Draft
Initial Study
and
Mitigated Negative Declaration

for

PacifiCorp
Lassen Substation Project
(Application No. 15-101-005)

November 2016

Prepared for:
California Public Utilities Commission
Energy Division
505 Van Ness Avenue
San Francisco, California 94102

Prepared by:
DUDEK

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

MITIGATED NEGATIVE DECLARATION

PacifiCorp
Permit to Construct
A.15-11-005
Lassen Substation Project

INTRODUCTION

Under Rules 2.4 and 2.5 of the California Public Utilities Commissions (CPUC) Rule of Practice and Procedure, on November 2, 2015, PacifiCorp (PacifiCorp or the Applicant) filed an application (15-11-005) that included a Proponent's Environmental Assessment (PEA) and required fee with the CPUC for an Authority to Construct and for Deviation from Public Utilities Code Section 320 for the Lassen Substation Project (proposed project). On July 15, 2016, the Applicant filed an amended application and an updated PEA to reflect proposed changes to the original filing. Accordingly, the amended application and PEA describes the proposed project.

Under the CPUC's Rules, approval of the proposed project must comply with the California Environmental Quality Act (CEQA), including assessment of the potential environmental impacts of the proposed project. This Mitigated Negative Declaration (MND) has been prepared based upon the assessment of the potential environmental impacts outline in the attached Initial Study (IS).

Pursuant to CEQA (California Public Resources Code, Section 21000 et seq.), the CPUC must prepare an IS for discretionary projects such as the proposed project to determine whether the proposed project may have a significant adverse effect on the environment. The IS uses the significance criteria outlined in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.).

Article 6, Section 15070, Decision to Prepare a Negative Declaration or Mitigated Negative Declaration, of the CEQA Guidelines states the following:

> A public agency shall prepare or have prepared a proposed negative declaration or mitigated negative declaration for a project subject to CEQA when:
>
> a) The initial study shows that there is no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or
>
> b) The initial study identifies potentially significant effects, but:
>
> 1) Revisions in the project plans or proposals made by, or agreed to by, the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and

2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment (14 CCR 15070).

Based on the analysis in the IS, it has been determined that all project-related environmental impacts would be reduced to a less than significant level with the incorporation of feasible applicant proposed measures (APMs; i.e., measures adopted by the applicant as project features) as well as four mitigation measures. Therefore, adoption of an MND will satisfy the requirements of CEQA.

The information contained in the proposed project's PEA and additional information requested by the CPUC during the PEA review were fully considered during the preparation of this Draft IS/MND.

Copies of the project application, PEA, and supporting technical studies are available on the project website at:

http://www.cpuc.ca.gov/environment/info/dudek/LassenSub/PacifiCorpLassenSub.htm

PROJECT DESCRIPTION

Following is a summary of the proposed project; the attached IS presents more details in Section 4, Project Description.

The following are key components of the proposed project:

- Construction of Lassen Substation, which would be built on parcels adjacent to the existing Mount Shasta Substation, located at 504 South Old Stage Road, Siskiyou County, California.
- Replacement of 36 transmission poles along a 1.5-mile segment of the existing 69 kilovolt (kV) power transmission system with wood-framed poles to comply with current California regulations. The system would initially operate at 69 kV, but would be built to allow future operation at 115 kV.
- Connection of the existing transmission lines to the proposed substation. Connection of the new Lassen Substation to the existing distribution system.
- Construct one new distribution line and reconductor two existing distribution lines, which would include the partial reconductoring of the existing 4.16 kV distribution system to 12.5 kV, and the undergrounding of approximately 1,200 feet of the existing overhead distribution line.
- Addition of three banks of 12.5 kV to 4.16 kV stepdown transformers to be added on the 12.5 kV distribution feeders near the existing 4.16 kV load.
- Removal of the existing above-ground Mount Shasta Substation facilities. The site's fence would remain as well as the gravel base and it will continue to be utilized for material storage on a temporary basis as future project needs require..

Project construction is expected to require approximately 12 months to complete.

PROJECT OBJECTIVE

The primary objectives of the proposed project are as follows:

- Ensure that all equipment and structures comply with current company, state, and federal standards, including the replacement of aging and non-standard equipment and the removal of sulfur hexafluoride (SF_6) distribution breakers.
- Ensure a reliable ongoing electricity supply to the area currently served by the Mount Shasta Substation.
- Facilitate regional bulk transmission voltage stability and improve bulk power transfer across the region.

MITIGATION MEASURES AND APPLICANT PROPOSED MEASURES

The PEA details project protocols that would be followed during project-related activities (PacifiCorp 2015). Project protocols are specific to environmental issue areas and are herein termed APMs. Table 1 lists APMs proposed as project design features. These APMs are analyzed as part of the proposed project.

Table 1
Applicant Proposed Measures

APM Number	Description
	Air Quality
APM-AQ-1	**Construction Pollutant Reduction Measures:** Particulate matter emissions shall be controlled by implementing standard construction dust control measures including, but not limited to, the following: • Minimize soil disturbance. • Regularly water disturbed areas, including on-site vehicle/equipment travel routes and soil stockpiles. Watering should be sufficient to prevent airborne dust from leaving the site. • Curtail earthmoving activities on windy days. • Ensure that the engines of all construction equipment are properly tuned. • Limit the maximum speed to 15 miles per hour on unpaved surfaces. • Replant vegetation in disturbed areas as quickly as possible. • Implement other effective particulate matter control measures, as needed. Greenhouse gas emissions generated during project construction shall be minimized by implementing the following measures: • Use California Air Resources Board-certified construction equipment, where available. • Use alternative fuel types for construction equipment where feasible. • Use local building materials. • Limit construction vehicle idling time.
	Biological Resources
APM-BIO-1	Focused pre-construction surveys for special-status plant species shall be conducted in appropriate habitat, according to U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) protocols for species having a specified protocol, or according to standard, scientifically accepted systematic surveys appropriate for each species. Surveys will be conducted in areas of planned ground disturbance. To the extent feasible, avoidance modifications in the placement of transmission towers, access and spur roads, and of various marshalling and staging areas shall be made in accordance with the final project design and

Table 1
Applicant Proposed Measures

APM Number	Description
	needs. If special-status plant species are located during focused surveys within the project area, avoidance measures shall be incorporated. If avoidance is not possible, relocation efforts, including topsoil salvage and relocation, if necessary, will be implemented. If PacifiCorp proposes any changes to the current construction plan or pole replacement sites after focused surveys for special-status species are conducted, additional field surveys shall be required prior to construction activities. Pre-construction biological clearance surveys shall be conducted to avoid or minimize potential impacts to special-status wildlife species. If burrows are located during surveys, avoidance measures shall be incorporated and the Environmental Monitor shall proceed as described in APM-BIO-6.
APM-BIO-2	Prior to first use, the undercarriages, wheels, and bodies of construction and operations equipment previously used outside of the project area shall be thoroughly washed in maintenance yards by high-pressure jets to eliminate any soil buildup that may contain invertebrates, such as insects and insect eggs, or the seeds of exotic plant species.
APM-BIO-3	Every reasonable effort shall be made to minimize temporary and permanent removal of native vegetation at work areas. If required, native vegetation shall be flagged for avoidance. If native vegetation cannot be avoided, it will be crushed rather than bladed. A project revegetation plan shall be prepared for areas of native vegetation temporarily affected by project construction activities.
APM-BIO-4	Construction crews shall avoid affecting the streambeds and banks of any streams along the route, to the extent feasible. If necessary, a Lake and Streambed Alteration Agreement (LSAA) will be secured from the CDFW. Impacts will be mitigated based on the terms of the LSAA. No streams with flowing waters or those capable of supporting special-status species would be expected to have permanent adverse impacts from project implementation.
APM BIO-5	To avoid impacts from temporary access to wetland areas, existing access roads and temporary access methods (e.g., high density polyethylene (HDPE) driving mats, portable road platforms) shall be used to access pole replacement sites. Results of the wetland delineation (Appendix D of the PEA) shall be incorporated into vehicle access routes, which shall be designed to avoid and minimize wetland disturbance.
APM BIO-6	Environmental Monitors shall be assigned to the project, and will be responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, and unique resources are avoided to the fullest extent possible. The monitor shall delineate and mark for avoidance in the field all known sensitive resource locations and, where appropriate, use flagging to delineate boundaries of areas from where activities are restricted to protect native plants and wildlife or special-status species. If the monitor determines that project activities may adversely affect the species, the monitor shall consult with USFWS and/or CDFW regarding appropriate avoidance measures. These restricted areas shall be monitored during construction to ensure their protection.
APM BIO-7	PacifiCorp shall conduct all pole installation, conductor installation, tree trimming, tree removal, grading and clearing of vegetation from September 1 to February 28, outside of the nesting season. The March 1–August 31 nesting season dates are guidelines: nesting season may begin earlier or end later depending on weather conditions; active nests will be protected using appropriate buffers regardless of the calendar date. If construction cannot be completed outside of the nesting season, pre-construction surveys within the project area will be conducted by a qualified biologist for nests prior to ground disturbance, tree trimming, or other construction activities. The nesting bird clearance survey will be conducted within 3 days prior to construction activities. For passerines, a 50-foot buffer will be installed around the nest and maintained around the nest until the young have fledged. A larger buffer may be required if nesting birds appear stressed. Nesting raptors require a larger buffer area than passerines. If a raptor nest is observed, a 300-foot buffer will be installed. If a nesting raptor is observed within 300 feet of the project area prior to the start of construction, a qualified biologist will determine whether or not construction activities could potentially disturb nesting raptors and implement appropriate measures (e.g., on-site monitor, timing restriction) to adequately protect nesting raptors.

