300015)
New cemetery (PA-2300241)
Lodi Residential Complex Project
Salas Park Senior Affordable Housing Project
New dog kennel building (PA-2300181)
Handel Lateral Project
Commercial Cannabis Business Park
LODI
VICTOR
LOCKEFORD
CLEMENTS
Tracy Lake
Jahant Slough
Jahant Rd
Gill Creek
Peltier Rd
Acampo Rd
Woodbridge Rd
Mokelumne River
Schmiedt Rd
Turner Rd
Lockeford St
Pine St
Lodi Ave
Sargent Rd
Realty Rd
Kettleman Ln
Harney Ln
Hogan Ln
Armstrong Rd
Live Oak Rd
Eight Mile Rd
Brandt Rd
Smith Rd
Middle Paddy Creek
Paddy Creek
Bear Creek
Pixley Slough
Mosher Creek
Calaveras River
Tokay Colony Rd
Frazier Rd
Locke Rd
Mackville Rd
Davis Rd
Lower Sacramento Rd
Kennefick Rd
Dustin Rd
Bruella Rd
Tretheway Rd
Elliott Rd
Cherry Rd
Guild Ave
Mills Ave
Church St
Cherokee Ln
Wells Ln
Hoerl Rd
Locust Tree Rd
Jack Tone Rd
Tully Rd
Linn Rd
Atkins Rd
Clements Rd
Ham Ln
West Ln
Curry Ave
Vintage Rd
Alpine Rd
Angier Rd
Furry Rd
Hibbard Rd
99
12
88
TOCKTON

4.3 IMPACT ANALYSIS

The following sections contain a discussion of the cumulative effects anticipated from implementation of the Northern San Joaquin 230 Kilovolt (kV) Transmission Project, together with related projects and planned development in northern San Joaquin County, for each of the 17 environmental issue areas evaluated in this Draft EIR. The analysis conforms with Section 15130(b) of the State CEQA Guidelines, which specifies that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness and should focus on the cumulative impact to which the identified other projects contribute rather than the attributes of other projects which do not contribute to the cumulative impact."

When considered in relation to other reasonably foreseeable projects, cumulative impacts to some resources may be significant and more severe than those caused by the proposed project alone.

For purposes of this Draft EIR, the project would result in a significant cumulative effect if:

- the cumulative effects of related projects (past, current, and probable future projects) are not significant and the incremental impact of implementing the Northern San Joaquin 230 kV Transmission Project is substantial enough, when added to the cumulative effects of related projects, to result in a new cumulatively significant impact; or
- the cumulative effects of related projects (past, current, and probable future projects) are already significant and implementation of the Northern San Joaquin 230 kV Transmission Project makes a considerable contribution to the effect. The standards used herein to determine a considerable contribution are that either the impact must be substantial or must exceed an established threshold of significance.

This cumulative analysis analyzes whether, after implementation of the project as proposed, including project-specific applicant-proposed measures (APMs) and best management practices (BMPs), the residual impacts of the project would cause a cumulatively significant impact or would contribute considerably to existing/anticipated (without the project) cumulatively significant effects. If the residual impacts of the project would cause a cumulatively significant impact or would contribute considerably to existing/anticipated (without the project) cumulatively significant effects, mitigation measures are proposed to address the project's contribution to the cumulative effect.

4.3.1 Aesthetics

The PG&E-proposed 230 kV transmission line, modifications to existing PG&E 60 kV lines, modifications to the PG&E Lockeford Substation, and the new PG&E Thurman Switching Station would not substantially degrade the existing visual character or quality of the landscape setting. The project would not be located near any recognized scenic vistas or designated or eligible state scenic highways, although it would cross North Jack Tone Road, a designated local scenic roadway. Visibility of project components is limited by viewing distance and the presence of intervening vegetation and structures. Given its context, the new LEU facility (LEU Guild Substation) would represent an incremental visual effect in an industrial setting that includes adjacent built features of similar material, scale, and appearance. The LEU project components would be seen by a limited number of viewers, who generally would be familiar with the surrounding industrial environment; the overall visual sensitivity at this location is considered low to moderate based on its location, industrial use, and zoning. As a result of conditions outlined previously, the LEU project components would not substantially degrade the existing visual character of the landscape at this location.

Temporary construction impacts would include the temporary presence of workers, structures, construction equipment, and vehicles associated with the installation of substation components. To the extent that the proposed project would be visible during construction along with one or more of the cumulative projects, adverse cumulative impacts may occur from the construction equipment, vehicles, materials, staging areas, and personnel. These construction impacts, however, would be temporary and would not alter visual conditions in any one area for a long enough period to create a significant cumulative impact. Construction of the proposed project also would be temporary and would not make a considerable contribution to a significant cumulative impact. In addition, PG&E would implement APM AES-1 to ensure aesthetics impacts during construction are reduced, including directing

lighting sources on-site and away from potentially sensitive receptors. Although construction activities at the LEU substations and 12 kV feeder line would be visible to motorists from nearby public roadways, BMP AES-1 calls for construction staging, material storage, and work areas to be located away from public view wherever possible and the use of temporary screening fencing if applicable.

Glare from new PG&E 230 kV tubular steel pole (TSP) structures and conductors would be reduced with the use of non-specular conductors and a dulled galvanized finish on the new PG&E project poles. Equipment at PG&E Lockeford Substation and the new PG&E Thurman Switching Station would be a nonreflective neutral gray color, and galvanized steel structures would weather to a dull, nonreflective patina and would minimize the potential effect of glare. New fence material would be similar to the chain-link fencing at the existing substations and would weather to a dull, nonreflective patina.

The projects identified in Table 4-2 are generally consistent with the mixed rural, agricultural, and urban character of the project area with various utilities and utility poles visible throughout. There is no evidence of a significant cumulative impact related to the widespread degradation of aesthetic resources in the project area. The projects in Table 4-2 that are within 0.5 miles of the proposed project (i.e., the immediate viewshed, which is the scope of this cumulative impact analysis) are PG&E Bellota-Warnerville 230 kV Reconductor, Church Street Road Diet, and SR 12 (Victor Road) Widening. These projects would result in modifications to existing infrastructure that are of the same scale and type as the existing infrastructure. These projects, in the limited areas where more than one of the projects may be viewed concurrently, would not result in a significant cumulative alteration to aesthetic conditions or modification to a viewshed. Similarly, in the limited circumstances where the proposed project may be visible concurrently with one or more of these projects in the vicinity, the proposed project would not make a considerable contribution to a cumulative modification of the viewshed.

The remaining projects in Table 4-2 are at a sufficient distance from the project (approximately 0.5 miles or greater) such that in the rare instances where the proposed project may be visible concurrently with one or more of the other projects, only a small portion of the project transmission line would be visible in the background from any single viewing location. In these instances, the proposed project would be even less likely to make a considerable contribution to a cumulative impact on aesthetic resources than the nearer projects listed above. Because of these factors, no substantial contribution to any potential cumulative impact would occur.

According to the information provided above, the project, in consideration with other projects in the vicinity, would not make a considerable contribution to the modification of the viewshed. There is no evidence of an existing significant adverse cumulative impact prior to the consideration of the proposed project, and the project would not result in a significant cumulative impact. The project would not result in a considerable contribution to a cumulative impact related to aesthetics. This impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.2 Agriculture

The geographic scope of the cumulative impact analysis for agricultural resources is San Joaquin County. Although most of San Joaquin County is designated for agricultural uses, population growth and development have resulted in the urbanization and conversion of agricultural lands. As identified in Section 3.3, "Agriculture," San Joaquin County has adopted policies to ensure efficient development and the protection of agricultural resources. However, the *San Joaquin County 2035 General Plan Draft Environmental Impact Report* identifies a significant cumulative impact in the county related to the loss/conversion of agricultural land (San Joaquin County 2014).

The cumulative projects in Table 4-2 are generally located on disturbed land that is not currently in agricultural use or are located within spheres of planned development, except for the Interstate 5 Commerce Center Project, which would result in a zone reclassification and Williamson Act cancellation for a new industrial and warehousing development on 194.49 acres.

The project would require the removal of agricultural crops and would cause temporary disruption to existing agricultural operations, both during construction and routine transmission line maintenance activities. Temporary construction activities for the PG&E project components would occur on approximately 43.67 acres of Important Farmland. Upon completion of construction, temporary work areas would be returned to pre-construction condition, unless otherwise requested by the landowners. PG&E would implement APM AGR-1, which would provide the agricultural owner with fair market compensation for crops removed, crops unable to be harvested or replanted, lost planting cycles, and damaged infrastructure, and restoration of impacted agricultural land during PG&E construction activities. Temporary disruptions to existing agricultural operations would not result in the conversion of Important Farmland to nonagricultural; therefore, these activities would not result in a substantial contribution to cumulative effects on agricultural resources from the loss or conversion of agricultural land.

Permanent PG&E project components, including new TSPs and expanded substations, would be installed on approximately 1.41 acres of Important Farmland, which would be permanently taken out of agricultural production. Agricultural operations, such as the movement of farm equipment and aerial application of pesticides, would be modified in the vicinity of overhead power lines and TSPs. However, the presence of this utility infrastructure would not prevent ongoing use of the properties for agricultural use. In addition, the affected properties would continue to retain sufficient size to sustain agricultural use. The permanent loss of approximately 1.41 acres of Important Farmland from construction of the project would not result in a substantial contribution to any potential cumulative effects on agricultural resources given the hundreds of thousands of acres of agricultural land in the county and ongoing efforts to preserve and protect these lands.

During project construction, approximately 43.16 acres of land enrolled in Williamson Act contracts would be temporarily taken out of production to accommodate PG&E construction activities, delivery and staging of construction materials, installing poles and lines, and construction crew access. As noted above, PG&E would implement APM AGR-1 to compensate for impacts and would return temporary work areas to pre-construction conditions. Approximately 0.55 acres of land under Williamson Act contracts would be permanently taken out of production for the footprint of the TSPs. Electric utility facilities are considered compatible uses of contracted Williamson Act lands under California Government Code Section 51238. The minor reduction in size of the current Williamson Act parcels due to the TSPs would not disqualify these parcels from maintaining their designation as agricultural preserves. The affected parcels would retain sufficient size to sustain their agricultural use in accordance with California Government Code Section 51222 (i.e., at least 10 acres for prime agricultural land and at least 40 acres for land that is not prime agricultural land). Therefore, the project would not result in any contribution to any potential cumulative effects on Williamson Act lands from development of other projects in the vicinity.

According to the above discussion, the project would not result in a considerable contribution to a significant cumulative impact on agricultural resources. This impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.3 Air Quality

CRITERIA AIR POLLUTANTS

Construction-related activities of the project would result in emissions of criteria air pollutants (e.g., particulate matter [PM_{10} and $PM_{2.5}$]) and ozone precursors (e.g., oxides of reactive organic gases [ROG] and nitrogen [NO_X]). The project area is located in San Joaquin County, which is in the San Joaquin Valley Air Basin (SJVAB). The San Joaquin Valley Air Pollution Control District (SJVAPCD) is the primary agency responsible for meeting the National Ambient Air Quality Standard (NAAQS) and the California Ambient Air Quality Standard (CAAQS) in the SJVAB. The SJVAB has been designated as nonattainment for ozone and $PM_{2.5}$ in regard to the NAAQS and ozone, PM_{10}, and $PM_{2.5}$ in regard to the CAAQS.

Air districts in California develop air quality attainment plans, which include a multitude of air pollution control strategies to attain the federal ozone standard by the earliest practicable date. In developing air quality attainment plans, air districts account for the emissions from all present and future development in the region by relying on city and county general plans. Because the project would be consistent with existing uses and with the land use designations in the applicable general plans, emissions associated with implementation of the project are accounted for in the SJVAPCD's air quality attainment plan (see Section 3.4, "Air Quality," for a detailed discussion of SJVAPCD's air quality attainment plans, as well as the applicable local general plans). In addition, as described in Impact AIR-1, estimated emissions of ozone precursors associated with project construction-related activities would not exceed the SJVAPCD-recommended daily mass emission thresholds of significance. As discussed in Impact AIR-1, PG&E's implementation of APM AIR-1 and LEU's implementation of BMP AIR-1 during project construction would further reduce or minimize the construction emissions from the project. The project would also comply with Rule 9510 requirements to reduce NO_x and PM_{10} construction emissions by 20 percent and 45 percent, respectively. As shown in Impact AIR-2, project operation would not result in a cumulatively considerable net increase in emissions and would therefore not contribute to SJVAB's nonattainment status for ozone and $PM_{2.5}$ in regard to the NAAQS and ozone, PM_{10}, and $PM_{2.5}$ in regard to the CAAQS. Therefore, the project would not produce operational-related emissions that could contribute to a violation of an air quality standard. Because construction- and operation-related emissions would not result in a violation of an ambient air quality standard, the project would not result in a considerable contribution to a cumulative impact related to emissions of criteria air pollutants.

TOXIC AIR CONTAMINANTS

The primary toxic air contaminant (TAC) of concern within this analysis is diesel PM, which would result from heavy-duty equipment usage during construction, as well as hauling trips during operations. While some overlap may occur between construction of the project and other nearby projects, it is unlikely that a considerable cumulative impact would occur due to the highly dispersive properties of diesel PM paired with the small amount of construction equipment used and the relatively short construction period (4 years). In addition, the California Air Resources Board (CARB) has adopted diesel control measures and more stringent emissions standards for transportation-related mobile sources, which include off-road equipment commonly used in construction-related activities, such as tractors and generators. Going forward, it can be reasonably assumed that nearby projects would similarly use construction-related equipment held to higher emissions standards, further reducing the potential for a cumulative impact of diesel PM in the region.

As discussed under Impact AIR-3, and reiterated here, the project would not result in significant health risks associated with TACs because it would not expose any single receptor to a level of cancer risk that exceeds an incremental increase of 20 in one million, or to a noncarcinogenic hazard index of 1. Furthermore, the cancer and non-cancer risk is calculated using site-specific meteorological and topographical conditions, which would differ along the alignment of the approximately 10.6-mile transmission line alignment and adjacent stations, therefore affecting the dispersion of TACs. Given the distances to cumulative projects and the localized nature of TAC impacts, there is no reasonable possibility that TACs from the proposed project and cumulative projects would comingle. For these reasons, the increases in health risk attributable to the project would not result in a considerable contribution to a significant cumulative impact related to TACs.

ODORS

The potential generation of objectionable odors affecting a substantial number of people is also an impact of localized concern. Odor-generating construction activity would be temporary, whereas operation of electricity infrastructure does not result in the generation of odors. Any new odor sources would be subject to future environmental review and to SJVAPCD Rule 4102, Nuisance. Therefore, the project would not result in a considerable contribution to a significant cumulative impact related to odors.

SUMMARY

According to the above discussion, the project would not result in a considerable contribution to a significant cumulative impact on agricultural resources. This impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.4 Archaeological, Historical, and Tribal Cultural Resources

The geographic scope of the cumulative impact analysis for archaeological, historical, and tribal cultural resources is the region (Central Valley and San Joaquin Valley) because some archaeological resources could have regional importance, and individual impacts to these resources could collectively result in greater, more adverse impacts. Because all significant cultural resources are unique and nonrenewable members of finite classes, meaning there are a limited number of significant cultural resources, all adverse effects erode a dwindling resource base.

The historic lands of the Yokuts have been affected by development since early Spanish exploration in 1808. An unincorporated community was built on the ranch of Dr. D. J. Locke and was named Lockeford because it was located near a ford on the Mokelumne River. Dr. Locke first came to the area in 1850, and Lockeford opened its first post office in 1861. The largest city close to Lodi and Lockeford is Stockton. Stockton was founded in 1849 during the California Gold Rush, and the town grew from a small settlement on the edge of the San Joaquin River in the mid-19th century to one of the Central Valley's largest cities and an important transportation hub for the surrounding San Joaquin–Sacramento Delta region by the mid- and late 20th century. As a result, three major railroads were built through Stockton. All three main railroad companies—Southern Pacific; Western Pacific; and Atchison, Topeka and Santa Fe railroads—built warehouses on the Stockton Channel's south shore, and railroad spur lines connected the main branches to individual industrial properties throughout the area. Although early industrial growth was primarily tied to agricultural expansion in and around San Joaquin County, it soon included large manufacturing factories, as well as light-industrial properties. These related activities have resulted in an existing significant cumulative impact on archaeological resources and human remains.

Seven historical resources within the project area were identified as a result of the background research and architectural pedestrian survey. However, there would be no physical impacts to these resources because the project does not anticipate indirect or direct impacts to these historical resources.

Impacts to a subsurface archaeological find at one project area are generally not made worse by impacts from another project to a cultural resource at another project area. Rather, the resources and the effects upon them are generally independent. No known unique archaeological or tribal cultural resources are located within the boundaries of the project area; nonetheless, project-related earth-disturbing activities could damage unevaluated and undiscovered resources. Implementation of APM CUL-1 through APM CUL-4, BMP CUL-1, BMP CUL-3, and BMP CUL-4 would reduce the project's contribution to a cumulative effect by requiring a worker environmental awareness program prior to construction, archaeological construction monitoring in high-sensitive areas, ground-disturbing activities to stop if archaeological resources are inadvertently discovered, procedures to follow if human remains are discovered, and protective fencing around unevaluated resources. In addition, Implementation of APM TCR-1 and BMP TCR-1 would require ground-disturbing activities to stop if cultural resources that could potentially be tribal cultural resources are inadvertently discovered and provide procedures to be followed. There would be a **significant** impact due to the potential for ground disturbance to encounter archeological or tribal cultural resources.

MITIGATION MEASURES

Implement Mitigation Measures 3.5-2a, 3.5-2b, and 3.5-3.

SIGNIFICANCE AFTER MITIGATION

Implementation of Mitigation Measures 3.5-2a and 3.5-2b would reduce impacts to archaeological resources by establishing protective fencing around unevaluated archaeological resources within which ground disturbance would not occur and would provide the necessary procedures to be followed for inadvertent discoveries. Mitigation Measure 3.5-3 would reduce impacts associated with tribal cultural resources by requiring appropriate treatment and proper care of any tribal cultural resources encountered during construction of the project, which would minimize the potential for the project to contribute to a cumulative effect. Therefore, the proposed project would not result in a considerable contribution to a significant cumulative impact related to archaeological, historical, or tribal cultural resources. This impact would be **less than significant**.

4.3.5 Biological Resources

The geographic context for cumulative impacts related to biological resources is the greater vicinity of the project area, including adjacent wildlife migration and movement corridors in the area. The project area is surrounded by agriculture and urban development, with dense industrial and residential development to the west in Lodi. Future development near the project area includes commercial and residential development, water and irrigation infrastructure construction, bridge replacement, roadway construction and widening, and other utility improvements and expansions. Several projects would result in the conversion of undeveloped land, whereas others involve development on land that has been previously developed (see Table 4-2). Past development in the region, including conversion of natural land to agricultural and urban uses, has resulted in a substantial loss of native habitat. The overall effect of this land conversion on special-status plants and wildlife and on sensitive habitat has been decidedly negative. Therefore, the cumulative condition for special-status species and sensitive habitats in the vicinity of the project area is already significant.

As discussed in Section 3.6, "Biological Resources," implementing the project would not result in impacts on sensitive natural communities or riparian habitat and therefore would not combine to create considerable changes to and cumulative effects on biological resources. Therefore, impacts on sensitive natural communities or riparian habitat are not discussed further.

Project implementation would potentially contribute to cumulative impacts on two special-status plants, 19 special-status wildlife species, native nesting birds protected under Section 3503 of the California Fish and Game Code and MBTA, state and federally protected wetlands, oak trees protected under the San Joaquin County Ordinance Code, and species covered under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP) and PG&E's San Joaquin Valley Habitat Conservation Plan (SJVHCP). APMs (BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-6, BIO-7, BIO-8, BIO-9, BIO-10, HYD-1, HYD-4, and AIR-1) and BMPs (BIO-1, BIO-2, BIO-3, BIO-4, BIO-5, BIO-8, BIO-9, and BIO-10) would reduce the potential for effects on special-status species. However, because project implementation could contribute to the cumulative loss of sensitive species, this impact would be **significant**.

MITIGATION MEASURES

Implement Mitigation Measures BIO-2a, BIO-2b, BIO-2c, BIO-2d, BIO-2e, BIO-2f, BIO-2g, BIO-3, BIO-5, and BIO-7, as identified in Section 3.6 of this Draft EIR.