Table 1
Applicant Proposed Measures

APM Number	Description
APM-BIO-8	A Worker Environmental Awareness Program (WEAP) shall be prepared and all construction crews and contractors shall be required to participate in WEAP training prior to starting work on the project. The WEAP training shall include a review of the special-status species and other sensitive resources that could occur in the project area, the locations of any existing sensitive resources, their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all personnel trained shall be maintained.
APM-BIO-9	Migratory bird flight paths in the project area are currently unknown. An impact assessment study and bird observation surveys shall be conducted according to the Avian Power Line Interaction Committee's (APLIC's) (1994) survey protocol. The surveys shall be conducted within wetlands along both sides of the existing transmission line within the study area. The surveys shall be done in consultation with CDFW. Results of the bird observation surveys will determine potentially impacted species and locations to mark wires to increase their visibility to flying birds. Line markers should be designed to be raptor-safe in accordance with the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2012 (APLIC 2012), evaluated and approved by PacifiCorp engineers prior to implementation.
APM-BIO-10	Vehicles shall be restricted to previously established roadways and access routes.
APM-BIO-11	Trash, dumping, firearms, open fires, hunting, and pets shall be prohibited in the project area.
APM-BIO-12	If construction within and near potential willow flycatcher (*Empidonax traillii*) habitat (riparian scrub and surrounding wet meadow) cannot be completed outside of the willow flycatcher nesting season (June 1 to August 31), broadcast surveys shall be conducted to determine presence/absence of the species prior to construction activities. If absence is determined, construction may begin within the potential willow flycatcher habitat. If presence is determined, flycatcher detections will be buffered by 150 feet, and construction activities will not occur within the buffer area for the remainder of the nesting season.
APM-BIO-13	Operation and maintenance activities that must occur in or near potential willow flycatcher habitat (riparian scrub and surrounding wet meadow) will be conducted outside of the willow flycatcher nesting season (June 1 to August 31), whenever practicable.
Geology and Soils	
APM-GEO-1	The project will be designed and constructed in accordance with recommendations included in the project-specific geotechnical investigation: site grading, excavation and utility trenches, foundations, mitigation of soil corrosivity on concrete, seismic design criteria, and unpaved site access road.
Greenhouse Gas Emissions	
APM-AQ-1	**Construction Pollutant Reduction Measures:** Particulate matter emissions shall be controlled by implementing standard construction dust control measures including, but not limited to, the following: • Minimize soil disturbance. • Regularly water disturbed areas, including on-site vehicle/equipment travel routes and soil stockpiles. Watering should be sufficient to prevent airborne dust from leaving the site. • Curtail earthmoving activities on windy days. • Ensure that the engines of all construction equipment are properly tuned. • Limit the maximum speed to 15 miles per hour on unpaved surfaces. • Replant vegetation in disturbed areas as quickly as possible. • Implement other effective particulate matter control measures, as needed. Greenhouse gas emissions generated during project construction shall be minimized by implementing the following measures:

Table 1
Applicant Proposed Measures

APM Number	Description
	• Use California Air Resources Board-certified construction equipment, where available. • Use alternative fuel types for construction equipment where feasible. • Use local building materials. • Limit construction vehicle idling time.
	Hazards and Hazardous Materials
APM-HAZ-1	**Health and Safety Plan.** A Health and Safety Plan shall be prepared and made available once a contractor is procured for the construction of the proposed project. The plan should include, and not be limited to, information on the appropriate personal protective equipment to be used during construction. All transport of hazardous materials would be in compliance with applicable laws, rules and regulations, including the acquisition of required shipping papers, package marking, labeling, transport vehicle placarding, training, and registrations.
APM-HAZ-2	**Hazardous Substance Control and Emergency Response Plan.** PacifiCorp shall prepare and implement a Hazardous Substance Control and Emergency Response Plan as needed. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of project construction through operation. The plan would include, but not be limited to, worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on site. If it is necessary to store chemicals on site, they would be managed in accordance with all applicable regulations. Material safety data sheets would be maintained and kept available on site, as applicable. All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following: • Proper disposal of potentially contaminated soils. • Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources. • Emergency response and reporting procedures to address hazardous material spills. • Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work will be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit. PacifiCorp will complete its Emergency Action Plan Form as part of project tailboard meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailboard information.
APM-HAZ-3	**Spill Prevention, Countermeasure, and Control (SPCC) Plan.** An SPCC plan shall be prepared and certified by a professional engineer; a complete copy would be maintained on site. The SPCC plan would include engineered and operational methods for preventing, containing, and controlling potential releases and provisions for a quick and safe cleanup.
	Hydrology and Water Quality
APM-WQ-1	**Stormwater Pollution Prevention Plan (SWPPP) or Erosion Control Plan Development and Implementation.** An erosion and sediment control plan would be developed prior to construction and included as part of the required SWPPP. The goal of the SWPPP will be to remove sediment and wastes from runoff before the runoff is discharged from the project site. This would be accomplished by: • Minimizing the acreage of disturbed and exposed soil during the construction phase and implementing stabilization measures where necessary. • Removing sediment from runoff before it leaves the site. • Complying with specific erosion and sediment control measures specified within the erosion and sediment control plan.

Table 1
Applicant Proposed Measures

APM Number	Description
	Methods may include preservation of existing vegetation or use of geomats, straw wattles, straw bale barriers, or silt fencing, which would be placed at construction boundaries. Gravel ramps may be installed at access points to public roadways to prevent or minimize the tracking of mud, dirt, sediment, or similar materials onto the roadway. Selection of appropriate erosion control materials will be based on soil properties, steepness of the slope, and anticipated surface flow or runoff. Diesel fuel, gasoline, oil, and other lubricants, as well as adhesives and sealants, would be utilized during the construction of the transmission line and substation. Bulk quantities may be stored in the designated construction yard/staging area. Vehicle fueling and maintenance activities would be restricted to staging areas or approved areas away from drainage channels and sensitive habitats. All construction vehicles would be monitored for leaks and receive regular off-site preventive maintenance to reduce the chance of leakage. A copy of the SWPPP and of Receipt of the Letter of Intent, including the project's Waste Discharge ID Number, will be provided to the California Public Utilities Commission prior to construction to certify compliance with Order 2009-0009-DWQ Construction General Permit. The SWPPP will be updated during construction as required by the State Water Resources Control Board.
APM-WQ-2	**Restoration.** To reduce visual contrast and siltation in construction where ground disturbance is substantial, surface preparation and reseeding shall occur during the last phase of construction. The method of restoration would normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches. These actions shall occur in areas of exposed soils large enough that, if they remain unremediated once construction is completed, they could exceed water quality objectives of receiving waters (e.g., for sediment, turbidity, temperature, and dissolved oxygen) set forth in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins.
APM-WQ-3	**Pole Placement Minimization/Avoidance:** To minimize the amount of sensitive features disturbed in designated areas, poles would be placed so as to avoid sensitive features and/or to allow conductors to clearly span the features, within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance.
Transportation and Traffic	
APM-TT-1	**Traffic Management Plan:** Prior to the start of construction, PacifiCorp shall prepare a Traffic Management Plan. The Plan would define the use of flag persons, warning signs, lights, barricades, cones, etc. to control construction traffic. The Plan would include but not be limited to the following: • All property owners and residents of streets affected by construction shall be notified prior to the start of construction. Advance public notification shall include postings of notices and appropriate signage of construction activity. Access to all residences and properties near the project shall be maintained at all times. • All construction activities shall be coordinated with local law enforcement and fire protection agencies. Emergency service providers shall be notified of the timing, location, and duration of construction activities. • Road use-related wear and tear shall be documented during construction of transmission line facilities and PacifiCorp shall repair any damaged roadway sections, as applicable.

Sources: PacifiCorp 2015, 2016a.

MITIGATION MEASURES

The following mitigation measures (Table 2), agreed to by the Applicant, would reduce project-related impacts to a less than significant level.