SIGNIFICANCE AFTER MITIGATION

The mitigation measures (Mitigation Measures BIO-2a, BIO-2b, BIO-2c, BIO-2d, BIO-2e, BIO-2f, BIO-2g, BIO-3, BIO-5, and BIO-7), for these resources would offset the project's contribution to cumulative biological resource impacts by avoiding impacts on these species and habitats or compensating for habitat and species impacts. Therefore, the project's potential impacts on special-status species, riparian habitat, state and federally protected wetlands, oak trees protected under the San Joaquin County Ordinance Code, and conflict with the SJMSCP and PG&E's SJVHCP would not result in a considerable contribution to a significant cumulative impact. This impact would be **less than significant**.

4.3.6 Energy

Related projects that include long-term energy demand, such as development projects, would be subject to the California Green Building Standards Code, which provides energy efficiency standards for commercial and residential buildings. The California Green Building Standards Code would implement increasingly stringent energy efficiency standards that would require the proposed project and related projects to minimize the wasteful and inefficient use of energy. In addition, related projects would be required to meet or exceed the Title 24 building standards, further reducing the inefficient use of energy. Furthermore, various federal and state regulations, including the Low Carbon Fuel Standard, Advanced Clean Cars II, and Low Emission Vehicle Program, would serve to reduce the transportation fuel demand of related projects. Even with these standards and regulations, which apply to many past projects as well as current and future projects, California has still experienced blackouts during high-energy demand periods, indicating an existing significant cumulative effect related to demand for, and availability of, electricity.

The proposed project would not result in wasteful, inefficient, or unnecessary use of energy. As shown in Impact EN-1, construction-related fuel consumption would serve the purpose of improving the state's electrical grid and providing reliable power, and fuel consumed during operation would be used for the purpose of maintaining critical electrical infrastructure equipment. Implementation of APM GHG-1 during construction of the PG&E portion of the project and BMP GHG-1 during construction of the LEU portion of the project would ensure that only the necessary amount of fuel used for construction equipment is consumed. In addition, the project would support state and local plans for renewable energy and energy efficiency and would not contribute to any existing conflicts with adopted plans. Because the project would not result in wasteful or inefficient use of energy and the project itself would improve the state's electric grid and ability to provide reliable power, the proposed project would not result in a considerable contribution to a significant cumulative impact related to energy. This impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.7 Geology, Soils, and Mineral Resources

GEOLOGY AND SOILS

A project's potential impacts related to geology and soils are individual and localized, depending on the project area and underlying soils. Therefore, the geographic context for cumulative geology and soils impacts is within the immediate project vicinity. Of the cumulative projects listed in Table 4-2, only the PG&E Bellota-Warnerville 230 kV Reconductor project (cumulative project #8) would be adjacent to the project area. This cumulative project is currently under construction and would involve the reinforcement of approximately 23 miles of the Central Valley's 230 kV transmission system from Bellota Substation to Warnerville Substation, ultimately connecting to the eastern end point of the new 230 kV line proposed as part of the project. All other cumulative projects listed in Table 4-2 are located 0.25 miles or more from the project. All past, present, and reasonably foreseeable projects located within the geographic context for cumulative geology and soils impacts have been, and would continue to be, subject to uniform site development and construction and regulatory standards, such as the California Building Code (CBC). Compliance with the CBC would require the preparation of site-specific geotechnical studies and the implementation of design features to reduce potential impacts related to geologic hazards. Therefore, there is not a significant adverse cumulative impact related to geology and soils from past, present, and reasonably foreseeable projects.

Similar to past, present, and reasonably foreseeable projects, all new structures associated with the project would be developed in compliance with the most current version of the CBC, which includes requirements to address lateral spreading, unstable soils, and liquefaction. APM GEO-1 and BMP GEO-1 would require the implementation of appropriate design measures where soft or loose soils are encountered during design studies or construction of PG&E and LEU facilities. Implementation of APM AIR-1 and BMP AIR-1 would require the implementation of dust

control measures during construction that would minimize erosion. Implementation of APM HYD-3 and BMP HYD-3 would require site restoration at the end of construction to reestablish contours, replace vegetation, or otherwise stabilize areas disturbed during line construction. In addition, compliance with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit, including preparation and implementation of the stormwater pollution prevention plan (SWPPP) and its associated erosion and sedimentation control measures (as required by APM HYD-1 and BMP HYD-1), would ensure that construction of the project would not result in substantial erosion or the loss of topsoil. Therefore, the proposed project's contribution to cumulative geology and soils impacts would not be cumulatively considerable.

PALEONTOLOGICAL RESOURCES

The geographic context for paleontological resources is San Joaquin County because of the importance of these resources to regional prehistory. Past, present, and reasonably foreseeable projects within the geographic context for paleontological resources could occur in areas underlain by geologic formations with moderate to high paleontological sensitivity. Construction of the cumulative projects in Table 4-2 would involve ground-disturbing activities that could potentially encounter, damage, or destroy paleontological resources within these geologic formations. Present and probable future projects would be developed in accordance with federal, state, and local regulations related to paleontological resources, with mitigation of significant impacts on such resources. However, because paleontological resources are nonrenewable resources, the direct and indirect impacts of past, present, and reasonably foreseeable projects have resulted in an existing significant cumulative impact.

As discussed in Section 3.8, "Geology, Soils, and Mineral Resources," construction of the PG&E project components would occur in areas underlain by geologic units that range from low to moderate paleontological sensitivity. Geologic units in association with the Turlock Lake Formation and Riverbank Formation have a moderate paleontological sensitivity. Excavation and ground-disturbing activities in these areas associated with construction of the PG&E project components would have the potential to encounter paleontological resources. However, potential direct and indirect impacts to paleontological resources resulting from construction of the PG&E project components would be avoided with the implementation of APM PAL-1 through APM PAL-4, which include requirements for protecting paleontological resources. In addition, excavation and ground-disturbing activities associated with construction of the LEU project components would not extend into the moderately sensitive Modesto Formation and, therefore, would have a low potential to encounter paleontological resources. The implementation of BMP PAL-1 through BMP PAL-4 would further reduce the potential for construction of the LEU project components to result in direct and indirect impacts on paleontological resources. The implementation of APMs and BMPs would ensure that the project's contribution to cumulative paleontological resources impacts, in combination with those of past, present, and reasonably foreseeable projects, would not be cumulatively considerable.

SUMMARY

According to the above discussion, the project would not result in a considerable contribution to a significant cumulative impact on geology, soils, or paleontological resources. This impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.8 Greenhouse Gas Emissions

Climate change is a global problem; thus, greenhouse gases (GHGs) are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. The quantity of GHGs in the atmosphere responsible for climate change is not precisely known, but it is substantial. No single project alone would measurably contribute to an incremental change in the global average temperature or to global or local climates or

microclimates. From the standpoint of CEQA, GHG impacts relative to global climate change are inherently cumulative. However, the geographic area considered for this analysis is (as identified in Table 4-1) is the state of California as this is the area where CEQA, and other California laws and regulations related to GHG emissions, apply.

Because global climate change is inherently cumulative; impacts associated with the project discussed in Section 3.9, "Greenhouse Gas Emissions," also serve as the proposed project's cumulative impact. Implementation of APM GHG-1 and BMP GHG-1 would reduce construction-related GHG emissions and implementation of APM GHG-2 and BMP GHG-2 would reduce sulfur hexafluoride (SF_6) emissions in compliance with the Regulation for Reducing Greenhouse Gas Emissions from Gas Insulated Switchgear. As reported in Section 3.9, the project would align with the goals of California Air Resources Board's *Final 2022 Scoping Plan for Achieving Carbon Neutrality* to improve grid reliability and resilience by increasing grid capacity to accommodate additional energy demand, transitioning to renewable energy systems, updating components of existing energy facilities, and adding an increased number of efficient energy storage and transmission systems. Therefore, the proposed project would not result in a considerable contribution to a significant cumulative impact related to GHG emissions and global climate change. This impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.9 Hazards and Hazardous Materials

Cumulative projects listed in Table 4-2 have the potential to disturb potentially contaminated soils or result in accidental releases of hazardous materials. These projects would be expected to follow applicable regulations for characterization, handling, and disposing of soils and for work within areas of potentially contaminated sediments. As described in Section 3.10, "Hazards and Hazardous Materials," there are no sites included on the list of hazardous materials sites compiled pursuant to GC Section 65962.5 in the immediate vicinity of the project area (see also Figure 3.10-1). All known sites of historic contamination located proximate to the project area have been fully remediated, and no active Superfund or state response sites are known to exist within 0.25 miles of the project area. Cumulative effects of other related excavation projects would not be significant because each project must follow the applicable federal and state rules and regulations required to ensure that no substantial impacts occur. Only one cumulative project, PG&E Bellota-Warnerville 230 kV Reconductor, is within 0.25 miles of the project.

All project-level construction impacts related to hazards, hazardous materials, and accidents involving hazardous materials would be reduced with implementation of APMs HAZ-1, HAZ-2, HAZ-4, and HAZ-5 and BMPs HAZ-2, HAZ-4, and HAZ-5. During construction activities, there is an increased potential for accidental release of hazardous materials from the operation of vehicles or motorized pieces of equipment. Because hazardous materials would be transported, used, and disposed of in accordance with appropriate procedures, the project would not create a significant hazard to the public or environment. PG&E's and LEU's existing worker safety training programs, described in APMs HAZ-3 and HAZ-4 and BMPs HAZ-3 and HAZ-4, respectively, would further reduce the less-than-significant impacts. To reduce shock hazards and avoid electrocution of workers or the public, PG&E and LEU would comply with the provisions found in California Occupational Safety and Health Administration (Cal/OSHA) Title 8 of the California Code of Regulations, particularly the electrical health and safety regulations found in Chapter 4, Subchapter 5 in the Electrical Safety Orders, Sections 2700–2989, which are relevant to high-voltage work. During construction, PG&E would also implement APMs WFR-1 and WFR-2, and LEU would implement BMPs WFR-1 and WFR-2, requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area.

In accordance with APM HAZ-5 and BMP HAZ-5, potentially contaminated soil that has not been pre-characterized would be stockpiled separately to be tested, managed, and transported for disposal as appropriate. If suspected hazardous substances or waste are unexpectedly encountered during trenching activities (using indicators such as sheen, odor, and soil discoloration), work would be stopped until the material is properly characterized, and appropriate measures would be taken to protect human health and the environment.

Impacts from monthly operations and maintenance (O&M) activities occurring at PG&E Lockeford Substation, PG&E Thurman Switching Station, LEU Industrial Substation, and LEU Guild Substation would be less than significant with implementation of a site-specific Spill Prevention, Control, and Countermeasure (SPCC) Plan and a hazardous materials business plan (HMBP), as required. The project would establish electrical infrastructure and would not interfere with incident management structure or operational concepts and, therefore, would not contribute to cumulative impairment or interference with implementation of the San Joaquin County OES Emergency Operations Plan. Therefore, the proposed project would not result in a considerable contribution to a significant cumulative impact related to hazards and hazardous materials. This impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.10 Hydrology and Water Quality

FLOOD PROTECTION

Construction of the proposed Northern San Joaquin Transmission Project and all the related projects would involve alteration of drainage through grading and excavation, which in some cases could result in potential flooding. The Interstate 5 Commerce Center, new housing projects, Commercial Cannabis Business Park, SR 99/120 Interchange Connector, and SR 12 Widening would involve a substantial amount of grading that could change drainage patterns and redirect runoff. This could result in an adverse cumulative condition if the altered drainage patterns and runoff were to result in flooding.

However, existing stormwater management systems in the project area are generally sufficient to prevent localized flooding, indicating the lack of an existing significant cumulative impact. Still, the proposed project and all the cumulative projects would create impervious surfaces. Given the sheer size of some of the projects in the project list cumulative scenario, such as Interstate 5 Commerce Center and the Commercial Cannabis Business Park, a substantial amount of stormwater runoff could be generated. However, existing regulations and standards related to stormwater management would prevent a significant cumulative impact related to localized flooding from developing.

Flood protection from nearby rivers in some portions of the project area is provided by levees and related infrastructure. In other locations, including inside the levees, agriculture and open space lands are allowed to be flooded during high water events. Although no flood protection system can provide absolute protection during all storm events and improvements are always possible, the flood protection system in the project area is sufficient to not create an existing significant cumulative impact related to flooding. The only cumulative project located in a 100-year flood zone is the Union Pacific Railroad Bridge Replacement project to replace the existing railroad bridge over the Mokelumne River. The bridge project is a Central Valley Flood Protection Board (CVFPB) project and would reconstruct and replace the bridge functions that the structure already provides and, therefore, would not increase impermeable coverage in a 100-year flood zone. Thus, there would not be a significant cumulative effect related to redirecting flood flow.

The proposed project would introduce a total of 8.03 acres of new impervious surface distributed over the project area, and only a minimal amount of this impermeable surface would be located within the 100-year flood hazard zone or near the identified cumulative projects. APMs and BMPs implemented during construction, as well as General Construction Permits (SWPPPs), would provide flood protections during construction. The permanent impermeable surface from the project would not limit or contribute to degradation of flood protection facilities. In the 100-year flood areas, there would be minimal structures installed associated with the proposed project. Furthermore, any flood flows would flow around TSP structures. Therefore, the proposed project would not make a substantial contribution to a significant cumulative impact related to flooding and flood protection.

GROUNDWATER QUALITY AND SUPPLY

As identified in Section 3.11, "Hydrology and Water Quality," the groundwater subbasin where the project is located (Eastern San Joaquin Groundwater Subbasin) was identified by the California Department of Water Resources (DWR) in 1980 as critically overdrafted. Measurements over the past 60 years show a fairly continuous decline in groundwater levels in Eastern San Joaquin County, and because of the continued overdraft of groundwater within the subbasin, significant groundwater depressions are present east of Stockton, east of Lodi, and south of the project area. This indicates an existing significant adverse cumulative impact related to groundwater supply. As also identified in Section 3.11, groundwater quality impairments in the Eastern San Joaquin Groundwater subbasin have been extensive, and anthropogenic and naturally occurring pollutants threaten the subbasin's water quality, indicating an existing significant adverse cumulative impact related to groundwater quality.

The impacts of the proposed project would be less than significant at the project level with implementation of APMs HYD-1 through HYD-5 and BMPs HYD-1 through HYD-5 and compliance with the Construction General Permits (i.e., preparation and implementation of a SWPPP). The facilities would not require a substantial amount of water during construction or operation and would not substantially contribute to cumulative impacts on groundwater supplies.

Because of the depth of the surface of the groundwater in the Eastern San Joaquin Subbasin, it is unlikely that the grading, horizontal directional drilling, and digging to install project components would require dewatering or encounter groundwater. If dewatering were to occur during construction of the project, it would result in a non-substantial amount of dewatering relative to the entire subbasin, and dewatering would only occur during construction. The proposed project's contribution to any significant cumulative impact related to groundwater would not be substantial.

SURFACE-WATER QUALITY

As described in Section 3.11, the San Joaquin River and Mokelumne River in the vicinity of the project area are on the State Water Resources Control Board (SWRCB) Section 303(d) impaired waters list. Bear Creek is listed as a Category 5 water body, indicating that it is a polluted water that requires a total maximum daily load (TMDL), which is not yet completed, for at least one of the listed pollutants. These classifications indicate an existing significant adverse cumulative impact related to surface water quality.

All the cumulative projects would require ground disturbance, with many of them requiring a substantial amount of ground disturbance or grading given their size, which could lead to increased erosion rates. The cumulative projects would each disturb more than 1 acre of land and, therefore, would have to comply with the NPDES program, which would require the preparation and implementation of SWPPPs for construction activities to ensure the reduction of pollutants during stormwater discharges.

The proposed project would involve grading south of Lodi Avenue which is 0.5 miles south of the SR 12 Widening project and in the same regional watershed as the other cumulative projects. However, the graded areas in the project area would be restored per APMs HYD-1 through HYD-5 and BMPs HYD-1 through HYD-5, and the total area disturbed would be negligible compared to the grading for the larger housing, commercial parks, and public works road projects in the county. The amount of grading required to implement the project would be minimal and limited to the area around the TSP structures and the footprints of the substations.

Given that the proposed project would implement standard stormwater pollution prevention mitigation measures to ensure that earthwork activities do not result in substantial erosion and siltation that could adversely affect surface water quality, the proposed project would not make a substantial contribution to significant cumulative impacts related to surface water quality.

SUMMARY

The proposed project would not make a substantial contribution to a significant cumulative impact related to hydrology and water quality. The cumulative impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.11 Land Use and Planning

The cumulative context for land use impacts for the proposed project include the existing and planned land uses surrounding the portions of the project area within unincorporated San Joaquin County and Lodi. Table 4-2, "Cumulative Projects List," identifies present and reasonably foreseeable future projects anticipated for San Joaquin County and Lodi. Generally, the types of uses identified in Table 4-2 represent a continuation of existing land use types or redevelopment of similar land use types (e.g., residential, commercial). With respect to the related projects, projected growth and associated land use changes have been anticipated and planned for in the San Joaquin County and the City of Lodi general plans. Consequently, the land use changes that would occur as a result of the cumulative projects listed in Table 4-2 would remain consistent with the current types of land uses planned for under the San Joaquin County and City of Lodi general plans. There is not an adverse cumulative condition anticipated due to conflicting land uses from future, reasonably foreseeable projects. Implementation of the project would not result in a substantial contribution to a significant cumulative land use and planning impact. Cumulative impacts would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.12 Noise

For the purposes of this analysis, cumulative impacts related to noise, that is, where noise from the project can be heard simultaneously with noise from projects listed in Table 4-2, is evaluated within 2,000 feet from the project site. The interaction between project-generated noise and existing noise generators is evaluated in Section 3.13, "Noise." According to the analysis provided there (and summarized below), existing ambient noise levels in the analysis area also fall within applicable standards, and there is not an existing significant cumulative noise impact. The cumulative projects listed in Table 4-2 may have overlapping construction periods but would be subject to the same noise ordinances, and all but one project are more than 2,000 feet from the proposed PG&E project. That project, the PG&E Bellota-Warnerville 230 kV Reconductor, would be expected to meet the same noise standards and implement the same noise-reduction measures as the proposed project.

San Joaquin County exempts noise from construction activities that are associated with the construction of public utilities. Construction of LEU's portion of the project would be consistent with the City of Lodi's noise ordinance and would not result in the exposure of people to or generation of noise levels in excess of local noise ordinances or applicable standards. Unplanned nighttime work would be infrequent, occur in limited locations, and would be short term. If construction occurs at night, PG&E will implement APM NOI-1 and APM NOI-5, and LEU will implement BMP NOI-1 and BMP NOI-5, which require advance notice to property owners near construction activities.

Operational noise from the project would be generated through corona noise and project maintenance. Corona noise associated with moisture on the new electrical wires would be minimal and below the San Joaquin County performance standards of 70 A-weighted decibels (dBA) maximum sound level (L_{max}) and below the outdoor activities noise guideline of 55 dBA equivalent continuous sound level (L_{eq}). For maintenance activities involving noise-generating equipment or vehicles, noise-reduction measures would be employed to reduce temporary noise impacts as described in APMs NOI-1 through NOI-7 and BMPs NOI-1 through NOI-7. The proposed substations are located within an industrial area and would not exceed local noise standards for residential uses. Long-term operational noise from stationary equipment and maintenance would result in noise levels ranging from 18.5 dBA L_{eq} to 35.5 dBA L_{eq} and 37.5 community noise equivalent level (CNEL) and would be below the County's and City's thresholds.

The project would not result in the exposure of people to or generation of excessive groundborne vibration or groundborne noise levels. Construction-related groundborne vibration and noise would occur during daytime hours and would be short term in duration. Equipment associated with normal operation and maintenance of the proposed project would not produce any groundborne noise or vibration.

There is not an adverse cumulative condition anticipated due to noise from future, reasonably foreseeable projects. Implementation of the project would not result in a substantial contribution to a significant cumulative noise impact. Cumulative impacts would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.13 Population, Employment, and Housing

As described in Section 3.14, "Population, Employment, and Housing," vacancy rates in San Joaquin County have generally stayed within a range, indicating an acceptable balance with population. However, Lodi has experienced much lower vacancy rates, indicating an existing cumulative impact related to a shortage of housing.

The cumulative context for land use impacts for the proposed project includes the existing and planned land uses surrounding the portions of the project area within unincorporated San Joaquin County and Lodi. Generally, the types of uses, which are identified in Table 4-2, represent a continuation of existing land use types and redevelopment of similar land use types (e.g., residential, commercial). With respect to the project, current and projected growth has been anticipated and planned for in the San Joaquin County's and the City of Lodi's general plans. Any increase in population or housing demand from new or existing PG&E or LEU workers relocating to the area along with population or housing demand increases from the implementation of the cumulative projects would be within the scope of the growth projections of the San Joaquin County's and City of Lodi's general plans. The project itself does not propose new housing, businesses, or other land use changes that would induce unplanned population growth or increase housing demand in the area. Therefore, the implementation of the project along with the cumulative projects listed in Table 4-2 would not induce substantial unplanned population growth or increases in housing demand. Accordingly, implementation of the project would not result in a substantial contribution to a significant cumulative population and housing impacts. Cumulative impacts would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.14 Public Services and Recreation

No critical deficiencies in the availability of public services or recreation facilities/opportunities are identified in the evaluation of these topics in Section 3.15, "Public Services and Recreation." Therefore, there is not an existing significant adverse cumulative impact. The cumulative context for public services and recreation impacts for the proposed project include the existing and planned land uses surrounding the portions of the project area within unincorporated San Joaquin County and Lodi. Generally, the types of uses identified in Table 4-2 represent a continuation of existing land use types and redevelopment of similar land use types (e.g., residential, commercial). The project itself does not propose new housing, businesses, or other land use changes that would induce unplanned population growth or increase housing demand in the area. As described in Section 3.15, "Public Services and Recreation," implementation of the proposed project would not increase the use of parks or other recreational facilities, require the expansion or construction of such facilities, reduce or prevent access to such facilities, or result in damage to recreational facilities or trails in the vicinity of the project area.

Also as explained in Section 3.15, the project area is located in the Lodi wine region. Many commercial wineries located near the project area provide opportunities for agritourism, including recreational opportunities. The projects listed in Table 4-2 are not anticipated to substantially affect the scenic, biological, cultural, geologic, or other important characteristics that contribute to the value of commercial wineries and related recreational opportunities in the Lodi wine region such that an adverse cumulative condition would result. Furthermore, the construction, operation, and maintenance of the project would not substantially affect any of the important characteristics that contribute to the value of recreational opportunities in the Lodi wine region. Accordingly, implementation of the project would not result in a substantial contribution to a significant cumulative public services and recreation impacts. Cumulative impacts would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.15 Transportation

TRANSIT SERVICE AND FACILITIES, BICYCLE FACILITIES, AND PEDESTRIAN FACILITIES

The project would not increase demand for transit service and facilities, bicycle facilities, or pedestrian facilities because it is not a land use development. Implementation of APMs TRA-1 and TRA-2 and BMPs TRA-1 and TRA-2 would ensure that any damage to the transportation network would be remedied as the last step of project construction. Therefore, the project would not adversely affect any existing or planned transit, bicycle, or pedestrian facilities in the vicinity of the project area. Other proposed projects surrounding the project area would be subject to individual environmental analysis and would be required to comply with federal, state, and local requirements related to transit, bicycle, and pedestrian facilities. The project would not contribute to cumulative impacts related to transit service and facilities, bicycle facilities, or pedestrian facilities.

VEHICLE MILES TRAVELED

Construction worker commute trips and associated vehicle miles traveled (VMT) for the project would be temporary, and when construction activities are completed, VMT would return to preexisting conditions. Although it is estimated that 66 construction personnel would be required during the peak construction period (i.e., 2027 quarter 2), average daily trips throughout overall construction would not exceed the Governor's Office of Planning and Research's (OPR's) screening criteria threshold for small projects of 110 daily new trips established in the 2018 Technical Advisory prepared by the Governor's Office of Planning (OPR, now known as the Office of Land Use and Climate Innovation). As described under Impact 3.16-2, construction worker trips are not newly generated but rather are redistributed throughout the regional roadway network depending on where construction sites are located and thus would not result in a substantial number of new trips above existing conditions. APM GHG-1 and BMP GHG-1 would encourage carpooling to the jobsite. Additionally, O&M activities would result in minimal and infrequent trips as described under Impact TRA-2. According to the OPR Technical Advisory, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa (OPR 2018). In addition, the project does not conflict with relevant environmental goals or plans, and the number of trips generated by short-term construction and long-term O&M activities would not be substantial. For these reasons, the project would not result in a substantial contribution to a significant cumulative VMT impact.

TRANSPORTATION HAZARDS

Roadways in the project area are constructed and maintained following engineering and safety standards imposed by the state, Caltrans, and local jurisdictions. There is no existing significant adverse cumulative impact in the analysis

area related to transportation hazards. As detailed above, no public roads would be constructed as part of the project; however, some modification of existing roadways would occur to ensure the safe transportation of construction equipment. All transportation improvements associated with the project would be subject to and designed in accordance with the improvement and design standards of the applicable jurisdiction. Compliance with these standards would ensure that construction associated with the project would not result in transportation hazards or incompatible uses. In addition, if any work would occur within the public right-of-way (ROW), the implementation of APM TRA-1 and BMP TRA-1 would result in proper traffic control and minimization of transportation hazards. Other nearby projects within the public ROW would also be required to comply with the applicable jurisdiction's regulations, thus minimizing the potential for cumulative transportation-related hazards. With continued regulatory compliance, the project, when combined with past, present, and reasonably foreseeable future projects, would not result in a substantial contribution to a significant cumulative transportation hazard impact.

EMERGENCY ACCESS

Facilities and transportation systems in the project area are constructed and maintained following requirements for the provision of emergency access. Although there may be individual areas where emergency access is limited, there is no existing significant adverse cumulative impact in the analysis area related to emergency access. The project would be subject to, and constructed in accordance with, applicable roadway design and safety guidelines to ensure emergency access is adequately provided and maintained in the PG&E and LEU portions of the project, respectively (see APM TRA-1 and BMP TRA-1). In addition, other nearby projects within the project vicinity would need to demonstrate that they would not impede emergency access or cause a potential transportation-related hazard. For these reasons, the project would not result in a substantial contribution to a significant cumulative impact related to emergency access.

SUMMARY

The proposed project would not make a substantial contribution to a cumulative impact related to transportation. The cumulative impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.16 Utilities and Service Systems

Although each utility and service system provider has a service area that influences their operations, the geographic context for this analysis of cumulative utility and service system impacts is northern San Joaquin County, including the Lodi. This is generally the area where impacts generated by the proposed project may interact with impacts caused by past projects, as well as present and future projects, which are listed in Table 4-2. There are no critical deficiencies in the availability of other utilities and service systems as evaluated in Section 3.17, "Utilities and Service Systems," with the exception of availability of water supply. For the reasons discussed above in Section 4.3.10, "Hydrology and Water Quality," and described further below, there is an existing significant cumulative effect related to water supply due to demand for, and availability of, groundwater.

INSTALLATION OF NEW OR EXPANDED UTILITIES

The development of present and reasonably foreseeable projects within the geographic context would potentially require the construction of new or expanded utilities, including water, wastewater conveyance, stormwater drainage, electricity, natural gas, and telecommunications facilities. However, the impacts of constructing these new or expanded utilities would generally be localized to the individual project sites and would not have the potential to

result in impacts that, when combined with those of other past, present, and future projects, would result in an adverse cumulative condition.

As discussed in Section 3.17, "Utilities and Service Systems," the effects of the proposed utility modifications associated with the proposed project have been evaluated throughout this Draft EIR. Construction and O&M associated with the PG&E and LEU project components would not require or result in the relocation or construction of new or expanded water, wastewater conveyance, stormwater drainage, natural gas, or telecommunications facilities that could cause significant environmental effects beyond those analyzed and disclosed in this Draft EIR. The project would not increase the demand for utilities, including water, wastewater conveyance, stormwater drainage, electricity, and natural gas, such that new or expanded utility infrastructure would be required off-site. Therefore, the proposed project would not make a substantial contribution to cumulative impacts related to the construction of new or expanded water, wastewater conveyance, stormwater, electric, or natural gas facilities.

WATER SUPPLY

Water service in the project area is provided by North San Joaquin Water Conservation District (NSJWCD) and City of Lodi Water Utility. As required by the California Water Code, City of Lodi Water Utility has prepared and adopted an Urban Water Management Plan (UWMP) to identify potable and nonpotable water supplies for projected future growth. The City's 2020 UWMP provides existing and projected water demand and estimated supply between 2025 and 2045 under normal and dry year weather conditions (single and multiple) (City of Lodi 2021). According to the City's 2020 UWMP, future demand would be met (and exceeded) by the water supply during a normal year in each 5-year increment through 2045. However, future demand would not be met throughout the planning period during single-dry and multiple-dry years. In addition, NSJWCD does not have a UWMP; therefore, no water demand or supply projections are available for normal, single, or multiple-dry year scenarios. Although NSJWCD does not have an UWMP, the agency maintains a Strategic Plan that outlines its strategy for managing water resources within its jurisdiction. The primary source of water within the NSJWCD service area is groundwater pumped by agricultural landowners from individual wells. This groundwater is pumped from the critically overdrafted Eastern San Joaquin Groundwater Subbasin. Because the City's 2020 UWMP identified water shortages during single-dry and multiple-dry years, and water supply within the NSJWCD service area is derived from a critically overdrafted groundwater basin, there is an adverse cumulative condition from past, present, and reasonably foreseeable projects.

As discussed in Section 3.17, "Utilities and Service Systems," the project would require the use of water during construction and O&M activities. Water use during construction would vary with type of activities (increased use when activity is ground disturbing) and other daily site conditions, such as wind speed. PG&E O&M activities would be conducted occasionally, and insulator washing is the only activity that would require water. LEU O&M activities would be conducted occasionally but would not require the use of water. Although the cumulative effects from past, present, and reasonably foreseeable projects on water supply are cumulatively significant, the City's 2020 UWMP estimated that sufficient supplies would be available in normal, single-, and multiple-dry year scenarios at least through 2035 (see Table 3.17-2 in Section 3.17), which covers the construction period of the project. During O&M, in the event the City's water supply is constrained in later years because of a multiyear drought (e.g., 2040, 2045 as shown in Table 3.17-2), the small amount of water needed for project O&M could be obtained from other sources, such as recycled water or water trucked in from areas with sufficient supplies. Therefore, sufficient water supplies would be available to serve the project and reasonably foreseeable future development during normal, dry, and multiple-dry years. For these reasons, the project's contribution to cumulatively significant water supply impacts, when combined with past, present, and reasonably foreseeable projects, would not be cumulatively considerable.

SOLID WASTE

There are several landfills that provide solid waste services in the county: North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, Forward Landfill; Chemical Waste Management–Kettleman Hills, and Clean Harbors Buttonwillow. In addition, the county operates the Lovelace Materials Recovery Facility and Transfer Station, which sends waste to Foothill Sanitary Landfill. The landfills serving the county have estimated closure dates ranging from

2040 (Clean Harbors Buttonwillow) to 2082 (Foothill Sanitary Landfill). Past, present, and reasonably foreseeable projects have generated, and would continue to generate, solid waste requiring disposal at the landfills serving San Joaquin County. However, these projects would be required to comply with state and local regulations related to solid waste, which include various requirements to recycle and divert solid waste from landfills. These regulations would preserve, or extend, the estimated years of service available at these landfills. Therefore, because of the long-term existing capacity available at landfills serving the analysis area, as well as mandatory compliance with solid waste regulations, there is not an existing adverse cumulative impact.

As discussed in Section 3.17, "Utilities and Service Systems," PG&E and LEU would manage solid waste generated during construction and O&M by hauling to appropriate landfills. Because a majority of the waste generated during construction of the project components would be recycled or salvaged for reuse in compliance with existing local and state regulations, the project would not substantially contribute to the use of remaining capacity available at the North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station, and new or expanded landfills would not be required to accommodate project construction-related solid waste. In addition, the amount of solid waste generated during O&M activities would be minimal and would not impact landfill capacity. Therefore, the project components would not generate solid waste in excess of state or local standards or local capacity or otherwise impair solid waste reduction goals. Accordingly, the project's contribution to cumulative solid waste impacts, when combined with past, present, and reasonably foreseeable projects, would not be substantial.

SUMMARY

The proposed project would not make a substantial contribution to a significant cumulative impact related to utilities and service systems. The cumulative impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

4.3.17 Wildfire

The project would not be located in or near state responsibility areas or lands classified as Very High Fire Hazard Severity Zones (VHFHSZs) and are not in areas of slope, prevailing winds, or other known factors that would exacerbate wildfire risks. Land uses in the project area, which are primarily agricultural and urban, are not subject to high wildfire risk. There is not an existing significant adverse cumulative impact related to wildfire in the analysis area.

None of the project components are designed for human occupancy. To further minimize wildfire risk during construction activities, PG&E would implement APM WFR-1 and APM WFR-2, and LEU would implement BMP WFR-1 and BMP WFR-2, requiring workers to be trained in fire prevention practices and carry emergency fire suppression equipment to reduce the wildland fire risk in the project area.

The project construction and O&M of associated PG&E infrastructure would not exacerbate fire risk or result in temporary or ongoing impacts to the environment. The new and modified electrical lines, substations, and switching station are similar in nature to the existing project components that will be modified or extended during construction and other existing PG&E lines in the area. The new and modified electrical infrastructure would not result in an increase of the potential for wildfire risk. The proposed project would not make a substantial contribution to a significant cumulative impact related to wildfire. The cumulative impact would be **less than significant**.

MITIGATION MEASURES

No mitigation is required.

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5 OTHER CEQA CONSIDERATIONS

5.1 GROWTH INDUCEMENT

California Public Resources Code (PRC) Section 21100(b)(5) specifies that the growth-inducing impacts of a project must be addressed in an EIR. Section 15126.2(d) of the CEQA Guidelines provides the following guidance for assessing growth-inducing impacts of a project:

> Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also, discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can induce growth directly, indirectly, or both. Direct growth inducement could occur if a project involved construction of new housing. Indirect growth inducement could occur if implementing a project resulted in any of the following:

- substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises);
- substantial short-term employment opportunities (e.g., construction employment) that indirectly stimulates the need for additional housing and services to support the new temporary employment demand; or
- removal of an obstacle to additional growth and development, such as removing a constraint on a required public utility or service (e.g., construction of a major sewer line with excess capacity through an undeveloped area).

Growth inducement itself is not an environmental effect but may foreseeably lead to physical changes that could have environmental effects. If substantial growth inducement occurs, it can result in secondary environmental effects, such as increased demand for housing, demand for other community and public services and infrastructure capacity, increased traffic and noise, degradation of air or water quality, degradation or loss of plant or animal habitats, conversion of agricultural and open-space land to urban uses, and other effects.

5.1.1 Growth-Inducing Impacts of the Project

The proposed project would involve the construction, operation, and maintenance of new 230 kilovolt (kV) lines and associated substation facilities to address reliability and capacity issues on the existing PG&E 230 kilovolt (kV) and 60 kV systems in northeastern San Joaquin County and Lodi. As explained in Section 3.14, "Population, Employment, and Housing," both the PG&E and LEU portions of the project would strengthen existing power infrastructure to better serve existing and future customers in the area by preventing service interruptions. Although the population in San Joaquin County and Lodi is growing, the growth that is currently taking place and is projected to take place over time has been anticipated and planned for in the San Joaquin County and the City of Lodi General Plans. The project does not propose new housing, businesses, or other land use changes that would induce unplanned population growth or increase housing demand in the area. As such, the construction, operation, and maintenance of the proposed transmission line would not involve the development of new housing or increase the demand for new housing. Moreover, construction workers would consist primarily of either existing PG&E and LEU workers in the local area or workers who would commute from neighboring cities. Because the construction duration of the project would be relatively short (approximately 34 months), it is not expected that construction workers from outside the area would permanently relocate to the area. Operation and maintenance (O&M) of the new 230 kV transmission lines

and stations would be performed by existing PG&E and LEU workers. Therefore, implementing the project would not result in the creation of new jobs or economic opportunities in California. Since neither the PG&E nor LEU portions of the project would foster economic or population growth, no significant growth-inducing impacts would be associated with implementation of the project.

5.2 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

Section 15126.2(c) of the State CEQA Guidelines states that an EIR shall "[d]escribe any significant impacts, including those which can be mitigated but not reduced to a level of insignificance…." Chapter 3, "Environmental Impacts and Mitigation Measures," of this Draft EIR provides a description of the potential environmental impacts of the project and recommends various mitigation measures to reduce impacts to the extent feasible. Chapter 4, "Cumulative Impacts," determines whether the incremental effects of the project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. As documented throughout Chapters 3 and 4, after implementation of the recommended mitigation measures, all of the impacts associated with growth and development that would occur with implementation of the project would be reduced to a less-than-significant level. The project would not result in any significant and unavoidable adverse impacts.

5.3 SIGNIFICANT AND IRREVERSIBLE ENVIRONMENTAL CHANGES

The State CEQA Guidelines require a discussion of any significant irreversible environmental changes that would be caused by the project. Specifically, State CEQA Guidelines Section 15126.2(c) states:

> Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generation to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

As described above, the proposed project would involve the construction, operation, and maintenance of new 230 kV lines and associated substation facilities to address reliability and capacity issues on the existing PG&E 230 kV and 60 kV systems in northeastern San Joaquin County and Lodi. Poles, electric substations, and other electricity infrastructure would be installed in some areas that are currently used for agriculture. The construction, operation, and maintenance of the proposed transmission line represents a long-term commitment by PG&E and LEU to effectively deliver a reliable supply of electricity to the population in unincorporated San Joaquin County and Lodi. As such, O&M activities of the project would continue indefinitely into the future, irreversibly removing the physical footprint of the electrical infrastructure from other potential uses.

As explained in Section 3.3, "Agriculture," although portions of agricultural land in the project area would be developed for electricity infrastructure use, the overall footprint of agricultural land that would be developed would be relatively small because the project would consist mostly of overhead transmission line that would not disturb land within the right-of-way below the conductors. Along the alignment, the pole sites would require small, discrete portions of parcels that would not affect use of the remainder of the parcel. The substations and switching stations would be located on land that is currently used or planned for compatible use.

As discussed in Section 3.6, "Biological Resources," the construction, operation, and maintenance of the project could result in the loss of special-status wildlife species or habitat. In addition to the applicant-proposed measures (APMs) and best management practices (BMPs), PG&E and LEU would implement mitigation measures to reduce impacts to these sensitive biological resources to a less-than-significant level. In addition, as noted in Section 3.10, "Hazards and Hazardous Materials," the construction, operation, and maintenance of the project would increase the risk of environmental upset and accident conditions involving the release of hazardous materials into the environment. PG&E and LEU would implement APMs and BMPs to minimize these risks and maintain impacts at a less-than-significant level.

As stated in Section 3.7, "Energy," fuel consumption during project construction would serve the purpose of improving the state's electric grid and providing reliable power. Fuel consumed during O&M would be used for the purpose of maintaining critical electrical infrastructure equipment. Construction-related energy consumption would be temporary and would cease upon completion of construction, whereas O&M of the project would require minimal fuel use because O&M activities would occur infrequently and would typically only require the use of on-road trucks and occasionally a helicopter for maintenance and inspection.

The project would result in substantial investment in the development of new and upgraded electrical infrastructure to improve system reliability in Lodi and surrounding areas. The magnitude of these changes would commit future generations to the use of these facilities to obtain electrical power. As discussed in Chapter 6, "Alternatives," although alternative systems of distributed energy generation are available, technological and financial feasibility are anticipated to limit the effectiveness of all other options for providing power to the region for the foreseeable future. In addition, the source of electrical power provided by the project is anticipated to become increasingly renewable as the state moves toward established greenhouse gas reduction and renewable energy goals. The irretrievable commitments of resources to construct the proposed PG&E and LEU project components are justified by the utilities' obligation to provide this essential service and the absence of viable alternatives that would avoid a similar commitment of resources.

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6 ALTERNATIVES

6.1 INTRODUCTION

CEQA requires that an EIR identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code [PRC] Section 21002.1). This chapter presents an examination of alternatives to the proposed project that would feasibly attain most of the basic objectives of the project and would avoid or substantially lessen the significant impacts that would result from project implementation. Alternatives were identified through a screening process, as described in the Alternatives Screening Report (Appendix J to this EIR) and summarized below.