Table 2
Mitigation Measures

MM Number	Description
	Biological Resources
MM-BIO-1	A topsoil salvage and relocation plan shall be prepared that includes the following information: (1) a description of the methods to be utilized with any topsoil salvage or plant relocation, (2) a description of the receiving location for salvaged topsoil or relocated plants, (3) a discussion of the criteria and measures to be used to determine success of relocated plants, (4) monitoring to be implemented to measure the success of plant relocation, and (5) adaptive management to be used in association with any plant relocation. Any topsoil salvage and/or plant relocation plans shall be reviewed and approved by the CDFW.
	Hazards and Hazardous Materials
MM-HAZ-1	Prior to demolition of the Mount Shasta Substation and/or the on-site residences, a lead-based paint and asbestos survey shall be conducted by a California Occupational Safety and Health Administration-certified asbestos consultant and/or certified site surveillance technician and a California Department of Public Health-certified lead inspector/risk assessor or sampling technician. The existing Mount Shasta Substation shall also be surveyed for the presence of polychlorinated biphenyls (PCBs), mercury, and other contaminants of concern prior to site demolition activities. A report documenting material types, conditions, and general quantities will be provided, along with photos of positive materials and diagrams. Demolition or renovation plans and contract specifications shall incorporate any abatement procedures for the removal of material containing PCBs, mercury, asbestos, or lead-based paint, including the appropriate soil management protocol and disposition. All abatement work shall be done in accordance with federal, state, and local regulations.
MM-HAZ-2	**Develop and Implement a Lassen Substation Project Fire Plan.** PacifiCorp shall develop a Lassen Substation Project Fire Plan in consultation with Mount Shasta Fire Department, the Mount Shasta Fire Protection District, and the California Department of Forestry and Fire Protection. PacifiCorp shall monitor construction activities to ensure implementation and effectiveness of the plan. The final plan will be approved by the consulted agencies prior to the initiation of construction activities and shall be implemented during all construction activities by PacifiCorp. At minimum, the plan will include the following: • Procedures for minimizing potential ignition, including, but not limited to, vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions • Proper use of construction equipment • Work restrictions during Red Flag Warnings and High to Extreme Fire Danger days • Fire coordinator and fire patrol roles and responsibilities • Emergency fire suppression equipment/tools, including size and documentation of response time capabilities • Worker training for fire prevention, initial attack firefighting, and fire reporting • Emergency communication, response, and reporting procedures • Coordination with local fire agencies to facilitate agency access through the project site • Emergency contact information • Worker education materials, tailgate meetings • Compliance with applicable wildland fire management plans and policies established by state and local agencies • Other information as provided by responsible and consulted agencies
	Hydrology and Water Quality
MM-WQ-1	If necessary, Proper Management of Dewatering Discharges: Prior to excavation of foundations or horizontal directional drilling pits, or other activity requiring groundwater dewatering, PacifiCorp shall submit a Notice of Intent to the Central Valley Regional Water Quality Control Board (CVRWQCB) for the General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (CVRWQCB Order R5-2013-0074, as amended). PacifiCorp shall describe the activity with sufficient detail to demonstrate the nature, location, and

Table 2
Mitigation Measures

MM Number	Description
	duration of the discharge. PacifiCorp shall send a sample of the groundwater to be discharged to a certified laboratory for analysis of priority pollutants, found in Attachment B of the General Order. If screening levels are exceeded, PacifiCorp shall implement appropriate treatment of the groundwater prior to discharge off site. Dewatering discharges shall comply with the discharge prohibitions, effluent limitations, and receiving water limitations outlined in CVRWQCB Order R5-2013-0074, and in no case shall the discharge impair beneficial uses, violate water quality standards, or cause a possible nuisance condition.

ENVIRONMENTAL DETERMINATION

The IS has been prepared to identify the potential effects on the environment from implementation of the proposed project and to evaluate the significance of these effects. The IS is based on the Applicant's PEA filed on November 2, 2015 and amended PEA filed on July 15, 2016; proposed project site inspections by the CPUC environmental team; and other environmental analysis for the proposed project. APMs proposed by the Applicant as project design features are incorporated into Section 4, Project Description, of this IS.

Based on the IS, the proposed project, with integration of APMs and mitigation measures where applicable, would result in less than significant effects or have no impacts in the areas of aesthetics, agriculture and forestry resources, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, recreation, transportation and traffic, and utilities and service systems.

REVIEW PERIOD

All comments regarding the correctness, completeness, or adequacy of this IS/MND must be received by the CPUC by no later than 5:00 p.m. on December 23, 2016.

The IS/MND, as well as PacifiCorp's application and PEA for the Lassen Substation Project (December 2016), are available at the project's website:

http://www.cpuc.ca.gov/environment/info/dudek/LassenSub/PacifiCorpLassenSub.htm

Contact Person

Michael E Rosauer

11/17/16

Michael Rosauer, Project Manager
Energy Division
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, California 94102
415.703.3175

Date

INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

Section **Page No.**

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

TABLE OF CONTENTS (CONTINUED)

Section **Page No.**

FIGURES

TABLE OF CONTENTS (CONTINUED)

Page No.

TABLES

ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
AB	Assembly Bill
ACSR	aluminum conductor steel-reinforced cable
APLIC	Avian Power Line Interaction Committee
APM	applicant proposed measure
APN	Assessor's Parcel Number
AST	aboveground storage tank
ASTM	American Society for Testing Materials
BMP	best management practice
BSA	biological study area
C&D	construction and demolition
CAAQS	California Ambient Air Quality Standards
CAFÉ	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH_4	methane
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2E	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CVRWQCB	Central Valley Regional Water Quality Control Board
CWA	Clean Water act
dBA	A-weighted decibel
DPR	Department of Parks and Recreation
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
ESA	environmental site assessment
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone

Acronym	Meaning
FHWA	Federal Highway Administration
FMMP	Farmland Mapping and Monitoring Program
GHG	greenhouse gas
H_2O	water vapor
H_2S	hydrogen sulfide
HAP	hazardous air pollutant
HCFC	hydrochlorofluorocarbon
HDD	horizontal directional drilling
HFC	hydrofluorocarbon
HMP	Hazard Mitigation Plan
I	Interstate
IEEE	Institute of Electrical and Electronics Engineers
kcmil	thousand circular mil
kV	kilovolt
LBP	lead-based paint
L_{eq}	equivalent sound level
LSAA	Lake and Streambed Alteration Agreement
MGD	million gallons per day
MHz	megahertz
MMT	million metric tons
MM	Mitigation Measure
mpg	miles per gallon
MSDS	material safety data sheet
MT	metric tons
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTU	Nephelometric Turbidity Unit
O_3	ozone
Pb	lead
PCB	polychlorinated biphenyl
PFC	perfluorocarbon
PGA	peak ground acceleration
PM_{10}	coarse particulate matter
$PM_{2.5}$	fine particulate matter
PRC	Public Resources Code
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition

Acronym	Meaning
ROW	right-of-way
RWQCB	Regional Water Quality Board
SB	Senate Bill
SCAPCD	Siskiyou County Air Pollution Control District
SF_6	sulfur hexafluoride
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide
SO_4	sulfates
SPCC	spill prevention, control, and countermeasure
SR-89	State Route 89
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TMDL	total maximum daily load
US-97	U.S. Route 97
UST	underground storage tank
VdB	vibration decibel
WEAP	worker environmental awareness program
WWTP	Wastewater Treatment Plant

INTENTIONALLY LEFT BLANK

1 INITIAL STUDY ENVIRONMENTAL CHECKLIST FORM

1.1 Project Title

PacifiCorp – Lassen Substation Project

1.2 Lead Agency Name and Address

California Public Utilities Commission (CPUC)
Energy Division
505 Van Ness Avenue
San Francisco, California 94102

1.3 Contact Person and Phone Number

Michael Rosauer, Project Manager
Energy Division
415.703.5484

1.4 Project Location

The proposed Lassen Substation Project (project) is located in the City of Mount Shasta (City) and in unincorporated Siskiyou County (County). The new Lassen Substation would be located on two parcels (APN 036-220-280 and APN 036-220-170) adjacent to the existing Mount Shasta Substation on South Old Stage Coach Road, approximately 0.67 miles to the southwest of the City, and about 900 feet west of Interstate 5 (I-5) in unincorporated Siskiyou County. Transmission and distribution line upgrades, including pole replacements, would take place predominantly in existing rights-of-way on the western side of I-5, Distribution lines would extend into the City of Mount Shasta under the I-5 to Jessie Street, along Kingston Road, and along private roads through Eskaton Washington Manor. In addition, pole-top stepdown transformers and distribution lines would be installed on existing poles on Chestnut Street and Mill Street to connect the new 12.47-kilovolt (kV) lines to the existing 4.16 kV distribution system in the City.