This chapter describes the key considerations used to identify and screen potential alternatives, explains why some potential alternatives were eliminated from further consideration, and describes the alternatives that were carried forward for more detailed analysis. This chapter also compares the environmental impacts of the project and alternatives evaluated in detail. Consistent with the State CEQA Guidelines (Section 15126.6[a,b]), this EIR presents an evaluation of the comparative merits of the alternatives and is focused on alternatives to the project that "are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."

6.2 CONSIDERATIONS FOR SELECTION OF ALTERNATIVES

In developing project alternatives that meet the requirements of CEQA, considerations include the ability of an alternative to meet most of the project objectives, the potential feasibility of the alternative, and whether the alternative would avoid or substantially lessen one or more of the significant environmental impacts of the project. Each of these considerations are described in greater detail below.

6.2.1 Attainment of Project Objectives

As the CEQA lead agency, CPUC is responsible for defining project objectives for the purpose of the CEQA analysis. These objectives may differ from PG&E's and LEU's objectives, as stated in the section below. Any alternative determined not to meet at least two of CPUC's objectives was not carried forward for more detailed review. Based on its understanding of the purpose of the proposed project, CPUC has identified the following project objectives:

- substantially reduce existing thermal overload and voltage issues during P1 and P6 contingencies and maintain compliance with North American Electric Reliability Corporation (NERC) standards in the Northern San Joaquin County area, including the City of Lodi, as identified by CAISO in its 2017-2018 Transmission Plan;
- accommodate expected future increased electrical distribution demand in the Northern San Joaquin County area, including the Lodi; and
- separate PG&E's 60 kV system from LEU's 60 kV system.

In addition, the applicant has identified specific project objectives. PG&E stated in the PEA that its basic project objective is to address voltage issues and thermal overloads on PG&E's Lockeford/Lodi system during normal operation (Category P0) and during Category P1 and P6 contingency scenarios with a 230 kV reinforcement and substation, as identified by CAISO in its 2017-2018 Transmission Plan.

The following specific project objectives were identified in the Proponent's Environmental Assessment for the project:

- Meet PG&E's legal obligation to implement the CAISO-approved project.
- Improve system reliability for PG&E's approximately 10,000 electrical customers, one of which is LEU, which itself serves approximately 28,000 customers.

- Increase capacity to accommodate projected growth in demand and minimize future reliability issues for Lodi, as well as for PG&E customers.
- Address thermal overloads and voltage concerns on PG&E's 60 kV transmission system identified during P1 contingencies[1] and maintain compliance with NERC standards.
- Address thermal overloads on PG&E's 60 kV transmission system identified during P6 contingencies[2] and maintain compliance with NERC standards.
- Reinforce the PG&E 60 kV system in the Lodi area by constructing a new 230 kV double-circuit line to provide an additional source of power.
- Construct a new 230 kV switching station to receive the new 230 kV double-circuit line and provide power to a new 230/60 kV substation to be constructed by LEU.
- Separate PG&E's 60 kV system at the LEU Industrial Substation from LEU's 60 kV system.
- Construct a safe, economical, and technically feasible project that minimizes environmental and community impacts.

6.2.2 Feasibility

In identifying project alternatives, the CPUC also considered whether the alternative would be potentially feasible, where feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (Public Resources Code Section 21061.1; CEQA Guidelines Sections 15126.6 and 15364).[3] Any alternative determined to be infeasible was not carried forward for more detailed review.

Although, as noted above, EIRs must contain a discussion of "potentially feasible" alternatives, the ultimate determination as to whether an alternative is feasible or infeasible is made by lead agency decision-maker(s). (See Pub. Resources Code, § 21081(a)(3).) At the time of action on the project, the decision-maker(s) may consider evidence in the record beyond that found in this EIR in addressing such determinations.

The CPUC also considered whether implementation of the alternative would be remote or speculative. For purposes of this analysis, remote means unlikely or having only a slight chance of occurring, and speculative means unsupported, theoretical, or based on conjecture or guesswork. Any potential alternative determined to be remote or speculative was not carried forward for more detailed review.

6.2.3 Environmental Impacts of the Project

Sections 3.2 through 3.18 of this Draft EIR address the environmental impacts of the project. Potentially feasible alternatives were developed with consideration of avoiding or lessening the significant adverse impacts of the project, as identified in Chapter 3 of this Draft EIR and summarized below. If an environmental issue area analyzed in this Draft EIR is not addressed below, it is because no significant impacts were identified for that issue area, even in the absence of mitigation.

Based on the analysis in Chapter 3 of the Draft EIR, the project would not result in any significant and unavoidable impacts. However, the EIR identified impacts that, absent mitigation, would be potentially significant. With mitigation, these impacts would be reduced to less than significant. Some of these same significant but mitigable impacts could also be reduced in severity by project alternatives. As the California Supreme Court has explained, "alternatives and

[1] A single outage, or a NERC Category P1 contingency, is defined as the loss of a generator, the loss of one transmission circuit, the loss of one transformer, the loss of one shunt device, or the loss of a single pole of direct current lines (NERC 2018).

[2] NERC Category P6 contingency, or outage, is defined as two overlapping single outages (transmission circuit, transformer, shunt device, or single pole of a direct current line) (NERC 2018).

[3] A sufficient demonstration of financial infeasibility requires more than a showing that the alternative would be more expensive or less profitable; it requires evidence that the additional costs or lost profitability are sufficiently severe as to render it impractical to proceed with the project. Citizens of Goleta Valley (1998) 197 Cal. App. 3d. 1167, 1181.

mitigation measures have the same function—diminishing or avoiding adverse environmental effects." (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 403.) The following significant but mitigable impacts were identified in Chapter 3 of the Draft EIR. All other impacts of the project would be less than significant.

- Archaeological, Historical, and Tribal Cultural Resources: Ground-disturbing construction activities would have the potential to result in discovery and damage of yet undiscovered archaeological resources as defined in State CEQA Guidelines Section 15064.5. In addition, while Tribal consultation under Assembly Bill 52 has not resulted in the identification of tribal cultural resources on the project site, project-related ground-disturbing activities could result in the damage or destruction of yet-undiscovered tribal cultural resources as defined in PRC Section 21074. The implementation of Mitigation Measures 3.5-2 and 3.5-3 would reduce these impacts to a less-than-significant level.
- Biological Resources: Project construction and O&M activities have the potential to result in the disturbance to or loss of special-status wildlife species and their habitat, including special-status birds and common native birds, California tiger salamander, Crotch's bumble bee, valley elderberry longhorn beetle, western red bat, and American badger. In addition, wetlands in close proximity to the PG&E portion of the biological study area (BSA) may be inadvertently affected during construction and O&M if not properly marked. The removal of trees within the PG&E BSA may result in the direct loss of roosting bats, if present, and would also conflict with San Joaquin County Ordinance Code requirements related to the protection of native oak trees, heritage oak trees, and historical trees. Furthermore, the project would potentially result in impacts on species covered by the San Joaquin Multispecies Habitat Conservation Plan, and therefore would conflict with this plan. Finally, the operation of new transmission lines, power lines, and substation facilities may result in collision and electrocution of avian species that fly into these structures. The implementation of Mitigation Measures BIO-2a through 2-g, BIO-3, BIO-5, and BIO-7 would reduce these impacts to a less-than-significant level.

Generally, any alternative determined not to avoid or substantially lessen the significant impacts of a proposed project is not carried forward for more detailed review. However, as analyzed in Chapter 3, this project would not cause any significant impacts with the implementation of identified mitigation measures. Because the project would not cause any significant and unavoidable impacts, no potential project alternative could meet this test. Accordingly, this aspect of the CEQA alternatives screening process does not distinguish amongst potential alternatives and so is not considered further in this chapter.

6.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Section 15126.6(a) of the State CEQA Guidelines establishes that an EIR should describe "a range of potentially feasible alternatives" to "foster informed decision making and public participation." An EIR is not required to consider every conceivable alternative to a project, nor those alternatives that are infeasible. Following the rule of reason, the lead agency is responsible for selecting a range of project alternatives for examination. As described above, the CPUC selected project alternatives for detailed evaluation based on attainment of project objectives, feasibility, and ability to avoid significant environmental effects. Informed by and in response to the scoping input received, this EIR initially considered four types of alternatives: system alternatives, siting alternatives, energy storage alternatives, and demand response alternatives. For the reasons discussed below, the CPUC carried forward for more detailed consideration the No Project Alternative and two siting alternatives. The following project alternatives were considered by the CPUC but are not evaluated further in this Draft EIR (see Figure 6-1).

6.3.1 System Alternatives

LOCKEFORD-LODI AREA 230 KV DEVELOPMENT (EIGHT MILE SUBSTATION) ALTERNATIVE

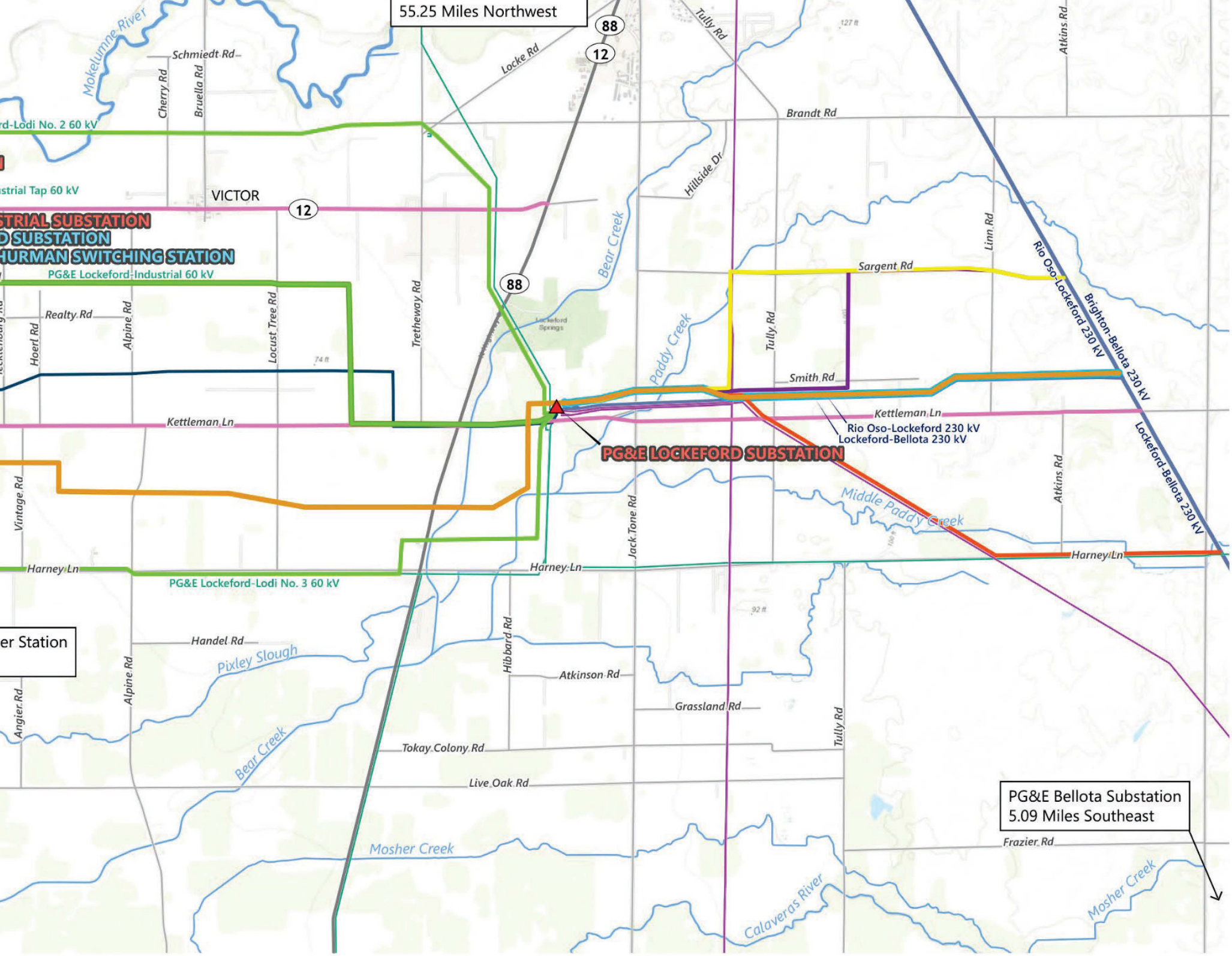
Description

This version of the project was included in the CAISO *2012-2013 Final ISO Transmission Plan* (CAISO 2013). This alternative would include a 230 kV double-circuit transmission line from PG&E Eight Mile Substation to PG&E Lockeford Substation, construction of a new LEU 230 kV bus at LEU Industrial Substation and looping one of the new PG&E Eight Mile/Lockeford 230 kV lines into this bus from an adjacent new PG&E switching station. A combination of potential route options presented at the December 2016 open houses for the 2013 CAISO project is used as the alternative's centerline for comparison purposes. The alternative centerline avoids existing and planned land use constraints and generally is a shorter length than other potential route combinations. Combining the Southern Route Via Industrial and the Central routes to connect the end points creates a total length of new PG&E 230 kV transmission lines of approximately 19.85 miles. Components of this alternative would include the following:

- Construction of a new PG&E Thurman Switching Station and LEU Guild Substation,
- Construction of a new 230 kV double-circuit transmission line (DCTL) between PG&E Eight Mile Substation and PG&E Lockeford Substation with a loop into PG&E Thurman Switching Station,
- Expansion of PG&E Eight Mile Substation by approximately 3.38 acres and grade approximately 5.85 acres to connect to the new 230 kV DCTL,
- Expansion of approximately 1.5 acres and grading to PG&E Lockeford Substation to connect to the new 230 kV DCTL, and
- PG&E 60 kV power lines reconfiguration.

Discussion and Conclusion

The Lockeford-Lodi Area 230 kV Development Alternative would meet most of the project objectives established by CPUC and PG&E, and would be potentially technically feasible. However, given the longer new transmission line, this alternative would have greater impacts than the proposed project. For example, this alternative would result in the permanent conversion of approximately 3.4 acres of Important Farmland compared with the project's permanent conversion of 1.4 acres of Important Farmland. Additionally, 85 residences would be within 250 feet of the new PG&E transmission lines compared with 12 residences under the project. It also would cross a state designated scenic highway and be located within 2 miles of two airports. This alternative would have the same or greater impacts to archaeological, historical, and tribal cultural resources as well as biological resources, and could increase impacts to other resources. For these reasons, this alternative is dismissed from further evaluation.


55.25 Miles Northwest
Mokelumne River
Schmiedt Rd
Cherry Rd
Bruella Rd
Locke Rd
88
12
Tully Rd
Atkins Rd
Brandt Rd
rd-Lodi No. 2 60 kV
strial Tap 60 kV
VICTOR
12
STRIAL SUBSTATION
D SUBSTATION
HURMAN SWITCHING STATION
PG&E Lockeford-Industrial 60 kV
Realty Rd
Hoerl Rd
Alpine Rd
Locust Tree Rd
Tretheway Rd
88
Hillside Dr
Bear Creek
Linn Rd
Sargent Rd
Rio Oso-Lockeford 230 kV
Brighton-Bellota 230 kV
Paddy Creek
Tully Rd
Smith Rd
Kettleman Ln
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
PG&E LOCKEFORD SUBSTATION
Lockeford-Bellota 230 kV
Vintage Rd
Middle Paddy Creek
Jack Tone Rd
Atkins Rd
Harney Ln
Harney Ln
Harney Ln
PG&E Lockeford-Lodi No. 3 60 kV
er Station
Handel Rd
Pixley Slough
Hibbard Rd
Atkinson Rd
Angier Rd
Alpine Rd
Grassland Rd
Tully Rd
Bear Creek
Tokay Colony Rd
Live Oak Rd
PG&E Bellota Substation
5.09 Miles Southeast
Frazier Rd
Mosher Creek
Calaveras River
Mosher Creek
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1901

60 KV RECONDUCTORING

Description

This alternative would involve reconductoring the PG&E 60 kV power lines in the study area by replacing existing lines and poles. The lines that would be reconductored include:

- PG&E Lockeford-Industrial 60 kV,
- PG&E Industrial Tap 60 kV,
- PG&E Lockeford-Lodi No. 2 60 kV, and
- PG&E Lockeford-Lodi No. 3 60 kV.

Discussion and Conclusion

This alternative appears to be potentially feasible, but it would not meet most of the CPUC's project objectives. Impacts would likely be less than the project as proposed because reconducting and replacement of 60 kV poles would occur within existing alignments. Reconductored PG&E 60 kV lines would not meet project objectives because they would not be strong enough to address the voltage and thermal issues and would not accommodate planned growth in the service area. For these reasons, this alternative is dismissed from further evaluation.

UPGRADE PG&E LOCKEFORD-INDUSTRIAL 60 KV TO 115 KV

Description

This alternative would upgrade the existing Lockeford-Industrial 60 kV line between PG&E Lockeford Substation and LEU Industrial Substation. It would replace the existing 60 kV poles and install a new 115 kV line.

Discussion and Conclusion

This alternative appears to be potentially feasible, but it would not meet the CPUC's project objectives. Specifically, a 115 kV line would not be strong enough to address the voltage and thermal issues and would not accommodate planned growth in the service area. Impacts would be similar to the project because the 115 kV line would have a similar ROW footprint and construction duration. This alternative would have the same or greater impacts to archaeological, historical, and tribal cultural resources; as well as biological resources. For these reasons, this alternative is dismissed from further evaluation.

UNDERGROUNDING

Description

This alternative would construct the new 230 kV lines underground along existing roadways. The alternative could not be constructed on agricultural land because it would prevent any use of the land in the ROW. Suggested alignments included East Kettleman Lane and Victor Road/SR 12.

Discussion and Conclusion

This alternative would meet the objectives of CPUC because it would reduce thermal overload and voltage issues, accommodate anticipated increases in demand, and would separate PG&E and LEU's 60 kV systems. Most of PG&E's project objectives would also be met.

This alternative would avoid the aesthetic and other impacts of aboveground alternatives. However, construction of the underground lines would require substantially more construction activity and ground disturbance resulting in greater air quality, noise, and traffic impacts over a longer period of time compared to the project. Air quality and traffic impacts during construction would be substantially greater than for the project due to both ground

disturbance and the need to export excavated materials and trench within roadways. The greater ground disturbance would increase the potential to encounter buried cultural resources or contaminated soils along the alignment. Furthermore, these activities would result in greater potential for soil erosion that could degrade water quality and would increase noise impacts to the residences located along the underground portion of the alignment over a longer period of time.

The economic feasibility of this alternative is also uncertain. The construction cost would be an order of magnitude greater than the project or other alternatives that meet most project objectives. Additional engineering and routing analysis would be required because, as indicated above, undergrounding along the proposed project route would increase effects on agricultural production because of limits on the use of the rights of way. This alternative would have the same or greater impacts to archaeological, historical, and tribal cultural resources; as well as biological resources, and could increase impacts to other resources. For these reasons, this alternative is dismissed from further evaluation.

6.3.2 Siting Alternatives

SOUTHERN ROUTE EAST

Description

This alternative would route the eastern segment of the new PG&E 230 kV line parallel to the existing PG&E 115 kV line from PG&E Lockeford Substation to East Harney Lane, then turn east along Harney Lane to PG&E Brighton-Bellota 230 kV Line. Other project components would be the same as the project.

Discussion and Conclusion

This alternative would meet most objectives of CPUC and PG&E, except for improving reliability. Having a double-circuit 230 kV transmission line cross over multiple other transmission lines (required near PG&E Lockeford Substation) can compound line failures. This alternative appears potentially feasible, although it presents technological issues in crossing multiple existing transmission lines near PG&E Lockeford Substation.

Existing PG&E distribution and 60 kV lines and residential structures along the edge of the road and center-pivot irrigation agricultural use would prevent the 230 kV line from continuous and adjacent paralleling of the roadway or other lines. Avoiding the constraints by setting the 230 kV line back from the existing lines, structures and center-pivot irrigation reduces the benefits of paralleling and increases the impacts that typically would be avoided or minimized by paralleling. It would result in greater biological impacts than the project because of multiple crossings of wetlands and creeks as well as the longer length of the transmission line. More and taller poles would be required in the vicinity of the PG&E Lockeford Substation to cross existing transmission lines, increasing aesthetic impacts and visual clutter.

This alternative would have the same or greater impacts to archaeological, historical, and tribal cultural resources; as well as biological resources, and could increase impacts to other resources. For these reasons, this alternative is dismissed from further evaluation.

VICTOR ROAD/SR 12 ROUTE

Description

This alternative would route the western segment of the new 230 kV line west on East Kettleman Lane from PG&E Lockeford Substation then north along SR 88 to parallel Victor Road/SR 12 toward the City of Lodi. An option for this alternative would follow existing PG&E 60 kV lines north from PG&E Lockeford Substation before turning west along Victor Road/SR 12. The eastern segment of the new 230 kV line and substation components would be the same as the project.

Discussion and Conclusion

This alternative would not meet the objectives of CPUC and PG&E and is not technically feasible given height restrictions and required width of ROW. Between North Kennison Lane and the UPRR railroad, industrial development on both sides of the road present constraints to height clearance and ROW width requirements. Additionally, at the Town of Victor (between Cherry Road and North Locust Tree Road), height and width clearance would be insufficient for a new 230 kV line because of existing industrial developments on the north side and residential developments on the south side of Victor Road.

In addition, there would be constraints to connect the line from Victor Road to the PG&E Lockeford Substation, with possible routes including Tretheway Road, Fox Road, and the existing PG&E Lockeford-Industrial 60 kV line along a farm road (between Tretheway Road and North Locust Tree Road). Along these routes, a 230 kV line would be too close to residences, especially the cluster of residences on both sides of the route south of SR 12 at Tretheway Road and Fox Road. The distances between the 230 kV line and residences would be less than the widths required for a 230 kV line ROW. If it were technically feasible, this alternative would result in potentially greater impacts because of the portion of the line between the eastern end of SR 12 and PG&E Lockeford Substation (where the new 230 kV line would be in close proximity to residences that would be within the required ROW). In addition, this alternative would not reduce the potential for impacts associated with ground disturbance during construction. This alternative would have the same or greater impacts to archaeological, historical, and tribal cultural resources; as well as biological resources, and could increase impacts to other resources. For these reasons, this alternative is dismissed from further evaluation.

EAST KETTLEMAN LANE ROUTE

Description

This alternative would route the new 230 kV line along East Kettleman Lane from the PG&E Brighton-Bellota 230 kV Line to just west of North Curry Avenue, where it would follow the project alignment north to the LEU Industrial Substation. Substation components would be the same as the project.

Discussion and Conclusion

This alternative would not meet the objectives of CPUC or PG&E and is not technically feasible. There is not enough clearance to accommodate height restrictions or ROW width requirements for a new 230 kV line paralleling East Kettleman Lane. If it were technically feasible, this alternative would result in potentially greater impacts from placing a 230 kV line in very close proximity to residences and businesses that would be within the required ROW. In addition, this alternative would not reduce the potential for impacts associated with ground disturbance during construction. This alternative would have the same or greater impacts to archaeological, historical, and tribal cultural resources; as well as biological resources, and could increase impacts to other resources. For these reasons, this alternative is dismissed from further evaluation.

USE EXISTING 60 KV ROW

Description

This alternative would route the new 230 kV lines using an existing PG&E 60 kV power line ROW. This would be done either by constructing a new 230 kV line parallel to the existing 60 kV line, removing the 60 kV line to construct the new 230 kV line, or by placing both the 60 kV and 230 kV lines on the same structures (underbuild). Substation components would be the same as the project. Possible 60 kV line routes include PG&E Lockeford-Industrial 60 kV, PG&E Lockeford-Lodi No. 2 60 kV, PG&E Lockeford-Lodi No. 3 60 kV, and PG&E Industrial Tap 60 kV.

During project scoping, suggestions were also made by the public to place the new PG&E 230 kV lines on an existing 60 kV alignment using existing poles. However, there are no “empty” areas or framing on existing structures to locate new lines. Additionally, existing structures are not designed to support the weight of 230 kV lines and are not tall enough to achieve the required vertical clearance to ground. The existing PG&E 60 kV lines cannot be taken out of

service for more than approximately 4 to 5 months annually when the project service area load requirements can be supported with one PG&E 60 kV line offline. This is an insufficient period of time to remove a 60 kV line, construct a new double-circuit 230 kV line, and place the new 230 kV source into service. In addition, multiple circuits on a line can impact operations because all circuits on a line need to be taken offline for maintenance. Use of an existing 60 kV line was not evaluated as an alternative.

Discussion and Conclusion

This alternative would not meet the objectives of CPUC and PG&E and it is not technically feasible. Each existing PG&E 60 kV power line has large portions with insufficient ROW to accommodate the required ROW for a double-circuit 230 kV line. Proximity to roads, existing structures, and mature vegetation constrain expansion of 60 kV ROW. Avoiding the constraints by setting the 230 kV line back from the existing 60 kV line reduces the benefits of paralleling and increases the impacts that typically would be avoided or minimized by paralleling. Crossing back and forth across roads to achieve the required ROW clearance could be done but is not preferred from an engineering perspective. It also could substantially increase the height and number of structures required, increasing impacts and cost. Specific issues include the following:

- PG&E Lockeford-Industrial 60 kV to East Sargent Road Constraint (between Tecklenberg Road and North Curry Avenue). The majority of this PG&E line could be paralleled by a new 230 kV line by setting the new structures in fields adjacent to the 60 kV alignment. Where residential structures are located on both sides of East Sargent Road between Tecklenberg Road and North Curry Avenue, the existing 60 kV ROW mainly uses franchise rights, which are unlikely to also accommodate an adjacent 230 kV line. Routing a 230 kV line here would require a ROW width of at least 80 to 100 feet, but because the existing 60 kV ROW does not accommodate that width, the new 230 kV line would have to be engineered to zigzag across East Sargent Road. A new 230 kV line with 60 kV underbuild could be accommodated if structures were tall enough and a 60 kV shoofly was used during construction. The new tall 230 kV line segment with 60 kV underbuild would pass within approximately 40 to 50 feet of some of the residences and span several residential driveways. Zigzagging the line across East Sargent Road would be required to achieve adequate ROW clearance and would result in greater impacts to the residences on this section of East Sargent Road because of the shorter span length with increased angle pole height and width required; each crossing of the road requires a pole at each end.
- PG&E Industrial Tap 60 kV to Victor Road. The northern approximately 0.5 mile of the existing PG&E Industrial Tap 60 kV line would likely accommodate a parallel 230 kV line to the west. The final approximately 0.42 mile is constrained by a cemetery and East Lodi Avenue to the north and railroad tracks to the south. These constraints on the west end of the line do not allow for sufficient double circuit 230 kV line ROW.
- PG&E Lockeford-Lodi No. 3 60 kV. This route does not contain enough ROW width at the residential structures east of Bear Creek. Additionally, along East Harney Lane between SR 88 and SR 99, there are numerous residences, wineries, and industrial structures located on both north and south sides of the road. Because residences are located on both sides of East Harney Lane, the existing ROW crossing back and forth across the roadway and the existing ROW is mainly within franchise rights, which cannot accommodate the width needed for a double-circuit 230 kV line with the existing 60 kV line. Routing a 230 kV line here would require a ROW width of at least 80 to 100 feet, but because the existing ROW does not accommodate that width, the new 230 kV line would have to be engineered to zigzag across East Harney Lane. As noted previously, zigzagging the line would result in greater potential impacts to the residences on East Harney Lane because of the increase in poles required; each crossing of the road requires a taller pole at each end. Avoiding the constraints by setting the 230 kV line back from the existing lines and structures reduces the benefits of paralleling and increases the impacts that typically would be avoided or minimized by paralleling.
- PG&E Lockeford-Lodi No. 2 60 kV. This route parallels PG&E Sutter Home SW Sta to Lockeford Lodi 60kV line from PG&E Lockeford Station to approximately 860 feet north of SR 12, where it splits from PG&E Sutter 60 kV line. Paralleling this route would result in an additional 80 to 100 feet width of ROW for a new 230kV line for approximately 1.7 miles of the route, in addition to the existing ROW for the two existing 60 kV lines. The northern portion of the route would result in a significant number of water crossings of the Mokelumne River,

potentially up to nine river crossings. Paralleling this route could result in significant biological and riparian habitat impacts that would not occur with other alternatives.

For safety and reliability reasons, putting both lines on the same structures (underbuild) is not preferred, even if there was sufficient ROW. Multiple circuits on a line limit operations flexibility because all circuits on a line need to be taken offline for maintenance. Additionally, three circuits on a structure would create a single point of failure for all circuits and is a nonstandard design.

If it were technically feasible, this alternative would result in potentially greater impacts from placing a 230 kV line in very close proximity to residences and businesses that would be within the required ROW. In addition, this alternative would not reduce the potential for impacts associated with ground disturbance during construction. This alternative would have the same or greater impacts to archaeological, historical, and tribal cultural resources; as well as biological resources, and could increase impacts to other resources. For these reasons, this alternative is dismissed from further evaluation.

PARTIAL SITING ALTERNATIVES

Description

In addition to some of the alternatives discussed previously (East Kettleman Lane and Victor Road/SR 12), community stakeholders during PG&E's route development phase suggested use of other existing roadways as routing alternatives for a new PG&E 230 kV transmission line. The suggested roadways represent only a small portion of the overall needed alignment and not a full alternative; thus, by themselves, they were not considered as individual alternatives. In addition, existing structures and biological resources would constrain the space needed for a continuous ROW along these roads, and use of these roads would substantially increase the length of the transmission line, result in greater impacts, and be infeasible to construct.

Community-suggested roadways include the following:

- North Jack Tone Road, which runs north-south through the project area to the east of PG&E Lockeford Substation;
- East Harney Lane, which runs east-west in the study area between SR 99 and PG&E Brighton-Bellota 230 kV Line;
- East Turner Road, which runs east-west on the north side of the City of Lodi, west of North Guild Avenue;
- East Sargent Road, which runs east of the railroad tracks near SR 99 for approximately 0.63 mile, and is again a paved road for approximately 2.5 miles between Jack Tone Road and North Linn Road;
- Live Oak Road/East Live Oak Road, which in the study area runs east-west between SR 99 and North Tully Road;
- North Furry Road, which in the study area runs north-south to the east of SR 99 between East Hogan Lane and Live Oak Road; and
- Newfield Road, which in the study area is a nonpublic roadway that runs east-west just north of East Kettleman Lane between Alpine Road and North Tretheway Road.

Discussion and Conclusion

As noted above, these community-suggested roadways are dismissed from further evaluation because existing structures and biological resources would constrain the space needed for a continuous ROW along these roads and use of these roads would substantially increase the length of the transmission line, result in greater impacts, and be infeasible to construct.

6.3.3 Energy Storage Alternatives

BATTERY ENERGY STORAGE SOLUTION ONLY

Description

This battery energy storage solution (BESS) alternative would install two blocks of 50 megawatt (MW) batteries and a new PG&E 60 kV switching substation at LEU Industrial Substation. No changes or additions to power or transmission lines would be included.

Public and Agency Comments

CAISO received this as a non-participating transmission owner submittal regarding Lockeford-Lodi area reliability issues, as listed in the 2017-2018 CAISO Transmission Plan (CAISO 2018). In 2017, CAISO evaluated the NEER - Lodi 40MW BESS Project as an alternative and determined that, while it would address thermal overloads, there were other lower-cost alternatives. This alternative was requested by CPUC to be considered by PG&E.

Discussion and Conclusion

This alternative would not meet the objectives of CPUC or PG&E, including mitigating thermal overloads and meeting PG&E's legal obligations. The batteries cannot be charged enough to meet peak demand and mitigate the overloads under the NERC P1 category contingency. Although this alternative appears potentially feasible, there is some uncertainty given the unknown timeline for a BESS to be built, which would be done by a third party selected by CAISO through a competitive bid process. There is also a lack of a clear standard for battery sizing. Impacts would be less than the project because no new 230 kV lines would be constructed; however, there would be environmental impacts associated with installing an operating a BESS.

This alternative is dismissed from further evaluation because it would not meet most of the project objectives, including mitigating thermal overloads and meeting PG&E's legal obligations, and the feasibility of the alternative satisfying the projected electrical demand of the region in a timely manner is considered speculative.

HYBRID BATTERY ENERGY STORAGE SOLUTION

Description

In the Proponent's Environmental Assessment prepared for the project, PG&E considered whether reconductoring existing PG&E 60 kV lines and installing a BESS would be a feasible project alternative. Specific components of this alternative included the following:

- two blocks of 40 MW BESS at LEU Industrial Substation;
- a new PG&E 60 kV switching substation for BESS interconnection to LEU Industrial Substation;
- acquisition of approximately 4 acres of land at LEU Industrial Substation;
- new PG&E 230 kV transmission line (approximately 3.8 miles long) to connect the existing PG&E Brighton-Bellota 230 kV Line to PG&E Lockeford 230 kV Substation; the alignment would be the same as the project;
- reconductoring approximately 13.67 miles of PG&E 60 kV Lines with new poles and some switches; and
- replacing limiting terminal equipment at the PG&E Lockeford and PG&E Lodi substations.

Discussion and Conclusion

The BESS Hybrid Alternative would not meet the objectives of CPUC or PG&E, including mitigating thermal overloads and meeting PG&E's legal obligations. The system would require further upgrades within approximately 10 years; thus, it would not accommodate projected growth in demand beyond approximately 10 years. Although this alternative appears potentially feasible, there is some uncertainty. The battery would be built by a third party selected

by CAISO with unknown cost. The dependency between the PG&E 60 kV line reconductoring and the battery development, which a third party would lead, creates uncertainty with the in-service timing of both Hybrid BESS Alternative components to mitigate the NERC P1 category contingency. For example, if the PG&E 60 kV line reconductoring was completed before the battery was installed, PG&E Lockeford-Lodi 60 kV system would still have thermal overloads risk under the NERC P1 category contingencies. Impacts would likely be similar to the project based on reconductoring and replacement of 60 kV poles. Nonetheless, this alternative is dismissed from further evaluation because it would not meet most of the project objectives, including mitigating thermal overloads and meeting PG&E's legal obligations, the feasibility of the alternative satisfying the projected electrical demand of the region in a timely manner is considered speculative, and the alternative would have similar impacts to archaeological, historical, and tribal cultural resources; as well as biological resources.

6.3.4 Demand Response Alternatives

DISTRIBUTION ENERGY RESOURCES IMPROVEMENT

Description

This alternative would implement improvements to reduce electrical system demand (such as distributed generation, energy efficiency, and demand response).

Discussion and Conclusion

This alternative would not meet most of the project objectives of CPUC or PG&E because it would not be technically feasible to reduce electrical system demand sufficiently to meet project objectives. The potential environmental impacts of this alternative and how they would compare with those of the project cannot be determined because the exact improvements are unknown.

As a general matter, a distribution energy resources improvement (DERI) alternative would be inconsistent with the project scope identified by CAISO, which is to bring a new 230 kV source into the City of Lodi. In addition, DERI alternatives cannot achieve sufficient load reduction to rectify the voltage issues and thermal overloads occurring on PG&E's 60 kV system during Category P1 and P6 contingency scenarios. Moreover, even if DERI alternatives could achieve the necessary load reduction to mitigate current voltage issues and thermal overloads, a significant portion of the load reduction that would need to be achieved by DERI alternatives would have to be implemented by a third party, the City of Lodi. Given that the City of Lodi is not subject to PG&E's control, and that LEU is not subject to CPUC's jurisdiction, there is no legal mechanism available in this CPCN proceeding to mandate that the City of Lodi or LEU implement DERI alternatives.

Based on how the forecasted load is distributed on PG&E's and LEU's 60 kV substations in the northern San Joaquin County area, the only practicable means of achieving sufficient load reduction on PG&E's existing 60 kV system must include reducing the load on LEU's Industrial Substation (PG&E 2023b). PG&E does not control LEU and cannot modify LEU's electrical grid to reduce load on Industrial Substation. Likewise, CPUC does not have jurisdiction over LEU and cannot require LEU to modify its electrical grid, including to undertake DERI alternatives, that would reduce load on Industrial Substation. Because implementation of DERI alternatives on PG&E's 60 kV system cannot solve the current reliability issue and there is no legal means for PG&E or CPUC to require LEU to implement DERI alternatives, DERI alternatives are not a potentially feasible alternative to the project. Implementation of the alternative to reduce impacts is considered speculative.

Additionally, load relief must be instantaneous and dependable, and the required amount would depend on the grid's operating condition at any given moment. Solar generation is limited by time and weather. In 2035, the peak demand hour will be 7 p.m., which will not coincide with peak solar production unless there is adequate storage to compensate (PG&E 2023b). The proposed new 230 kV source to feed LEU's Industrial Substation will be instantaneous and dependable.

The City of Lodi also provided data regarding the infeasibility of a DERI or non-wire alternative (Shahriar, pers. comm., 2024), which is summarized here. According to the City's records, the City recorded a peak summer load of 143 MW in 2022. Projections from the Northern California Power Agency estimate that within a 20-year timeframe, the peak load for the City of Lodi will increase to approximately 200 MW. A non-wire alternative would involve constructing a new 200 MW utility-grade solar system with battery backup within Lodi. According to the City of Lodi, this alternative is not feasible because of land requirements and infrastructure cost. First, according to the National Renewable Energy Laboratory (NREL 2013: Table ES-1, cited in Shahriar, pers. comm., 2024), approximately 7.2 acres of land are required per MW of solar panels for large photovoltaic (PV) systems (greater than 20 MW). Thus, a new PV system would necessitate approximately 1,440 acres (equivalent to 2.25 square miles) of land. Additionally, a substantial amount of land would be needed for the associated battery storage system. Given that the total land area of the city is 13.8 square miles, implementing such a system would not be feasible. Secondly, according to NREL (2023, cited in Shahriar, pers. comm., 2024), the capital expenditure for a utility-scale solar system is approximately $1,350/kilowatt. Therefore, a new 200 MW solar system would cost approximately $270 million for infrastructure alone, excluding land acquisition. It is reasonable to estimate that a 60-MW 10-hour duration lithium battery system would be needed to support the 200 MW solar system. According to NREL (2023: Figure 2, cited in Shahriar, pers. comm., 2024), the capital expenditure for a battery system of this size is $3,384/kW. Therefore, a new 60-MW battery system would cost approximately $200 million in infrastructure costs, excluding land acquisition. The total infrastructure cost (excluding land acquisition) to build the 200 MW utility-grade solar system with battery backup would be approximately $470 million; compared to approximately $30 million for the new LEU Guild Substation proposed as part of the project.

For the above reasons, DERI alternatives are dismissed from further evaluation.

6.4 ALTERNATIVES EVALUATED IN DETAIL IN THIS EIR

The following reasonable range of alternatives has been evaluated in detail in this Draft EIR.

- Alternative 1: No Project Alternative assumes the continuation of baseline conditions. There would be no new 230 kV transmission lines or associated substation facilities, updates to PG&E's system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), or new 6-foot dish antennas installed on an existing microwave tower. The project site would remain in its current condition.
- Alternative 2: Central Route Alternative would involve routing the western portion of the new 230 kV line to the north of the proposed project alignment between PG&E Lockeford Substation and LEU Industrial Substation. It would parallel portions of the existing PG&E Lockeford-Industrial 60 kV Line. For the eastern segment between PG&E Lockeford Substation and PG&E Brighton-Bellota 230 kV Line, this alternative would parallel the existing PG&E Lockeford-Bellota 230 kV Line, the same eastern alignment as the project. The total length of new PG&E 230 kV transmission lines would be approximately 10.04 miles. All other components of this alternative would be the same as the project.
- Alternative 3: Northern Route Alternative would involve routing the western portion of the new 230 kV corridor, between PG&E Lockeford Substation and LEU Industrial Substation, to the north of the proposed project alignment. It would parallel portions of the existing PG&E Lockeford-Industrial 60 kV Line on the western segment. Most of the eastern portion of the Northern Route Alternative 230 kV transmission line would be the same as the project. Approximately 1 mile west of PG&E Brighton-Bellota 230 kV Line (approximately 0.25 mile west of North Linn Road), the corridor would turn north and then east on East Sargent Road. The total length of new PG&E 230 kV transmission lines would be approximately 10.39 miles. All other components of this alternative would be the same as the project.

Further details on each of these alternatives, including an evaluation of their environmental effects relative to the proposed project, are provided below.

6.4.1 Alternative 1: No Project Alternative

The State CEQA Guidelines (CCR Section 15126.6[e]) state that the "alternative of 'no project' shall also be evaluated along with its impact." The purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving a proposed project with the impacts of not approving the proposed project. If the no project alternative is the environmentally superior alternative, CEQA requires that the EIR "…shall also identify an environmentally superior alternative among the other alternatives." (14 CCR Section 15126[e][2]).