1.5 Project Sponsor's Name and Address

PacifiCorp
825 Northeast Multnomah, Suite 940
Portland, Oregon 97232
503.813.6539
415.276.6500

1.6 General Plan Designation

According to Siskiyou County, the General Plan Land Use Element does not contain mapping for specific land use designations. Instead the County uses overlay maps to identify development constraint areas. According to the Land Use Element of the General Plan, the proposed project would be within the following mapped resource overlay areas: Wildlife Hazard, Woodland Productivity, Erosion Hazard, Prime Agricultural Soils, and Water Quality.

Elements of the project within the City of Mount Shasta traverse areas classified as CC (Commercial Center), RR (Low-Density Residential and Rural Residential), EC (Employment Center), and RL (Resource Land).

1.7 Zoning

According to Siskiyou County the proposed substation location is zoned as Rural Residential (R-R). Remaining element of the project would cross with Multiple-Family Residential (RES-4), Neighborhood Commercial (C-U), Rural Residential Agricultural (R-R), Non-Prime Agricultural (AG-2), and Planned Development (P-D) zoning designations. Elements of the project within the City of Mount Shasta are zoned U (Unclassified).

1.8 Description of Project

The application and accompanying Proponent's Environmental Assessment (PEA) identifies the proposed project, which consists of the demolition of the existing Mount Shasta Substation, construction of the new Lassen Substation, upgrades to the 69 kV Line 2 transmission line, installation of a new 12.47 kV distribution line, and the upgrades of two existing 4.12 kV distribution lines to 12.47 kV.

For further discussion, see Section 4, Project Description.

1.9 Surrounding Land Uses and Setting

The project area is located near the City of Mount Shasta, in Siskiyou County. The area is bounded by Mount Shasta to the northeast, Mount Eddy and the coastal ranges to the west, and Lake Siskiyou to the southwest.

All elements of the proposed project associated with the substation and the upgrade to the transmission lines occur within the County. Elements of the distribution line upgrade are split between Siskiyou County and the City of Mount Shasta.

The Lassen Substation would be located in a rural residential area to the southwest of the City. The proposed location for the substation is adjacent to the existing Mount Shasta Substation and would be constructed on two vacant residential properties currently consisting of vacant dwellings and associated outbuildings surrounded by coniferous and ornamental trees.

Transmission and distribution system upgrades would occur both within the City and in rural open space to the west and north of the City and in unincorporated Siskiyou County. Vegetation communities under the existing transmission lines and in the surrounding project area include non-native grassland, dry and wet montane meadows, fen, riparian scrub, and fragmented lower montane coniferous forest. The area is predominantly rural residential and montane coniferous forest, with the open space under the transmission lines having been heavily grazed by cattle.

A variety of land uses are found in the surrounding area. The substation and transmission line components are set in a rural residential area and traverse both woodland and open non-prime agricultural grazing land. The components within the City of Mount Shasta traverse commercial residential and light industrial areas of the City.

1.10 Other Public Agencies Whose Approval Is Required

In addition to the Authority to Construct required by the CPUC for overall project approval and California Environmental Quality Act review, Table 1-1 describes additional permits that the applicant will likely be required to obtain for project implementation.

Table 1-1
Required Permits and Approvals

Permit/Approval	Accepting Authority/ Approving Agency	Statutory Reference
Federal		
Clean Water Act 404 Preconstruction Notification	U.S. Army Corps of Engineers	Clean Water Act, Section 404; 33 CFR 320–330
Permit to cross Federal-Aid Highway	Federal Highway Administration	23 CFR 1.23 and 1.27; 23 CFR 645 Subpart B; 23 CFR 77
State of California		
Permit to Construct	CPUC	CEQA, Cal Pub. Res. Code Sec. 21000 et seq. and Public Utilities Code Section 1001
Encroachment Permit	California Department of Transportation, District 2 - Redding	Section 671.5(a) of the California Streets and Highways Code
Streambed Alteration Program – Notification	California Department of Fish and Wildlife, Northern Region (1)	Fish and Game Code, Sections 1602 and 1603

Table 1-1
Required Permits and Approvals

Permit/Approval	Accepting Authority/ Approving Agency	Statutory Reference
Section 401 CWA Water Quality Certification	State Water Resources Control Board – California Water Quality Control Board for Central Valley, Region 5 (Redding Office)	Federal Clean Water Act, Section 401
State Waste Discharge Requirements – obtained as part of the 401 Water Quality Certification	State Water Resources Control Board – California Water Quality Control Board for Central Valley, Region 5 (Redding Office)	Porter-Cologne Water Quality Control Act
General Discharge Permits for Storm Water Associated with Construction Activity	State Water Resources Control Board – S.M.A.R.T.S. Database	Federal Clean Water Act, Section 402

2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agricultural and Forestry Resources	☐ Air Quality
☒ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials	☒ Hydrology/Water Quality
☐ Land Use/Planning	☐ Mineral Resources	☐ Noise
☐ Population/Housing	☐ Public Services	☐ Recreation
☐ Transportation/Traffic	☐ Utilities/Service Systems	☐ Mandatory Findings of Significance

INTENTIONALLY LEFT BLANK

3 ENVIRONMENTAL DETERMINATION

On the basis of this initial evaluation:

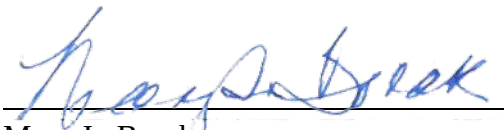
I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION (ND) will be prepared. ☐

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared. ☒

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required. ☐

I find that the proposed project MAY have a "potentially significant impact" or "potentially significant impact unless mitigated" on the environment, but a least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An EIR is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or ND pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or ND, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required. ☐



11-21-2016

Mary Jo Borak
Energy Division
California Public Utilities Commission

Date

INTENTIONALLY LEFT BLANK

4 PROJECT DESCRIPTION

4.1 Introduction

On November 2, 2015, PacifiCorp (the Applicant) filed an application (A.15-11-005) that included a proponent's environmental assessment (PEA; PacifiCorp 2015) pursuant to Rules 2.4 and 2.5 of the California Public Utilities Commission's (CPUC) Rule of Practice and Procedure with the CPUC for a Permit to Construct for the Lassen Substation Project (proposed project).

The proposed project is located in the City of Mount Shasta (City) and in unincorporated Siskiyou County (Figure 4-1, Regional Location and Vicinity), and consists of a new 69 kilovolt (kV) to 12.47 kV substation to replace the existing Mount Shasta Substation, upgrades to the existing 69 kV transmission line that supplies the substation, and upgrades to the distribution system supplying the City of Mount Shasta.

4.2 Project Objectives

According to PacifiCorp, the primary objectives of the proposed project are as follows:

- Ensure that all equipment and structures comply with current company, state, and federal standards,[1] including the replacement of aging and non-standard equipment and the removal of sulfur hexafluoride (SF_6) distribution breakers.
- Ensure a reliable ongoing electricity supply to the area currently served by the Mount Shasta Substation.
- Facilitate regional bulk transmission voltage stability and improve bulk power transfer across the region.

The current Mount Shasta Substation was constructed in 1930 and is coming to the end of its serviceable life. The wooden support structure is deteriorating and much of the equipment is obsolete. During the most recent service, several components were custom made because they are no longer manufactured; this reduces long-term system reliability (PacifiCorp 2016a). Additionally, current distribution circuit breakers are a mix of vacuum interrupters and SF_6 breakers. SF_6 is a highly reactive greenhouse gas that is subject to regulation as part of greenhouse gas emission reduction targets (17 CCR 95350 et seq.), and PacifiCorp no longer uses SF_6 based breakers in their distribution systems. Finally, issues with the distribution lines require their replacement and relocation. When Interstate 5 (I-5) was constructed, the 4.16 kV distribution lines that serve the City of Mount Shasta were routed under I-5 through California

[1] PacifiCorp 2016a, DR 2.0 – Response 2.0 a.

Department of Transportation (Caltrans) culverts. Running distribution lines in culverts is a non-standard routing method for which Caltrans granted an extension in 2000 with the condition that the lines be removed by 2005. Since then Caltrans and PacifiCorp have been developing a more permanent solution (PacifiCorp 2015).

The anticipated near-term load growth in the Mount Shasta service area is likely to use the remaining available capacity on the existing transmission lines, and exceed the capacity of existing transformers. Because other local substations, such as Weed Junction and North Dunsmuir, are too distant, being 10 miles and 6 miles away respectively, upgrading the line and transformers serving the Mount Shasta service area is necessary to maintain reliable service.

The current bulk power transmission system in northern California is constrained by the voltage stability regulation. To facilitate stability and bulk power transfer across the regional system, PacifiCorp plans to remove local service areas from the regional bulk transmission system. To help achieve this, PacifiCorp needs to provide a second 115 kV line to the North Dunsmuir Substation. Consequently, PacifiCorp proposes to construct the project with the capability of running at 115 kV, although it would initially run at 69 kV. This would continue to allow PacifiCorp to use Line 14 (the other 115 kV transmission line in the region) as a dedicated Western Electricity Coordinating Council (WECC) transmission path to carry scheduled power flow.

4.3 Project Location

The proposed project is located in the City of Mount Shasta and in unincorporated Siskiyou County (Figure 4-1). The new Lassen Substation would be located on two parcels (APN 036-220-280 and APN 036-220-170) adjacent to the existing Mount Shasta Substation on South Old Stage Road, approximately 0.67 miles to the southwest of the City, and about 900 feet west of I-5 (Figure 4-2, Project Component Overview) in unincorporated Siskiyou County. Transmission and distribution line upgrades, including pole replacements, would take place predominantly in existing rights-of-way on the western side of I-5, as shown in Figure 4-3, Lassen Substation and Transmission Components, and Figure 4-4, Distribution System Components.

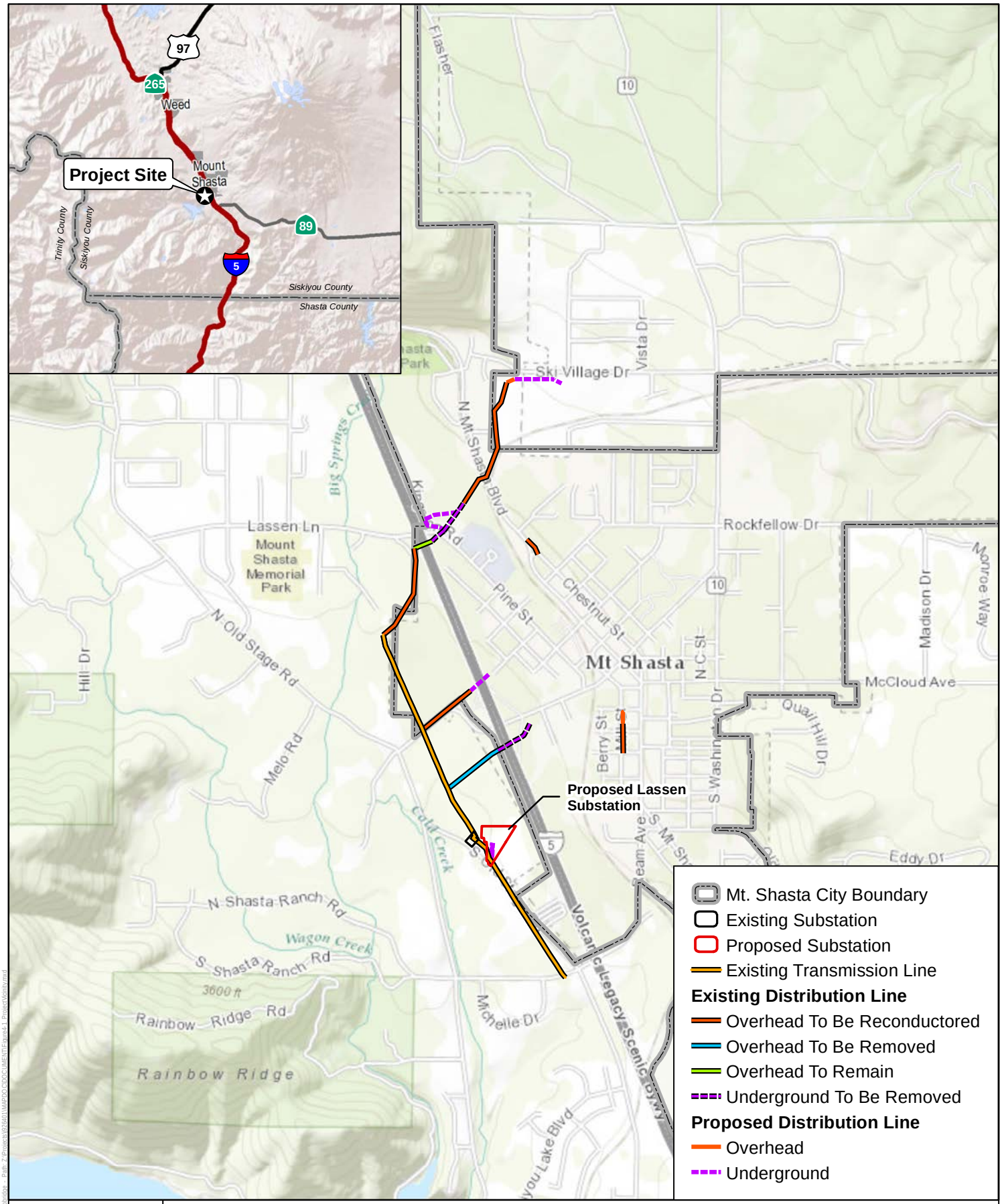


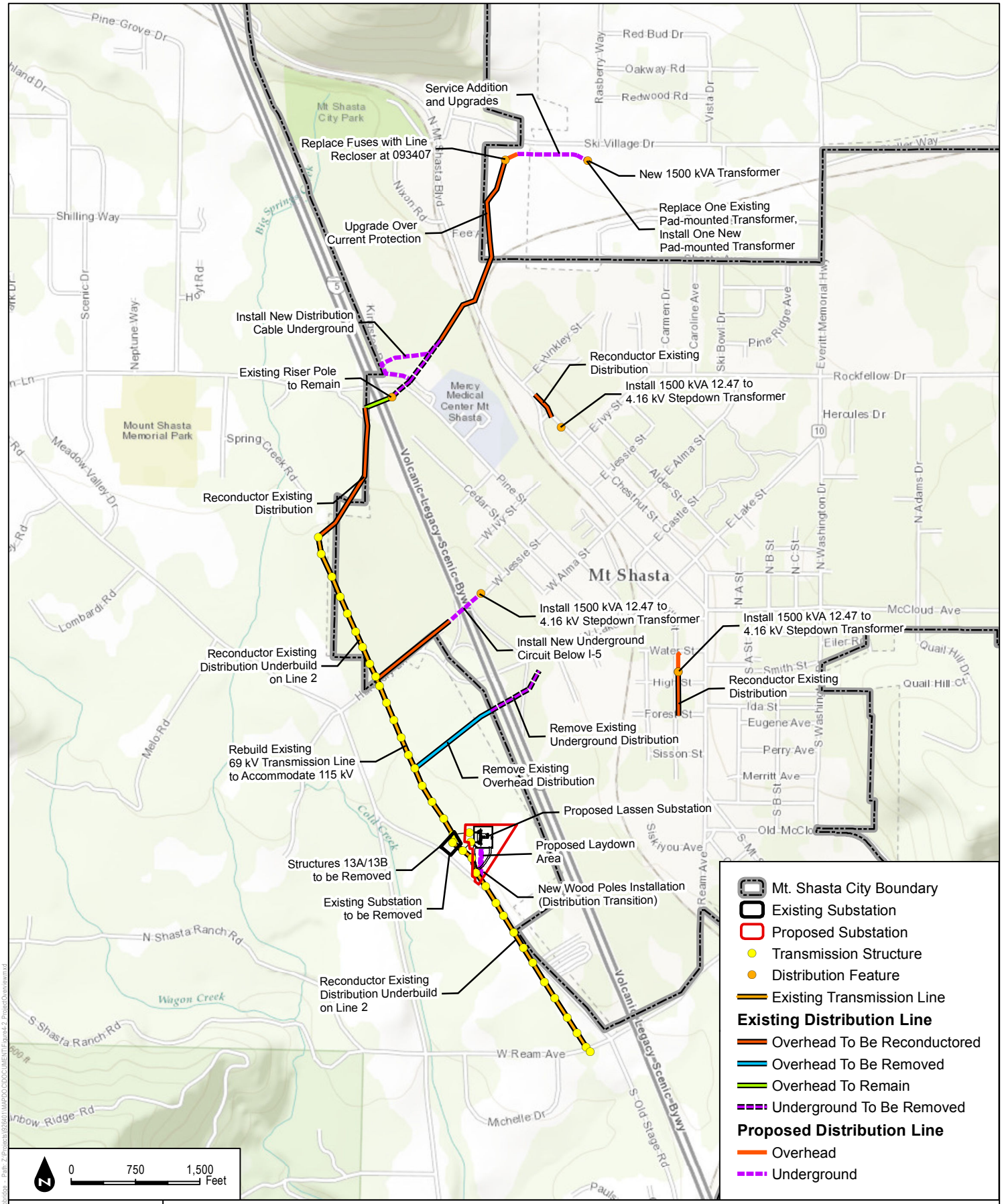
FIGURE 4-1

Regional Location and Vicinity

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK



SOURCE: ESRI Basemaps (2016); PacifiCorp (2015)