The No Project Alternative assumes the continuation of baseline conditions. Under the No Project Alternative, no new 230 kV transmission lines or associated substations would be constructed. Additionally, PG&E would not update its system protection scheme at four remote-end substations (Bellota, Brighton, Lodi, and Rio Oso), nor would it install two 6-foot dish antennas on an existing microwave tower at the existing Clayton Hill Repeater Station (on a communication tower) in Contra Costa County to create a new digital microwave path allowing redundant communication into PG&E Thurman Switching Station in support of PG&E's system protection scheme.

DISCUSSION

Aesthetics

Because no development would occur under the No Project Alternative, it would not result in any changes to the existing visual character or quality of the project area and surrounding area, result in substantial adverse effects on scenic vistas, substantially damage scenic resources within a State Scenic Highway, or create new sources of substantial light or glare. As such, the No Project Alternative would result in no impact on aesthetics. Therefore, aesthetics impacts under the No Project Alternative would be reduced compared to the project's less than significant aesthetics impacts.

Agriculture

There would be no development under the No Project Alternative that would have the potential to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Important Farmland) to non-agricultural use; conflict with existing zoning for agricultural use or a Williamson Act contract; conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production; result in the loss or conversion of forest land to non-forest uses; or result in the conversion of Farmland to non-agricultural use. As such, the No Project Alternative would result in no impact on agricultural or forestry resources. Therefore, impact to agricultural and forestry resources under the No Project Alternative would be reduced compared to the project's less than significant impacts on agricultural and forestry resources.

Air Quality

The No Project Alternative would not include any construction or operational activities that would conflict with or obstruct implementation of applicable air quality plans, generate criteria pollutant or toxic air contaminant emissions, expose sensitive receptors to substantial pollutant concentrations, or result in other emissions (such as those leading to odors). As such, the No Project Alternative would result in no impact on air quality. Therefore, air quality impacts under the No Project Alternative would be reduced compared to the project's less than significant impacts on air quality.

Archaeological, Historical, and Tribal Cultural Resources

The No Project Alternative would not involve ground-disturbing activities; therefore, no impacts would occur on archeological, historical, or tribal cultural resources. The No Project Alternative would avoid the project's potentially significant, but mitigable, impacts on archaeological and tribal cultural resources. Therefore, archeological, historical, or tribal cultural resources impacts under the No Project Alternative would be reduced compared to the project.

Biological Resources

The No Project Alternative would not involve ground-disturbing activities; therefore, no impacts would occur on biological resources. The No Project Alternative would avoid the project's potentially significant, but mitigable, impacts on special-status plants, special-status wildlife, sensitive natural communities, and native wildlife nursery sites. Therefore, biological resources impacts under the No Project Alternative would be reduced compared to the project.

Energy

The No Project Alternative would not include any construction activities that would consume energy and have the potential to result in inefficient, wasteful, or unnecessary consumption of energy resources or conflict with or obstruct state or local plans for renewable energy or energy efficiency. However, the No Project Alterantive also would not support state and local plans for renewable energy and energy efficiency because it would not result in improvements to the state's electrical infrastructure that support the transition to efficient and more renewable energy sources, as identified in the California Air Resources Board's *Final 2022 Scoping Plan for Achieving Carbon Neutrality* (2022 Scoping Plan). Capacity and reliability improvements are necessary for transportation electrification and building decarbonization. The No Project Alternative would not support this transition, but would also not directly conflict with or obstruct the implementation of adopted plans. Therefore, energy impacts under the No Project Alternative would be greater than the project's but would remain less than significant.

Geology, Soils, and Mineral Resources

Because no development or ground disturbance would occur under the No Project Alternative, it would not have the potential to exacerbate existing geologic hazards or soil conditions or result in the loss of mineral resources. As such, the No Project Alternative would result in no impact related to geology, soils, and mineral resources. Therefore, geology, soils, and mineral resources impacts under the No Project Alternative would be reduced compared to the project's less than significant geology, soils, and mineral resources impacts.

Greenhouse Gas Emissions

The No Project Alternative would not include any construction or operational activities that would generate GHG emissions or conflict with adopted plans or policies related to GHG emissions reductions. As such, the No Project Alternative would result in no impact related to GHG emissions. However, the No Project Alterantive would not result in improvements to the state's electrical infrastructure that support the transition to efficient and more renewable energy sources with the potential to reduce the cumulative contributions of the GHG emissions in northern San Joaquin County. Therefore, GHG emissions impacts under the No Project Alternative would be reduced compared to the project's less than significant GHG emissions impacts.

Hazards and Hazardous Materials

The No Project Alternative would not involve any construction or operational activities that would have the potential to create a significant hazard to the public from the routine transport, use, and disposal of hazardous materials; create a hazard to human health and the environment through reasonably foreseeable upset and accident conditions; impair or interfere with an adopted emergency response plan or emergency evacuation plan; or expose people or structures to a significant risk of loss, injury, or death from wildland fires. As such, the No Project Alternative would result in no impact related to hazards and hazardous materials. Therefore, hazards and hazardous materials impacts under the No Project Alternative would be reduced compared to the project's less than significant hazards and hazardous materials impacts.

Hydrology and Water Quality

Because no development or ground-disturbance would occur under the No Project Alternative, it would not involve any activities that would have the potential to degrade water quality; decrease groundwater supplies or interfere with groundwater recharge; alter existing drainage patterns; or conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. As such, the No Project Alternative would result in no impact related to hydrology and water quality. Therefore, hydrology and water quality impacts under the No Project Alternative would be reduced compared to the project's less than significant hydrology and water quality impacts.

Land Use and Planning

The No Project Alternative would not include any development, and therefore would not have the potential to physically divide an established community or cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. As such, the No Project Alternative would result in no impact related to land use and planning. Therefore, land use and planning impacts under the No Project Alternative would be reduced compared to the project's less than significant land use and planning impacts.

Noise

The No Project Alternative would not involve any construction activities that could generate noise levels in exceedance of applicable noise standards or generate groundborne vibration. As such, the No Project Alternative would result in no noise impacts. Therefore, noise impacts under the No Project Alternative would be reduced compared to the project's less than significant noise impacts.

Population, Employment, and Housing

Under the No Project Alternative, there would be no construction or operational activities that would have the potential to directly or indirectly induce substantial unplanned population growth from new housing, businesses, or other land use changes, nor would there be any development that could displace substantial numbers of existing people or homes, necessitating the construction of replacement housing elsewhere. As such, the No Project Alternative would result in no impact related to population, employment, and housing. Therefore, population, employment, and housing impacts under the No Project Alternative would be reduced compared to the project's less than significant population, employment, and housing impacts.

Public Services and Recreation

The No Project Alternative assumes the continuation of baseline conditions with no development of the project area. Because no development would occur under the No Project Alternative, it would not increase the demand on public services or recreational facilities such that new or expanded facilities would be required, the construction of which could result in significant environmental impacts. As such, the No Project Alternative would result in no impact on public services and recreation. Therefore, public services and recreation impacts under the No Project Alternative would be reduced compared to the project's less than significant impacts on public services and recreation.

Transportation

The No Project Alternative would not involve any construction or operational activities that would have the potential to conflict with applicable plans, programs, or policies addressing the circulation system or generate levels of VMT that would conflict or be inconsistent with State CEQA Guidelines Section 15064.3(b), nor would it result in development that could substantially increase hazards or result in inadequate emergency access. As such, the No Project Alternative would result in no impact related to transportation. Therefore, transportation impacts under the No Project Alternative would be reduced compared to the project's less than significant transportation impacts.

Utilities and Service Systems

Under the No Project Alternative, there would be no development that could increase the demand on utilities and service systems such that new or expanded facilities would be required, the construction of which could result in significant environmental impacts. Additionally, the No Project Alternative would not involve any construction or operational activities that would increase the demand on existing and projected water supply or generate solid waste in excess of landfill capacity. As such, the No Project Alternative would result in no impact on utilities and service systems. Therefore, utilities and service system-related impacts under the No Project Alternative would be reduced compared to the project's less than significant impacts on utilities and service systems.

Wildfire

The No Project Alternative assumes the continuation of baseline conditions with no development of the project area. Because no development would occur under the No Project Alternative, it would not involve any construction or

operational activities that would have the potential to exacerbate existing wildfire and post-wildfire hazards. As such, the No Project Alternative would result in no impact related to wildfire and impacts under the No Project Alternative would be reduced compared to the project's less than significant wildfire impacts.

CONCLUSION

The No Project Alternative would generally reduce or eliminate the potential environmental effects that would result from the project. However, none of the project objectives would be met. Existing thermal overload and voltage issues would continue, the system would be inadequate to meet anticipated demand for electrical distribution, and separation of the PG&E and LEU 60 kV systems would not be completed.

6.4.2 Alternative 2: Central Route Alternative

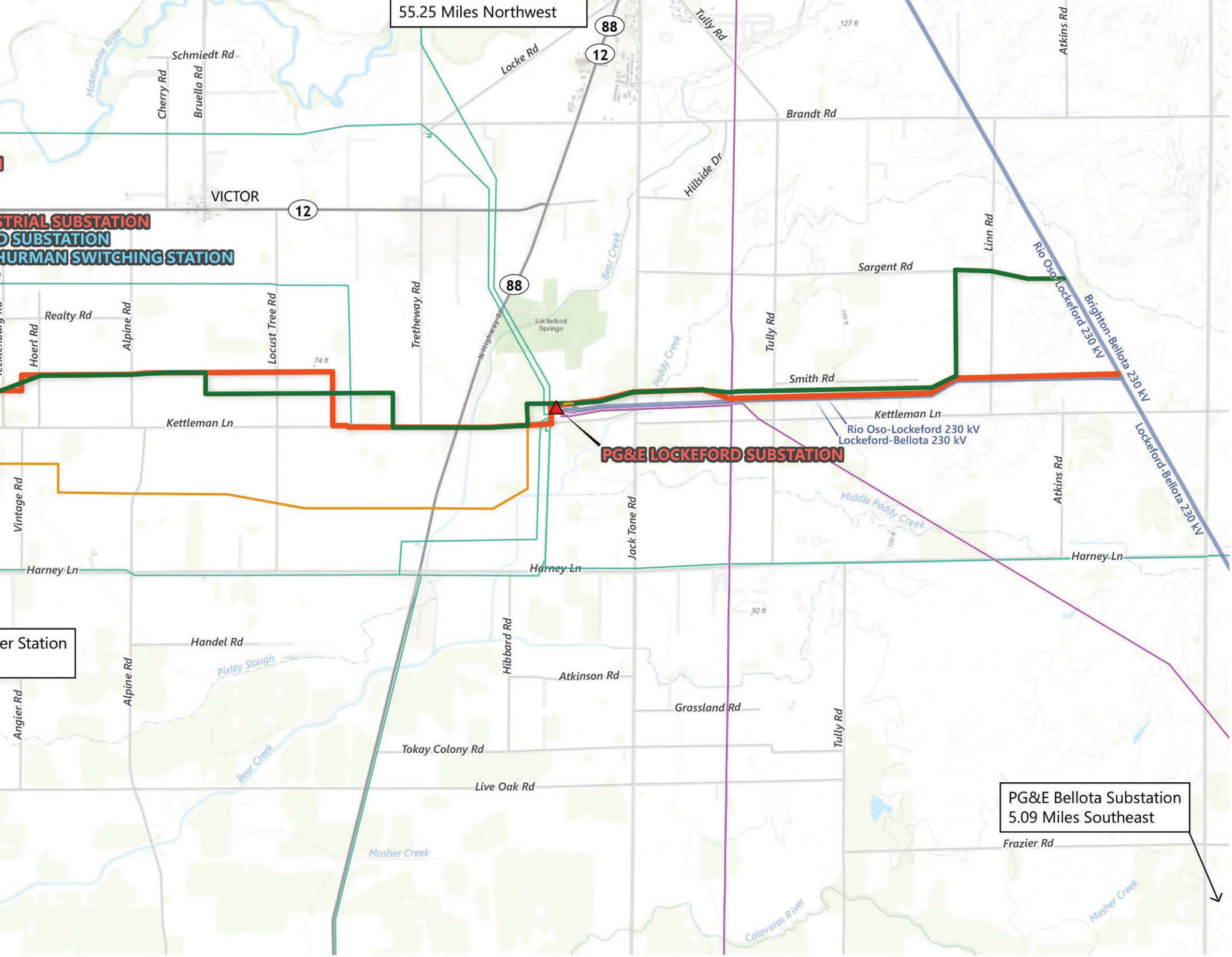
The Central Route Alternative would route the western portion of the new 230 kV line between PG&E Lockeford Substation and LEU Industrial Substation to the north of the proposed project, as shown on Figure 6-2. It would parallel portions of the existing PG&E Lockeford-Industrial 60 kV Line. For the eastern segment between PG&E Lockeford Substation and PG&E Brighton-Bellota 230 kV Line, this alternative would have the same eastern alignment as the project parallel the existing PG&E Lockeford-Bellota 230 kV Line. The total length of new PG&E 230 kV transmission lines would be approximately 10.04 miles.

Within the footprint of the Central Route Alternative, land is in orchard and semiagricultural use, including wineries, with rural residential clusters mainly on local and county roads with mature vegetation. Like the project, the Central Route Alternative includes one canal crossing (Bear Creek), one highway crossing (SR 88), one railroad crossing, and multiple road crossings. The Central Route Alternative would enter the City of Lodi approximately 0.5 mile south of the proposed project and follow South Guild Avenue north to the PG&E Thurman Switching Station. Some of the 230 kV tubular steel pole structures would likely need to be located in business parking lots fronting South Guild Avenue.

All other components of this alternative would be the same as the project, including:

- PG&E Thurman Switching Station,
- LEU Guild Substation,
- PG&E and LEU Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines,
- LEU Guild-Industrial 60 kV No. 1 and No. 2 Power Lines, and
- PG&E 60 kV power lines reconfiguration.

In general, construction activities for the Central Route Alternative would be similar to the project, including the types of equipment to be used in each phase of construction and hours per day that equipment would be used during construction (refer to Chapter 2, "Project Description," of this Draft EIR). Substation construction activities would be the same as the project. Construction staging areas, pull-and-tension sites, and access roads were not identified for this alternative, but would be expected to be similar to, and at the same scale as, the project.


55.25 Miles Northwest
88
12
Schmiedt Rd
Cherry Rd
Bruella Rd
Locke Rd
Tully Rd
Atkins Rd
Brandt Rd
Hillside Dr
VICTOR
12
STRIAL SUBSTATION
D SUBSTATION
HURMAN SWITCHING STATION
88
Realty Rd
Hoerl Rd
Alpine Rd
Locust Tree Rd
Treweway Rd
N Highway 99
Bear Creek
Lockeford Springs
Paddy Creek
Tully Rd
Linn Rd
Sargent Rd
Rio Oso-Lockeford 230 kV
Brighton-Bellota 230 kV
Smith Rd
Kettleman Ln
Rio Oso-Lockeford 230 kV
Lockeford-Bellota 230 kV
PG&E LOCKEFORD SUBSTATION
Lockeford-Bellota 230 kV
Atkins Rd
Middle Paddy Creek
Vintage Rd
Jack Tone Rd
Harney Ln
Harney Ln
Harney Ln
er Station
Handel Rd
Pixley Slough
Alpine Rd
Hibbard Rd
Atkinson Rd
Grassland Rd
Angier Rd
Tokay Colony Rd
Tully Rd
Bear Creek
Live Oak Rd
PG&E Bellota Substation
5.09 Miles Southeast
Frazier Rd
Mosher Creek
Calaveras River
Mosher Creek
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1901

DISCUSSION

Aesthetics

Under the Central Route Alternative, the corridor for the western segment of the new 230 kV line would be approximately 1 mile north of the project corridor. As shown in Figure 6-2, this alignment would more closely align with Kettleman Lane than the proposed project. The vegetation in the vicinity of the Central Route 230 kV transmission line includes vineyards, orchards, forage cropland, and other agricultural crops, as well as grassland and riparian corridors. Scattered stands of mature trees, both native and introduced, are located along many of the area roadways and surrounding most residences, which generally consist of isolated rural houses with associated farm buildings. The eastern segment of the new 230 kV transmission line would be the same as the proposed project, with the same location and environmental setting. Substation components of this alternative are the same as the proposed project and are, therefore, in the same locations with the same environmental setting as the proposed project.

As with the proposed project, there are no scenic vistas in the Central Route Alternative viewshed, other than the summit of Mount Diablo, a scenic vista point, and modifications resulting from the alternative would not be noticeable at this distance. The alternative would not obstruct views to the Coast Range and Sierra Nevada Range or to nearby rivers. Local scenic roadways in the vicinity of this alternative include North Jack Tone Road, Clements (Liberty) Road, and SR 88. Based on typical highway speeds, and because of the presence of other utility lines and distances of the 230 kV transmission line from the roadways, the alternative would not have a significant effect on views from SR 12 and SR 88, although it would be nearer, and hence more visible from, the designated scenic portion of SR 88 than the project. Portions of the new 230 kV transmission line would be visible from San Joaquin County scenic routes, including Clements Road and North Jack Tone Road, in the context of multiple existing transmission lines that closely parallel this alternative's route. The Central Route Alternative would parallel existing transmissions lines for a slightly greater length than the proposed project does. The Central Route Alternative would cross North Jack Tone Road in the same location as the proposed project.

It is expected that, similar to the project, new transmission structures would be noticeable to varying degrees. However, because the 230 kV alignment would be closer to Kettleman Lane with the implementation of this alternative, it would be more visible to the general public. In addition, eighteen residences (but no wineries) would be within 250 feet of the 10.04-mile transmission line corridor. Permanent visual change resulting from modifications to the existing PG&E Lockeford Substation and new PG&E Thurman Switching Station sites would be the same as for the proposed project; modifications would be noticeable but largely incremental and would not substantially alter or degrade the existing visual character of the landscape in these areas.

Overall, the Central Route Alternative would result in a less-than-significant impact on aesthetics. However, because the transmission line would appear more prominent from publicly accessible vantage points, the change to the visual character and quality of public views of the infrastructure and its surroundings would be more pronounced than with the project alignment. Therefore, aesthetics impacts under the Central Route Alternative would be greater than the proposed project's less-than-significant aesthetics impacts.

Agriculture

The environmental setting for agriculture and forestry resources for the Central Route Alternative is similar to the proposed project setting. The footprint of this alternative does not contain any forest land, the same as the proposed project. The corridor for the western segment of the new 230 kV line would be approximately 1 mile north of the project corridor through existing vineyards, orchards, forage cropland, and other agricultural crops. The eastern segment of the new 230 kV transmission line would be the same as the proposed project, with the same location and environmental setting. Substation components of this alternative are the same as the proposed project and are, therefore, in the same locations with the same environmental setting as the proposed project.

Under this alternative, the construction of the new PG&E transmission line poles is estimated to permanently convert approximately 0.37 acre of Prime Farmland (compared to 0.44 for the proposed project), approximately 0.23 acre of

Unique Farmland (compared to 0.16 for the proposed project), and approximately 0.08 acre of Farmland of Statewide Importance (compared to 0.14 for the proposed project) to nonagricultural uses associated with electrical infrastructure. The modification of the existing PG&E Lockeford Substation would permanently convert approximately 0.49 acre of Prime Farmland and approximately 0.18 acre of Farmland of Statewide Importance to accommodate the expanded footprint on the north side of the existing facilities fence line, which is the same as the proposed project. A total of approximately 1.35 acres of Important Farmland is estimated to be permanently converted to nonagricultural use. This is 0.06 acre less than the proposed project footprint. Similar to the proposed project, construction activities of the Central Route Alternative are expected to temporarily impact lands under Williamson Act contracts. Permanent conversion would not result in reduction of any designated parcel to below the 10-acre minimum used in classification and this impact would be less than significant. Therefore, although slightly reduced effects on agricultural land conversion are anticipated under this alternative, the overall impacts to Farmland would be similar to the proposed project's less-than-significant impact.

Air Quality

The Central Route Alternative would be of similar length and design as the proposed project, proximate to roughly the same number of sensitive receptors, and would operate in the same fashion described for the project. As described for the project in Section 3.4, "Air Quality," neither construction nor O&M of the PG&E and LEU portions of the project would result in emissions of criteria pollutants in excess of SJVAPCD's annual or daily emissions thresholds, which were developed in consideration of State and regional air quality planning. In addition, like the project, construction and O&M would not result in the prolonged exposure of sensitive receptors to substantial concentrations of toxic air contaminants. As such, the Central Route Alternative would result in less-than-significant impacts on air quality. Therefore, air quality impacts under the Central Route Alternative would be similar to the proposed project's less-than-significant impacts on air quality.

Archaeological, Historical, and Tribal Cultural Resources

As with the proposed project, the Central Route Alternative would require earth-moving and excavation that could impact undiscovered and unevaluated archaeological resources. As described for the proposed project, Mitigation Measures 3.5-1 and 3.5-2 would reduce impacts to archaeological resources by establishing protective fencing around unevaluated archaeological resources within which ground disturbance would not occur, and would provide the necessary procedures to be followed for inadvertent discoveries. With implementation of these measures, the Central Route Alternative (like the proposed project) would not cause a substantial adverse change in the significance of any archeological resource. Also like the proposed project, there are no components of the Central Route Alternative with the potential to directly alter any historical resource or substantially change any of the character-defining features that contribute to the historic significance of historical resources.

The Central Route Alternative would also be located in an area with the same tribal affiliation as the project area. As described in Section 3.5, "Archeological, Historical, and Tribal Cultural Resources," CPUC sent letters inviting tribal consultation to three tribes; no responses were received. No tribal cultural resources, as defined by CEQA Section 21074, have been identified. However, it is possible that tribal cultural resources could be identified and damaged during ground-disturbing activities. As described for the proposed project, implementation of Mitigation Measure 3.5-3 would reduce impacts associated with tribal cultural resources to a less-than-significant level by requiring appropriate treatment and proper care of significant tribal cultural resources, in accordance with the wishes of the geographically and culturally affiliated tribe, in the case of a discovery. Therefore, impacts under the Central Route Alternative would be similar to the proposed project's less-than-significant impacts on archaeological, historical, and tribal cultural resources.

Biological Resources

The environmental setting for biological resources for the Central Route Alternative is similar to the proposed project setting. The corridor for the western segment of the new 230 kV line would be approximately 1 mile north of the proposed project corridor, through similar topography and habitats as the proposed project. The eastern segment of the new 230 kV transmission line would be in the same location as the proposed project, with the same location and

environmental setting. Substation components of this alternative are the same as the proposed project and are, therefore, in the same locations with the same environmental setting as the proposed project.

Similar to the proposed project, the upland areas along and near the Central Route Alternative are primarily hardscaped (pavement and sidewalks), otherwise developed/landscaped, agricultural land, or previously disturbed land that supports primarily ruderal or non-native species. The Central Route Alternative location was included in the area of the CNDDB and CNPS database searches. Given the similar habitats, it is expected that the same special-status species would potentially be present for the Central Route Alternative as for the proposed project. Seasonal wetlands, Bear Creek and Paddy Creek, constructed watercourses, and drainage ditches also are present along or near the Central Route Alternative.

Impacts to biological resources from the Central Route Alternative would be expected to be similar to the proposed project and be less than significant with incorporation of the mitigation identified for the project. New transmission line poles are assumed to be sited to avoid rare plants, riparian habitat, seasonal wetlands, Bear Creek and Paddy Creek, constructed watercourses, and drainage ditches. Trimming or removal of oaks may be necessary for construction access and would be conducted by a certified arborist to avoid impacting tree health or to make the decision to remove the tree if trimming is not feasible. The same APMs and BMPs as the proposed project, such as avoiding and protecting nesting birds, and the mitigation measure identified for the project would be implemented to avoid significant impacts to special-status wildlife species. As described for the proposed project, PG&E would minimize the potential for electrocution or accidental line collision by constructing electrical lines in accordance with avian-safe construction standards. Therefore, impacts under the Central Route Alternative would be similar to the proposed project's less-than-significant impacts on biological resources.

Energy

The energy used to construct the Central Route Alternative would be the same as described for the proposed project in Section 3.7, "Energy," of this EIR. Construction-related fuel consumption would serve the purpose of improving the state's electric grid and providing reliable power, and fuel consumed during operation would be used for the purpose of maintaining critical electrical infrastructure equipment. For the same reasons identified for the proposed project, construction and operation of this alternative would not result in inefficient, wasteful, or unnecessary consumption of energy resources. Also like the project, the Central Route Alternative would align with the goals of the 2022 Scoping Plan and the California Energy Commission's Integrated Energy Policy Report to improve grid reliability and resilience by increasing grid capacity to accommodate additional energy demand. Therefore, the alternative would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts under the Central Route Alternative would be similar to the proposed project's less-than-significant energy impacts.

Geology, Soils, and Mineral Resources

Although the corridor for the western segment of the new 230 kV line would be approximately 1 mile north of the proposed project corridor under the Central Route Alternative, the potential to result in geologic hazards related to liquefaction, erosion, unstable geologic units, and expansive soils would be similar to the proposed project. As described in Section 3.8, "Geology, Soils, and Mineral Resources," compliance with the California Building Code (CBC) would ensure that construction of the project components would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction. Similarly, established regulations would address the potential for substantial erosion to occur as a result of the alternative.

Although the project area is not within a known area of liquefaction hazards and the geotechnical reports prepared for the project (Burns & McDonnell 2020; Kleinfelder 2019a; Kleinfelder 2019b) conclude that liquefaction potential is considered negligible, sandy and loamy soils comprise most of the soils underlying the project area, which could be susceptible to liquefaction if the soils become saturated. As described for the project, compliance with the CBC and the implementation of APM GEO-1 and BMP GEO-1 would avoid, accommodate, replace, or improve soft or loose soils encountered to ensure that construction of the project would not result in on- or off-site lateral spreading, liquefaction, or collapse from being located on geologic unit that is unstable or become unstable as a result of the project. Once the project is operational, PG&E and LEU O&M would not include any activities that would exacerbate these hazards.

With respect to paleontological resources, construction of the alternative would occur in areas underlain by geologic units that range from low to moderate paleontological sensitivity. Specifically, geologic units in association with the Modesto Formation have a low to moderate paleontological sensitivity, with moderate sensitivity beginning at a depth of 30 feet. Geologic units in association with the Turlock Lake Formation and Riverbank Formation have a moderate paleontological sensitivity. Potential direct and indirect impacts to paleontological resources resulting from construction would be avoided with the implementation of APM PAL-1 through APM PAL-4 and BMP PAL-1 through BMP PAL-4, which include requirements for protecting paleontological resources. As such, the Central Route Alternative would result in a less-than-significant impact related to geology, soils, and mineral resources. Therefore, the effects of the Central Route Alternative would be similar to the proposed project's less-than-significant impacts.

Greenhouse Gas Emissions

The Central Route Alternative is a siting alternative that would not substantially change construction practices or O&M activities. For the same reasons disclosed for the project, the Central Route Alternative would align with the goals of the 2022 Scoping Plan to improve grid reliability and resilience by increasing grid capacity to accommodate additional energy demand, the transition to renewable energy systems, updated existing energy facilities, and an increased number of efficient energy storage and transmission systems. This impact would be less than significant. Therefore, the effects of the Central Route Alternative would be similar to the proposed project's less-than-significant impacts related to greenhouse gas emissions.

Hazards and Hazardous Materials

The Central Route Alternative is a siting alternative that would not substantially change construction practices or O&M activities. Like the project, construction of the alternative would require the use of motorized heavy equipment that would use potentially hazardous materials. It is assumed that the APMs and BMPs incorporated into the project to train workers and prepare for an accidental spill would also be incorporated into the alternative. Current and updated HMBPs and SPCCs to address the potential release of hazardous materials in upset or accident conditions would be implemented. Implementation of these policies would protect the public, crews, and the environment from hazardous materials during construction and O&M. Similarly, past uses of the properties in the area may have generated localized areas of undocumented contamination. However, as discussed for the proposed project, implementation of the APMs and BMPs would reduce the potential for disturbance of contaminated soil or groundwater to result in a significant hazard to the public or the environment. As a result, the impact on the public and the environment from exposure to these unknown hazardous materials and other hazards during construction, or from accidental release of hazardous materials during construction or operation of the project would be less than significant. There would be no substantial difference in the potential for interference with adopted emergency response or evaluation plans, exposure to wildfire hazards, or expose to shock hazards. Therefore, the effects of the Central Route Alternative would be similar to the proposed project's less-than-significant impacts related to hazards and hazardous materials.

Hydrology and Water Quality

Similar to the proposed project, new transmission line poles for the western segment of the new 230 kV line under the Central Route Alternative are assumed to be sited to avoid rare plants, riparian habitat, seasonal wetlands, Bear Creek and Paddy Creek, constructed watercourses, and drainage ditches. All activities that pose a risk to water quality would occur in compliance with the Construction General Permit, Stormwater Pollution Prevention Plan, MS4 Permit stormwater discharge requirements, and Policy S-P5 from the City of Lodi General Plan. Implementing the project would not violate water quality standards or waste discharge requirements during construction or O&M. The use of water for dust suppression and generation of impervious surfaces would be similar to the proposed project. Impacts to hydrology and water quality from the Central Route Alternative would be less than significant. Therefore, impacts under the Central Route Alternative would be similar to the proposed project's less-than-significant hydrology and water quality impacts.

Land Use and Planning

The new 230 kV transmission line for this alternative would be located in an area designated as General Agriculture land use per the *San Joaquin County General Plan*, other than crossings of Bear Creek and Paddy Creek, which are designated as Open Space/Resource Conservation. The transmission line would be located in General Agriculture

zoning per the *San Joaquin County Municipal Code*. Facilities within the City of Lodi boundary would be located on lands designated and zoned for Industrial land use and Public/Quasi-Public use per the *City of Lodi General Plan* and the *City of Lodi Municipal Code*.

Impacts to land use from the Central Route Alternative would be expected to be similar to the proposed project and be less than significant or have no impact. The alternative would not divide an established community or introduce conflicts with the existing *San Joaquin County General Plan* or *City of Lodi General Plan*. The alternative is not located within 2 miles of private airports or airstrips. The facilities are allowed uses by the general plans, zoning codes, and SJMSCP, as discussed previously for the proposed project. Therefore, impacts under the Central Route Alternative would be similar to the proposed project's less-than-significant land use and planning impacts.

Noise

As with the proposed project, this alternative is located in an agricultural setting intermixed with residences, commercial, industrial, and open space areas. The segment of the Central Route Alternative new 230 kV transmission line between the Brighton-Bellota 230 kV Line and approximately 1.25 miles west of PG&E Lockeford Substation is in the same location as the proposed project and would be within 1,000 feet of the same residences as the proposed project. The remainder of the new 230 kV transmission line, west to LEU Industrial Substation, also would be within 1,000 feet of scattered rural residences. Substation modifications are the same as the proposed project and, therefore, in the same locations.

Impacts related to noise from the Central Route Alternative would be expected to be similar to the proposed project. Construction activities would be similar and consistent with (i.e., exempt from) the local noise ordinance. Corona noise associated with moisture on the new electrical wires and noise from new or modified equipment at the substations would be expected to be similar to the proposed project. Therefore, impacts under the Central Route Alternative would be similar to the proposed project's less-than-significant noise impacts.

Population, Employment, and Housing

Like the project, the Central Route Alternative does not propose new housing, businesses, or other land use changes, including roads or infrastructure, that would induce unplanned population growth or increase housing demand in the area. Any increase in housing demand from new or existing PG&E or LEU workers relocating to the area would be within the growth captured by the projections of the San Joaquin County and City of Lodi general plans. The project would not directly or indirectly induce substantial population growth or increase housing demand in the area. As a result, the impact would be less than significant and impacts under the Central Route Alternative and would be similar to the proposed project's less-than-significant population, employment, and housing impacts.

Public Services and Recreation

As described for the proposed project in Section 3.15, "Public Services and Recreation," the construction, operation, and maintenance of the proposed transmission line would not change the characteristics of the physical environment that support agriculture. Further, although sections of the proposed transmission line may be visible from winery facilities in the region, the project components would not be closer to wineries than evaluated under the proposed project and would not substantially affect the character of the region. As a result, the construction, operation, and maintenance of the Central Route Alternative would not substantially affect any of the important characteristics that contribute to the value of recreational opportunities in the Lodi wine region. This impact would be less than significant and impacts under the Central Route Alternative and would be similar to the proposed project's less-than-significant public services and recreation impacts.

Transportation

The Central Route Alternative would be proximate to the same or similar roadways as the proposed project and would have a similar potential to result in vehicle miles traveled during construction and O&M. Like the project, implementation of this alternative would not result in modifications to existing transit facilities that would disrupt existing service or interfere with the implementation of any planned pedestrian, transit, or bicycle facilities contained in adopted programs, plans, policies, or ordinances. The project would also not result in a population increase and,

thus, would not generate additional demand for transit, bicycle, or pedestrian facilities and services. Implementation of APM TRA-2 and BMP TRA-2 would ensure that PG&E and LEU restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with project construction activities, respectively. Caltrans, County, and City permits require construction projects to implement traffic control measures to minimize transportation hazards, ensure the safety of the traveling public, and restore disturbed roadways to the satisfaction of jurisdictional staff (e.g., Public Works Director). Compliance with APM TRA-1 and BMP TRA-1 would ensure that PG&E and LEU, respectively, adhere to encroachment permit provisions. For these reasons, impacts would be less than significant. Therefore, impacts under the Central Route Alternative would be similar to the proposed project's less-than-significant transportation impacts.

Utilities and Service Systems

As described for the project, construction and O&M associated with the Central Route Alternative would not require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, natural gas, or telecommunications facilities that could cause significant environmental effects. The alternative would require the use of water during construction and O&M activities. This water would be provided via pumper truck and could be derived from any regional source with adequate capacity. The same water supplies would be available to serve the alternative as identified in Section 3.17, "Utilities and Service Systems," for the project. Also like the project, PG&E and LEU would manage solid waste generated during construction and O&M by hauling it to appropriate landfills. Because a majority of the waste generated during construction of the project would be recycled or salvaged for reuse in compliance with existing local and state regulations, the project would not substantially contribute to the remaining capacity available at the North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station, and new or expanded landfills would not be required to accommodate project construction-related solid waste. Impacts to utilities and service systems would be less than significant. Therefore, impacts under the Central Route Alternative would be similar to the proposed project's less-than-significant utilities and service system impacts.

Wildfire

As described above, the Central Route Alternative would shift a portion of the PG&E alignment approximately 1 mile north of the proposed project but would not substantially change the nature or topography of the route. The area has a low risk of wildland fire based on mapping conducted by CAL FIRE and CPUC and the existing topography of the project area is relatively flat (less than or equal to 2-percent slope). Wildfire risk in the project area is minimal because it is not located in an area of slope, prevailing winds, or other known factors that would exacerbate wildfire risks. Therefore, development and operation of the project would not expose people or structures to wildfires or to the potential risk of increased wildfire frequency and intensity due to slope, prevailing winds, or other factors. Construction and O&M of the project in accordance with established procedures and regulations would limit the potential for installation and monitoring activities of electrical infrastructure to generate fire ignition risk. The impact would be less than significant for the Central Route Alternative. Therefore, impacts under the Central Route Alternative would be similar to the proposed project's less-than-significant wildfire impacts.

CONCLUSION

The Central Route Alternative would result in generally similar potential for environmental effects as the proposed project. In addition, all of CPUC's project objectives would be met. Existing thermal overload and voltage issues would be resolved, the system would be upgraded to accommodate anticipated demands for increased electrical distribution, and the PG&E and LEU 60 kV systems would be separated.

6.4.3 Alternative 3: Northern Route Alternative

The Northern Route Alternative alignment would route the western portion of the new 230 kV corridor, between PG&E Lockeford Substation and LEU Industrial Substation, to the north of the proposed project alignment, as shown on Figure 6-2. It would parallel portions of the existing PG&E Lockeford-Industrial 60 kV Line on the western

segment. Most of the eastern portion of the Northern Route Alternative 230 kV transmission line would be the same as the project. Approximately 1 mile west of PG&E Brighton-Bellota 230 kV Line (approximately 0.25 mile west of North Linn Road), the corridor would turn north and then east on East Sargent Road. The total length of new PG&E 230 kV transmission lines would be approximately 10.39 miles.

Land uses along the alignment include orchard and semiagricultural uses, wineries, and rural residential clusters located mainly on local and county roads with mature vegetation. Similar to the project, the Northern Route Alternative includes one canal crossing (Bear Creek), one highway crossing (SR 88), one railroad crossing, and multiple road crossings. As with the proposed project, this route alternative runs adjacent to the cemetery when entering the City of Lodi and would reuse the western end of PG&E Lockeford-Industrial 60 kV line alignment.

All other components of this alternative would be the same as the project, including:

- PG&E Thurman Switching Station,
- LEU Guild Substation,
- PG&E and LEU Thurman-Guild 230 kV No. 1 and No. 2 Transmission Lines,
- LEU Guild-Industrial 60 kV No. 1 and No. 2 Power Lines, and
- PG&E 60 kV power lines reconfiguration.

In general, construction activities for the Northern Route Alternative would be similar to the project, including the types of equipment to be used in each phase of construction and hours per day that equipment would be used during construction (refer to Chapter 2, "Project Description," of this Draft EIR). Substation construction activities would be the same as the proposed project. Construction staging areas, pull-and-tension sites, and access roads were not identified for this alternative, but would be expected to be similar to and at the same scale as the proposed project.

DISCUSSION

Aesthetics

The environmental setting for aesthetics for the Northern Route Alternative is similar to the proposed project setting. The corridor for the new 230 kV line would be approximately 1 mile north of the proposed project corridor, except for the segment approximately between PG&E Lockeford Substation and 0.25-quarter mile west of Linn Road, which would be the same as the proposed project. The vegetation in the vicinity of the Northern Route Alternative 230 kV transmission line includes vineyards, orchards, forage cropland, and other agricultural crops, as well as grassland and riparian corridors. Scattered stands of mature trees, both native and introduced, are located along many of the area roadways and surrounding most residences, which generally consist of isolated rural houses with associated farm buildings.

No significant impacts to aesthetics would be likely to occur as a result of the Northern Route Alterative. There are no scenic vistas in the alternative viewshed, other than the summit of Mount Diablo, a scenic vista point, and modifications resulting from the alternative would not be noticeable at this distance. The alternative would not obstruct views to the Coast Range and Sierra Nevada Range or to nearby rivers. There are no designated or eligible state scenic highways within the alternative viewshed. Local scenic roadways in the vicinity of this alternative include North Jack Tone Road, Clements (Liberty) Road, and SR 88. Based on typical highway speeds, and because of the presence of other utility lines and distances of the 230 kV transmission line from the roadways, the alternative would not have a significant effect on views from SR 12 and SR 88, although it would be nearer, and hence more visible from, to the designated scenic portion of SR 88 than the project. Portions of the new 230 kV transmission line would be visible from San Joaquin County scenic routes, including North Jack Tone Road, in the context of multiple existing transmission lines that closely parallel this alternative's route. The Northern Route Alternative would parallel existing transmissions lines for approximately the same length as the proposed project. The Northern Route Alternative would cross North Jack Tone Road in the same location as the proposed project.

Twenty-one residences (and no wineries) would be within 250 feet of the 10.39-mile transmission line corridor for the Northern Route Alternative. At the eastern end of the alignment, the transmission lines would be located north of the existing electrical infrastructure. This may increase the prominence of the new infrastructure to the public, including motorists on Linn Road. East of the PG&E Lockeford Substation, the alignment would be located closer to Kettleman Lane than the proposed project alignment, resulting in greater public visibility. Permanent visual change resulting from modifications to the existing PG&E Lockeford Substation and new PG&E Thurman Switching Station sites would be the same as for the proposed project; modifications would be noticeable but largely incremental and would not substantially alter or degrade the existing visual character of the landscape in these areas. As such, the Northern Route Alternative would result in a less-than-significant impact on aesthetics. However, because the transmission line would appear more prominent from publicly accessible vantage points, the change to the visual character and quality of public views of the infrastructure and its surroundings would be more pronounced than with the project alignment. Therefore, aesthetics impacts under the Northern Route Alternative would be greater than the proposed project's less-than-significant aesthetics impacts.

Agriculture

The footprint of The Northern Route Alternative does not contain any forest land, the same as the proposed project. The corridor for the new 230 kV line would be approximately 1 mile north of the project corridor, except for the segment approximately between PG&E Lockeford Substation and 0.25-quarter mile west of Linn Road, where the setting would be the same as the proposed project. The farmland in the vicinity of the Northern Route Alternative 230 kV transmission line includes vineyards, orchards, forage cropland, and other agricultural crops. Substation components of this alternative are the same as the proposed project and are, therefore, in the same locations with the same environmental setting as the proposed project.