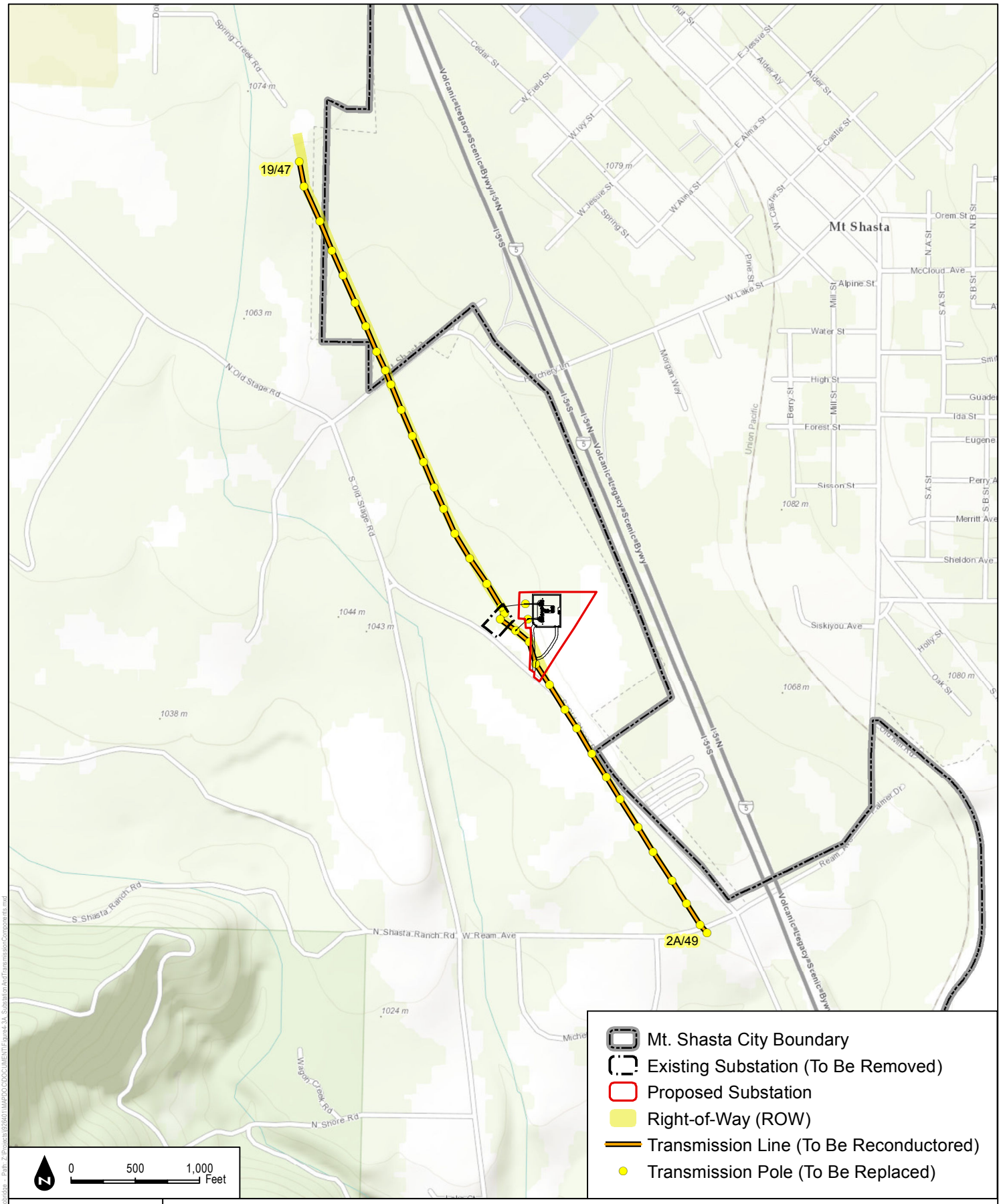
FIGURE 4-2

Project Component Overview

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK



SOURCE: ESRI Basemaps (2016); PacifiCorp (2015)

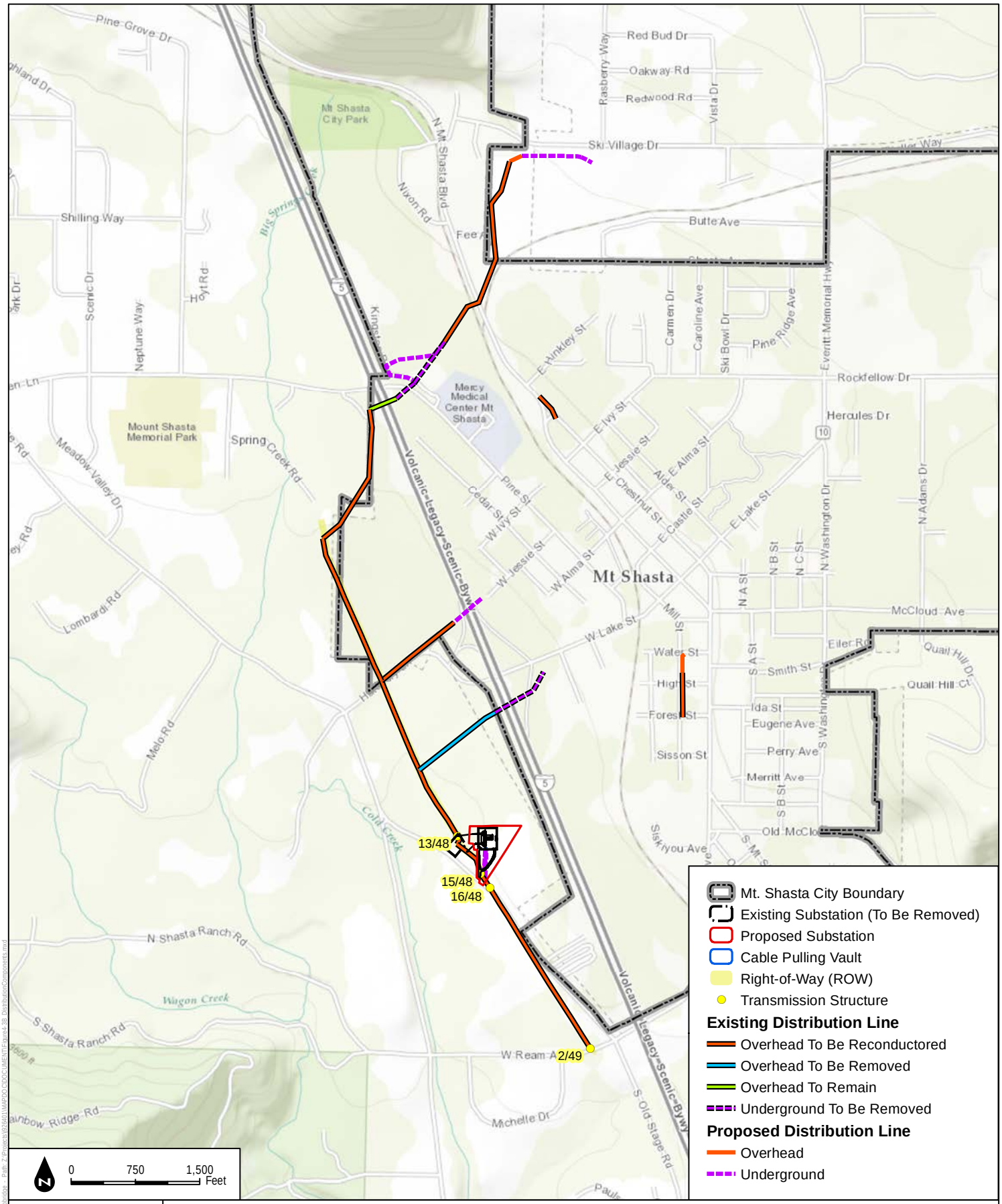
FIGURE 4-3

Lassen Substation and Transmission Components

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK



SOURCE: ESRI Basemaps (2016); PacifiCorp (2015)

FIGURE 4-4

Distribution System Components

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK

Setting and Surroundings

The project area is located near the City of Mount Shasta, in Siskiyou County. The area is bounded by Mount Shasta to the northeast, Mount Eddy and the coastal ranges to the west, and Lake Siskiyou to the southwest.

The Lassen Substation would be located in a rural residential area to the southwest of the City. The proposed location for the substation is adjacent to the existing Mount Shasta Substation and would be constructed on two vacant residential properties currently consisting of vacant dwellings and associated outbuildings surrounded by coniferous and ornamental trees.

Transmission and distribution system upgrades would occur both within the City and in rural open space to the west and north of the City and in unincorporated Siskiyou County. Vegetation communities under the existing transmission lines and in the surrounding project area include non-native grassland, dry and wet montane meadows, fen, riparian scrub, and fragmented lower montane coniferous forest. The area is predominantly rural residential and montane coniferous forest, with the open space under the transmission lines having been heavily grazed by cattle.