The construction the new PG&E transmission lines poles is estimated to permanently convert approximately 0.38 acre of Prime Farmland (compared to 0.44 for the proposed project), approximately 0.22 acre of Unique Farmland (compared to 0.16 for the proposed project), and approximately 0.08 acre of Farmland of Statewide Importance (compared to 0.14 for the proposed project) to nonagricultural uses associated with electrical infrastructure. The modification of the existing PG&E Lockeford Substation would permanently convert approximately 0.49 acre of Prime Farmland and approximately 0.18 acre of Farmland of Statewide Importance to accommodate the expanded footprint on the north side of the existing facilities fence line, which is the same as the proposed project. A total of approximately 1.35 acres of Important Farmland is estimated to be permanently converted to nonagricultural use, which is 0.06 acre less than the proposed project. Similar to the project, construction activities of the Northern Route Alternative are expected to temporarily impact lands under Williamson Act contracts. Permanent conversion would not result in reduction of any designated parcel to below the 10-acre minimum used in classification and this impact would be less than significant. Therefore, although slightly reduced effects on agricultural land conversion are anticipated under this alternative, the overall impacts to agricultural lands would be similar to the proposed project's less-than-significant impact.

Air Quality

The Northern Route Alternative would be of similar length and design as the proposed project, proximate to roughly the same number of sensitive receptors, and would operate in the same fashion described for the project. As described for the project in Section 3.4, "Air Quality," neither construction nor O&M of the PG&E and LEU portions of the project would result in emissions of criteria pollutants in excess of SJVAPCD's annual or daily emissions thresholds, which were developed in consideration of State and regional air quality planning. In addition, like the project, construction and O&M would not result in the prolonged exposure of sensitive receptors to substantial concentrations of toxic air contaminants. As such, the Northern Route Alternative would result in less-than-significant impacts on air quality. Therefore, air quality impacts under the Northern Route Alternative would be similar to the proposed project's less-than-significant impacts on air quality.

Archaeological, Historical, and Tribal Cultural Resources

As with the project, the Northern Route Alternative would require earth-moving and excavation that could impact undiscovered and unevaluated archaeological resources. As described for the proposed project, Mitigation Measures

3.5-1 and 3.5-2 would reduce impacts to archaeological resources by establishing protective fencing around unevaluated archaeological resources within which ground disturbance would not occur; and would provide the necessary procedures to be followed for inadvertent discoveries. With implementation of these measures, the Northern Route Alternative (like the proposed project) would not cause a substantial adverse change in the significance of any archeological resource. Also like the project, there are no components of the Northern Route Alternative with the potential to directly alter any historical resource or substantially change any of the character-defining features that contribute to the historic significance of historical resources.

The Northern Route Alternative would also be located in an area with the same tribal affiliation as the project area. As described in Section 3.5, "Archeological, Historical, and Tribal Cultural Resources," CPUC sent letters inviting tribal consultation to three tribes; no responses were received. No tribal cultural resources, as defined by CEQA Section 21074, have been identified. However, it is possible that tribal cultural resources could be identified and damaged during ground-disturbing activities. As described for the proposed project, implementation of Mitigation Measure 3.5-3 would reduce impacts associated with tribal cultural resources to a less-than-significant level by requiring appropriate treatment and proper care of significant tribal cultural resources, in accordance with the wishes of the geographically and culturally affiliated tribe, in the case of a discovery. Therefore, impacts under the Northern Route Alternative would be similar to the proposed project's less-than-significant impacts on archaeological, historical, and tribal cultural resources.

Biological Resources

The corridor for the western segment of the new 230 kV line under the Northern Route Alternative would be approximately 1 mile north of the project corridor through similar topography and habitats as the proposed project. Similar to the proposed project, the upland areas along and near the Northern Route Alternative are primarily hardscaped (pavement and sidewalks), otherwise developed/landscaped, agricultural land, or previously disturbed land and include primarily ruderal or non-native species. The Northern Route Alternative location was included in the area of the CNDDB and CNPS database searches. Given the similar habitats, it is expected that the same special-status species would potentially be present for the Northern Route Alternative as for the project. Seasonal wetlands, Bear Creek and Paddy Creek, constructed watercourses, and drainage ditches also are present along or near the Northern Route Alternative.

Impacts to biological resources from the Northern Route Alternative would be expected to be similar to the proposed project and be less than significant. New transmission line poles are assumed to be sited to avoid rare plants, riparian habitat, seasonal wetlands, Bear Creek and Paddy Creek, constructed watercourses, and drainage ditches. Trimming or removal of oaks may be necessary for construction access and would be conducted by a certified arborist to avoid impacting tree health or to make the decision to remove the tree if trimming is not feasible. The western segment of the new 230 kV transmission line would enter PG&E Lockeford Substation on the north side, similar to the proposed project, where the elderberry shrubs are located. As with the proposed project, these shrubs would be marked and avoided. The same APMs and BMPs as the proposed project, such as avoiding and protecting nesting birds, and the mitigation measure identified for the project would be implemented to avoid significant impacts to special-status wildlife species. PG&E would minimize the potential for electrocution or accidental line collision by constructing electrical lines in accordance with avian-safe construction standards. Therefore, impacts under the Northern Route Alternative would be similar to the proposed project's less-than-significant impacts on biological resources.

Energy

The energy used to construct the Northern Route Alternative would be the same as described for the proposed project in Section 3.7, "Energy," of this EIR. Construction-related fuel consumption would serve the purpose of improving the state's electric grid and providing reliable power, and fuel consumed during operation would be used for the purpose of maintaining critical electrical infrastructure equipment. For the same reasons identified for the proposed project, construction and operation of this alternative would not result in inefficient, wasteful, or unnecessary consumption of energy resources. Also like the project, the Northern Route Alternative would align with the goals of the 2022 Scoping Plan and the Integrated Energy Policy Report to improve grid reliability and resilience by increasing grid capacity to accommodate additional energy demand. Therefore, the alternative would not conflict

with or obstruct a state or local plan for renewable energy or energy efficiency and impacts under the Northern Route Alternative would be similar to the proposed project's less-than-significant energy impacts.

Geology, Soils, and Mineral Resources

The potential to result in geologic hazards related to liquefaction, erosion, unstable geologic units, and expansive soils would be similar to the proposed project. As described in Section 3.8, "Geology, Soils, and Mineral Resources," compliance with the California Building Code (CBC) would ensure that construction of the project components would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving liquefaction. Similarly, established regulations would address the potential for substantial erosion to occur as a result of the alternative.

Although the project area is not within a known area of liquefaction hazards and the geotechnical reports prepared for the project (Burns & McDonnell 2020; Kleinfelder 2019a; Kleinfelder 2019b) conclude that liquefaction potential is considered negligible, sandy and loamy soils comprise most of the soils underlying the project area, which could be susceptible to liquefaction if the soils become saturated. As described for the project, compliance with the CBC and the implementation of APM GEO-1 and BMP GEO-1 would avoid, accommodate, replace, or improve soft or loose soils encountered to ensure that construction of the project would not result in on- or off-site lateral spreading, liquefaction, or collapse from being located on geologic unit that is unstable or become unstable as a result of the project. Once the project is operational, PG&E and LEU O&M would not include any activities that would exacerbate these hazards.

With respect to paleontological resources, construction of the alternative would occur in areas underlain by geologic units that range from low to moderate paleontological sensitivity. Specifically, geologic units in association with the Modesto Formation have a low to moderate paleontological sensitivity, with moderate sensitivity beginning at a depth of 30 feet. Geologic units in association with the Turlock Lake Formation and Riverbank Formation have a moderate paleontological sensitivity. Potential direct and indirect impacts to paleontological resources resulting from construction would be avoided with the implementation of APM PAL-1 through APM PAL-4 and BMP PAL-1 through BMP PAL-4, which include requirements for protecting paleontological resources. As such, the Northern Route Alternative would result in a less-than-significant impact related to geology, soils, and mineral resources. Therefore, the effects of the Northern Route Alternative would be similar to the proposed project's less-than-significant impacts.

Greenhouse Gas Emissions

The Northern Route Alternative is a siting alternative that would not substantially change construction practices or O&M activities. For the same reasons disclosed for the project, the Northern Route Alternative would align with the goals of the 2022 Scoping Plan to improve grid reliability and resilience by increasing grid capacity to accommodate additional energy demand, the transition to renewable energy systems, updated existing energy facilities, and an increased number of efficient energy storage and transmission systems. This impact would be less than significant. Therefore, the effects of the Northern Route Alternative would be similar to the proposed project's less-than-significant impacts related to greenhouse gas emissions.

Hazards and Hazardous Materials

The Northern Route Alternative is a siting alternative that would not substantially change construction practices or O&M activities. There would be no substantial difference in the potential for interference with adopted emergency response or evaluation plans, exposure to wildfire hazards, or expose to shock hazards.

Like the project, construction of the alternative would require the use of motorized heavy equipment that would use potentially hazardous materials. It is assumed that the APMs and BMPs incorporated into the project to train workers and prepare for an accidental spill would also be incorporated into the alternative. Current and updated HMBPs and SPCCs to address the potential release of hazardous materials in upset or accident conditions would be implemented. Implementation of these policies would protect the public, crews, and the environment from hazardous materials during construction and O&M. Similarly, past uses of the properties in the area may have generated localized areas of undocumented contamination. However, as discussed for the proposed project, implementation of the APMs and BMPs would reduce the potential for disturbance of contaminated soil or groundwater to result in a significant

hazard to the public or the environment. As a result, the impact on the public and the environment from exposure to these unknown hazardous materials and other hazards during construction, or from accidental release of hazardous materials during construction or operation of the project would be less than significant. Therefore, the effects of the Northern Route Alternative would be similar to the proposed project's less-than-significant impacts related to hazards and hazardous materials.

Hydrology and Water Quality

Similar to the proposed project, new transmission line poles for the western segment of the new 230 kV line under the Northern Route Alternative are assumed to be sited to avoid rare plants, riparian habitat, seasonal wetlands, Bear Creek and Paddy Creek, constructed watercourses, and drainage ditches. All activities that pose a risk to water quality would occur in compliance with the Construction General Permit, Stormwater Pollution Prevention Plan, MS4 Permit stormwater discharge requirements, and Policy S-P5 from the City of Lodi General Plan. Implementing the project would not violate water quality standards or waste discharge requirements during construction or O&M. The use of water for dust suppression and generation of impervious surfaces would be similar to the proposed project. Impacts to hydrology and water quality from the Northern Route Alternative would be less than significant. Therefore, impacts under the Northern Route Alternative would be similar to the proposed project's less-than-significant hydrology and water quality impacts.

Land Use and Planning

The environmental setting for land use for the Northern Route Alternative is similar to the proposed project setting. The new 230 kV transmission line for this alternative would be located in an area designated as General Agriculture land use per the *San Joaquin County General Plan*, other than crossings of Bear Creek and Paddy Creek, which are designated as Open Space/Resource Conservation. The transmission line would be located in General Agriculture zoning per the *San Joaquin County Municipal Code*. Facilities within the City of Lodi boundary would be located on lands designated and zoned for Industrial land use and Public/Quasi-Public use per the *City of Lodi General Plan* and the *City of Lodi Municipal Code*.

Impacts to land use from the Northern Route Alternative would be expected to be similar to the proposed project and be less than significant or have no impact. The alternative would not divide an established community or introduce conflicts with the existing *San Joaquin County General Plan* or *City of Lodi General Plan*. The alternative is not located within 2 miles of private airports or airstrips. The facilities are allowed uses by the general plans, zoning codes, and SJMSCP, as discussed previously for the proposed project. Therefore, impacts under the Northern Route Alternative would be similar to the proposed project's less-than-significant land use and planning impacts.

Noise

As with the proposed project, this alternative is located in an agricultural setting intermixed with residences, commercial, industrial, and open space areas. The segment of the Northern Route Alternative new 230 kV transmission line between the Brighton-Bellota 230 kV Line and approximately 1 mile west of PG&E Lockeford Substation, and the westernmost approximately 1-mile segment, are in the same locations as the proposed project and would be within 1,000 feet of the same sensitive users (residences) as the proposed project. The remainder of the new 230 kV transmission line also would be within 1,000 feet of scattered rural residences. Substation modifications are the same as the proposed project and, therefore, in the same locations.

Construction activities would be similar to the proposed project and consistent with (i.e., exempt from) the local noise ordinance. Corona noise associated with moisture on the new electrical wires and noise from new or modified equipment at the substations during O&M would be similar to the proposed project. Impacts would be less than significant and would be similar to the proposed project's less-than-significant noise impacts.

Population, Employment, and Housing

Like the project, the Northern Route Alternative does not propose new housing, businesses, or other land use changes, including roads or infrastructure, that would induce unplanned population growth or increase housing demand in the area. Any increase in housing demand from new or existing PG&E or LEU workers relocating to the

area would be within the growth captured by the projections of the San Joaquin County and City of Lodi general plans. The project would not directly or indirectly induce substantial population growth or increase housing demand in the area. As a result, the impact would be less than significant and impacts under the Northern Route Alternative and would be similar to the proposed project's less-than-significant population, employment, and housing impacts.

Public Services and Recreation

As described for the proposed project in Section 3.15, "Public Services and Recreation," the construction, operation, and maintenance of the proposed transmission line would not change the characteristics of the physical environment that support agriculture. Further, although sections of the proposed transmission line may be visible from winery facilities in the region, the project components would not be closer to wineries than evaluated under the proposed project and would not substantially affect the character of the region. As a result, the construction, operation, and maintenance of the Northern Route Alternative would not substantially affect any of the important characteristics that contribute to the value of recreational opportunities in the Lodi wine region. This impact would be less than significant and impacts under the Northern Route Alternative and would be similar to the proposed project's less-than-significant public services and recreation impacts.

Transportation

The Northern Route Alternative would be proximate to the same or similar roadways as the proposed project and would have a similar potential to result in vehicle miles traveled during construction and O&M. Like the project, implementation of this alternative would not result in modifications to existing transit facilities that would disrupt existing service or interfere with the implementation of any planned pedestrian, transit, or bicycle facilities contained in adopted programs, plans, policies, or ordinances. The project would also not result in a population increase and, thus, would not generate additional demand for transit, bicycle, or pedestrian facilities and services. Implementation of APM TRA-2 and BMP TRA-2 would ensure that PG&E and LEU restore all removed curbs, gutters, and sidewalks, and repave all removed or damaged paved surfaces associated with project construction activities, respectively. Caltrans, County, and City permits require construction projects to implement traffic control measures to minimize transportation hazards, ensure the safety of the traveling public, and restore disturbed roadways to the satisfaction of jurisdictional staff (e.g., Public Works Director). Compliance with APM TRA-1 and BMP TRA-1 would ensure that PG&E and LEU, respectively, adhere to encroachment permit provisions. For these reasons, impacts would be less than significant. Therefore, impacts under the Northern Route Alternative would be similar to the proposed project's less-than-significant transportation impacts.

Utilities and Service Systems

As described for the project, construction and O&M associated with the Northern Route Alternative would not require or result in the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, natural gas, or telecommunications facilities that could cause significant environmental effects. The alternative would require the use of water during construction and O&M activities. This water would be provided via pumper truck and could be derived from any regional source with adequate capacity. The same water supplies would be available to serve the alternative as identified in Section 3.17, "Utilities and Service Systems," for the project. Also like the project, PG&E and LEU would manage solid waste generated during construction and O&M by hauling it to appropriate landfills. Because a majority of the waste generated during construction of the project would be recycled or salvaged for reuse in compliance with existing local and state regulations, the project would not substantially contribute to the remaining capacity available at the North County Recycling Center and Sanitary Landfill, Foothill Sanitary Landfill, or Lovelace Materials Recovery Facility and Transfer Station, and new or expanded landfills would not be required to accommodate project construction-related solid waste. Impacts to utilities and service systems would be less than significant. Therefore, impacts under the Northern Route Alternative would be similar to the proposed project's less-than-significant utilities and service system impacts.

Wildfire

As described above, the Northern Route Alternative would shift a portion of the PG&E but would not substantially change the nature or topography of the route. The area has a low risk of wildland fire based on mapping conducted

by CAL FIRE and CPUC and the existing topography of the project area is relatively flat (less than or equal to 2-percent slope). Wildfire risk in the project area is minimal because it is not located in an area of slope, prevailing winds, or other known factors that would exacerbate wildfire risks. Therefore, development and operation of the alternative would not expose people or structures to wildfires or to the potential risk of increased wildfire frequency and intensity due to slope, prevailing winds, or other factors. Construction and O&M of the project in accordance with established procedures and regulations would limit the potential for installation and monitoring activities of electrical infrastructure to generate fire ignition risk. The impact would be less than significant for the Northern Route Alternative. Therefore, impacts under the Northern Route Alternative would be similar to the proposed project's less-than-significant wildfire impacts.

CONCLUSION

The Northern Route Alternative would result in generally similar potential for environmental effects as the proposed project. In addition, all of CPUC's project objectives would be met. Existing thermal overload and voltage issues would be resolved, the system would be upgraded to accommodate anticipated demands for increased electrical distribution, and the PG&E and LEU 60 kV systems would be separated.

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires an EIR to identify the environmentally superior alternative among those evaluated. As discussed in Section 6.2.2, "Environmental Impacts of the Project," the proposed project would not result in any significant and unavoidable impacts, and all significant impacts related to archaeological, historical, and tribal cultural resources as well as biological resources would be reduced to less than significant with mitigation.

Table 6-1 summarizes the comparison of the environmental effects of the alternatives with the proposed project. As shown in Table 6-1, the No Project Alternative would not support the State's goals related to energy efficiency and greenhouse gas emission reductions. Although, it would avoid impacts to all other resource areas. In addition, the No Project Alternative would not meet any of the project objectives identified in Section 6.2.1, "Attainment of Project Objectives."

The two route alternatives would result in a similar potential for impact and would require implementation of the same mitigation measures. The Central Route Alternative and Northern Route Alternative would result in less-than-significant impacts and most impacts would be comparable to the project given the similar lengths of the new transmission lines. For example, the quantified estimates for agricultural impacts and the potential biological impacts are similar. However, these two alternatives would have more noticeable aesthetic impacts due to the location of the lines. Because of the potential for slightly greater impacts under the alternatives, the proposed project would be environmentally superior.

Table 6-1 Summary of Environmental Effects of the Alternatives Relative to the Proposed Project

Environmental Topic	Proposed Project	Alternative 1: No Project Alternative	Alternative 2: Central Route Alternative	Alternative 3: Northern Route Alternative
Aesthetics	LTS	Less NI	Greater LTS	Greater LTS
Agriculture	LTS	Less NI	Similar LTS	Similar LTS
Air Quality	LTS	Less NI	Similar LTS	Similar LTS
Archaeological, Historical, and Tribal Cultural Resources	LTS/M	Less NI	Similar LTS/M	Similar LTS/M
Biological Resources	LTS/M	Less NI	Similar LTS/M	Similar LTS/M
Energy	LTS	Greater LTS	Similar LTS	Similar LTS
Geology, Soils, and Mineral Resources	LTS	Less NI	Similar LTS	Similar LTS
Greenhouse Gas Emissions	LTS	Greater SU	Similar LTS	Similar LTS
Hydrology and Water Quality	LTS	Less NI	Similar LTS	Similar LTS
Hazards and Hazardous Materials	LTS	Less NI	Similar LTS	Similar LTS
Land Use and Planning	LTS	Less NI	Similar LTS	Similar LTS
Noise	LTS/M	Less NI	Similar LTS/M	Similar LTS/M
Population, Employment, and Housing	LTS	Less NI	Similar LTS	Similar LTS
Public Services and Recreation	LTS	Less NI	Similar LTS	Similar LTS
Transportation	LTS	Less NI	Similar LTS	Similar LTS
Utilities and Service Systems	LTS	Less NI	Similar LTS	Similar LTS
Wildfire	LTS	Less NI	Similar LTS	Similar LTS

Impact Determination:

NI = No Impact; LTS = Less Than Significant Impact; LTS/M = Significant, reduced to LTS with Mitigation; SU = Potentially Significant and Unavoidable Impact

Similar = Impacts would be similar to those of the project; Less = Impacts would be less than those of the project; Greater = Impacts would be greater than those of the project.

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