4.4 Project Elements

Existing transformers in the Mount Shasta Substation would be replaced with 12.47 kV transformers in the new Lassen Substation, which in turn would require the existing 4.16 kV distribution lines that currently supply the City to be upgraded to 12.47 kV distribution lines. To accommodate the additional weight of the new distribution lines and maintain compliance with Title 8 of the California Code of Regulations and CPUC General Order 95, 36 wooden poles along the existing 69 kV transmission line running to the northwest and southeast of the proposed substation would be replaced and the existing 69 kV transmission line would be transferred to the new poles (Figure 4-3).

Three new 12.47 kV distribution lines would be installed to supply the City in three locations. Two existing lines, Pioneer Feeder and Black Butte Feeder, would be underbuilt on Line 2 to Ream Avenue and West Lake Street, respectively. In addition, a new distribution line would also be installed and built under the rebuilt Line 2 running northwest from the substation, before using existing distribution rights-of-way to supply industrial facilities on Ski Village Drive. (Figure 4-4).

The upgrade to 12.47 kV would require three new 12.47 to 4.16 kV stepdown transformers to be installed in the City of Mount Shasta on Chestnut Street between East Ivey Street and East Field Street, on Mill Street between Forest Street and Water Street, and at the bottling plant on Ski Village Drive.

4.4.1 Substation

The proposed Lassen Substation would be constructed on two parcels adjacent to the existing Mount Shasta Substation on South Old Stage Road. Existing buildings and trees would be cleared prior to grading (Figure 4-5, Substation Plan View). The substation would then be built on a graded gravel pad measuring approximately 215 feet by 250 feet.

Below-grade components would include the grounding grid and drainage system, electrical conduits, and the distribution line vault. Reinforced concrete foundations would be installed to support heavier components, including the steel structures, transformers, and switching gear. The remaining pad would be filled, and graded with gravel. Grading groundwork and foundation installation would require the removal of up to 65,500 cubic feet of fill material from the site.

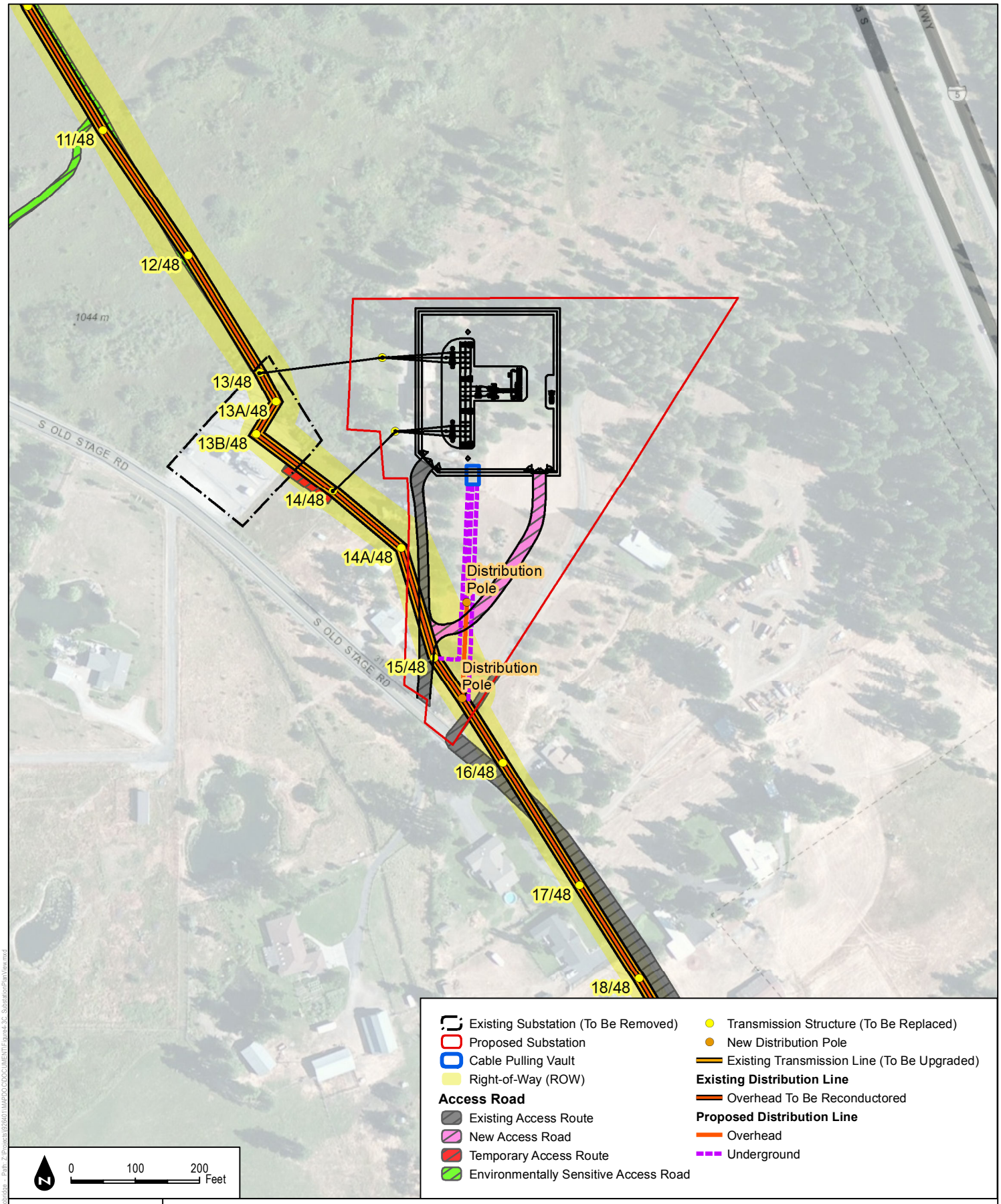
Aboveground structures would consist of control and relay houses, transformers (single 69/12.47 kV 15/20/25 megavolt amperes (MVA)), switchgear, and tubular steel supporting structures that would be in the configuration shown on Figure 4-5. Structures in the substation would be up to 40 feet in height, excluding transmission and distribution poles (Figure 4-6, Lassen Substation Plan and Elevation Views).

Fencing, Access Control, and Lighting

Perimeter security fencing would be installed around the substation yard and would consist of a 7-foot-tall chain-link security fence, strung with 1 foot of barbed wire on top. Ingress and egress would be through 20- to 24-foot-wide double chain-link gates, similar in construction to the surrounding chain-link fence.

Roadways Access

The existing residential driveway would be upgraded to gravel and an additional road would be constructed to provide a 20- to 24-foot-wide fire truck access loop through the substation that would connect back to the South Old Stage Road at the current access point to the parcel (Figure 4-5).



DUDEK

SOURCE: ESRI Basemaps (2016); Bing Maps (2016); PacifiCorp (2015)

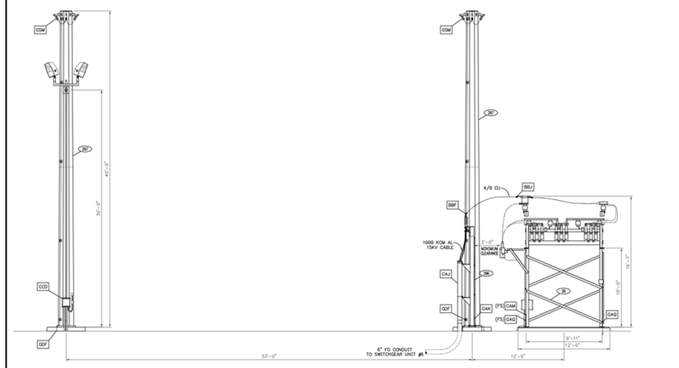
FIGURE 4-5

Substation Plan View

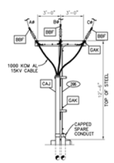
Lassen Substation Project

Date: 8/31/2016 - Last saved by: mtaylordge - Path: Z:\Projects\09364\01\MAPDOC\DOCUMENT\Figure4-3C_SubstationPlanView.mxd

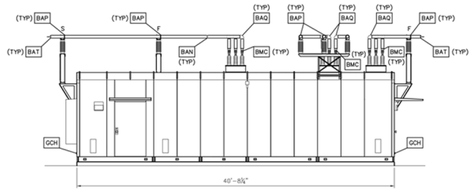
INTENTIONALLY LEFT BLANK



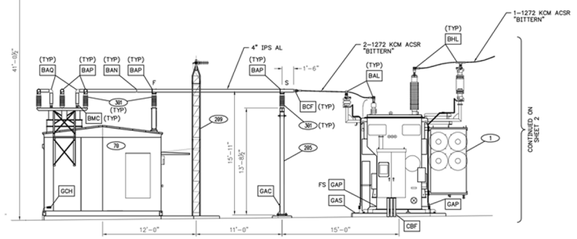
ELEVATION 6–6



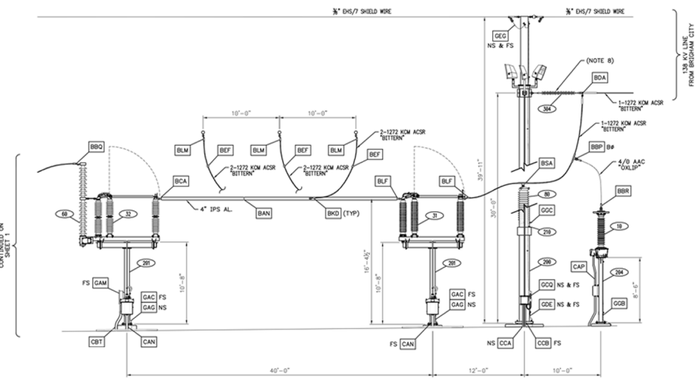
SECTION A–A



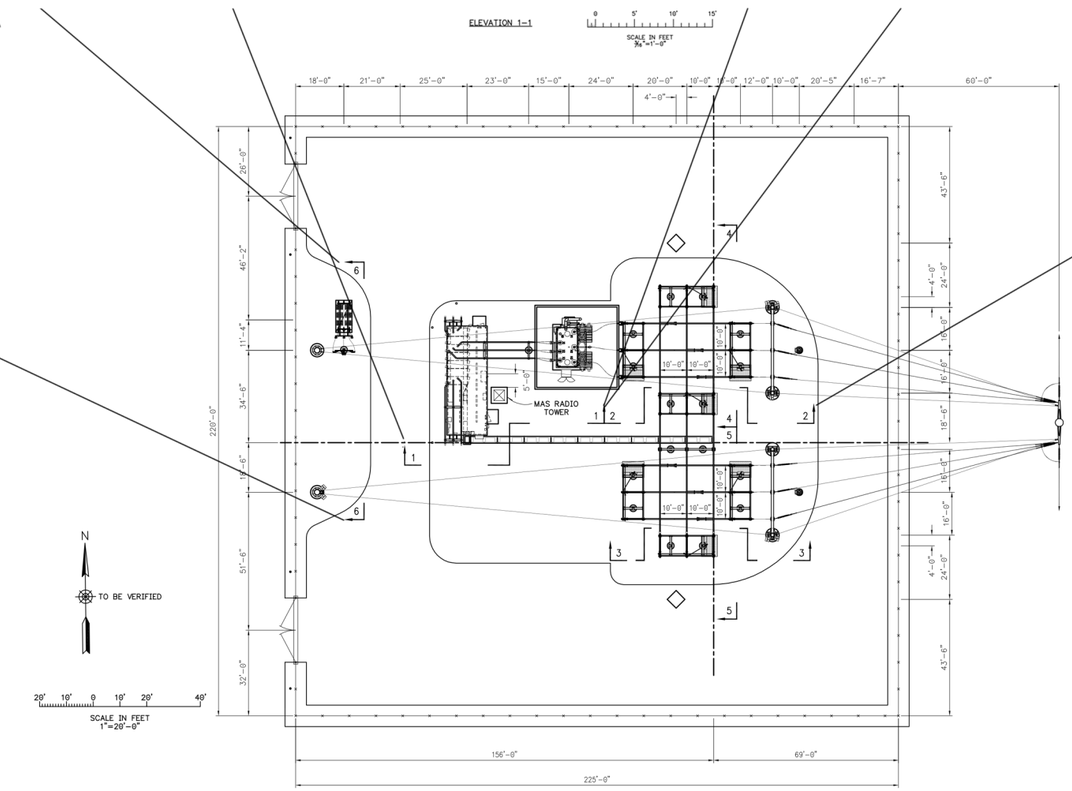
SECTION A–A



ELEVATION 1–1



ELEVATION 2–2



SOURCE: PacifiCorp 2016.

FIGURE 4-6
Lassen Substation Plan and Elevation Views

DUDEK

Lassen Substation Project

P:\300.Environmental\926-Lassen Substation\GIS&GRAPHICS\GIS_WMaps

INTENTIONALLY LEFT BLANK

Transmission Line Connection

Two new guyed wooden poles would be erected to connect the proposed Lassen Substation to the existing Line 2 69 kV transmission line. The poles would be located 30–50 feet to the west of the fenced boundary of the substation (Figure 4-5). The new guyed wooden poles would be between 80 and 90 feet tall and approximately 19 inches in diameter. When the transmission line is looped in and the substation activated, the two existing poles that feed the Mount Shasta Substation would be removed as part of the Mount Shasta Substation demolition.

Distribution Line Connection

Three new distribution lines would run underground from the substation vault located on the southern side of the substation compound to connect to poles in the main 69 kV transmission alignment adjacent to South Stage Road.

The first Black Butte Feeder distribution line would run underground from the substation vault south to Pole 15/48. The second distribution line would run to a new riser pole adjacent to the new access road before going overhead to a new wooden distribution pole between Poles 15/48 and 16/48. The third distribution line would run to the same new pole, but entirely underground (Figure 4-5).

For the underground components, conductors would be placed in plastic conduits laid in 4-foot-wide by 6-foot-deep trenches. Because of the heat production during operation, the trenches would then be backfilled with heat-dissipating material.

4.4.2 Transmission Line Upgrades

The proposed project would replace the neutral and phase conductors and up to 36 poles on the existing 69 kV transmission line, known as Line 2, that feeds the Mount Shasta Substation. Poles and conductor would be replaced from Pole 19/47, which is situated about 4,040 feet north of the existing substation, to Pole 2A/49, which is 2,780 feet south of the proposed substation on West Ream Avenue (Figure 4-3).

The proposed new wooden poles would support the additional weight of new 795 thousand circular mil (kcmil) aluminum conductor, steel reinforced (ACSR), which can operate at 115 kV, and an additional underbuilt distribution line. To meet conductor clearance requirements and accommodate the new distribution conductor, the proposed replacement poles would be 70–75 feet tall and no greater than 19 inches in diameter.

4.4.3 Distribution Line Upgrades

The project proposes to upgrade and rebuild two existing 4.16 kV distribution circuits to 12.47 kV and build a new third 12.47 kV circuit (see Figure 4-4).

The first distribution line, the Pioneer Feeder circuit, would be rebuilt. The neutral and three phase conductors would be strung under the rebuilt 69 kV Line 2, described above. The Pioneer Feeder circuit runs southwest for about 2,400 feet from Pole 16/48 by the substation to Pole 2/49 at Ream Avenue.

The second 12.47 kV distribution line, Black Butte Feeder, would run for 500 feet north between Poles 15/48 and 3/48 on the rebuilt Line 2 transmission poles before turning east, where it would replace the existing 4.16 kV line on existing poles that run along West Lake Street. A new underground line would then run under I-5 to Jessie Street, using existing riser poles.

The third distribution line would be a new 12.47 kV line that would be installed and built under the rebuilt Line 2 running northwest from the substation from Pole 15/48 to Pole 19/47. A new larger-capacity conductor would then replace the conductor on the existing distribution poles that run northeast to cross the I-5 overhead south of Pine Street. It should be noted that the I-5 crossing will not be reconductored; only the line leading to and from this crossing would be replaced. The line would then run underground along Kingston Road and along private roads through Eskaton Washington Manor, a senior living facility, before reemerging to cross the railroad and North Mount Shasta Boulevard to supply industrial facilities on Ski Village Drive (Figure 4-4).

In addition to the three lines discussed above, pole-top stepdown transformers and distribution lines would be installed on existing poles on Chestnut Street and Mill Street to connect the new 12.47 kV lines to the existing 4.16 kV distribution system in the City.

4.4.4 Decommissioning

Upon completion of the new substation, the old substation would be decommissioned: transformers, poles, wooden structures, concrete pads, and other aboveground components would be removed. The current fencing, gravel pad, and large concrete pads would, however, remain to be used as a storage and staging area for future work maintenance and emergency maintenance activities.

4.5 Project Land Requirements

The project would use existing road or utility rights-of-way for the transmission and distribution, but would use new parcels for the new substation. Table 4-1 provides the estimated permanent and temporary acreage area required for the proposed project.

Table 4-1
Permanent and Temporary Acreages Required to Construct and Operate the Project

Component	Permanent (Acres)	Temporary (Acres)
Graded substation pad	1.2134 (substation pad)	
Improvement of existing access road, and addition of new road	0.069 (improvement to existing road) 0.184 (addition of new road) 0.253 (total)	
Transmission and distribution pole replacement	<0.002	2.238
Pulling and tensioning pads	0	2.869
Directional boring pit and disturbance	0	0.115
Temporary access roads for pole replacement	0	2.182
Storage yards/staging area	0	0.23
Total	**1.468**	**7.634**

Sources: PacifiCorp 2015, 2016b.

4.6 Construction Activities

This section provides an overview of methods for the construction of the new substation, installation of the new poles and transmission lines, and removal of the old facilities. Table 4-2 lists the typical construction equipment and personnel needed for the various construction activities. Up to 43 personnel would be required at any time, and it is anticipated that about 50% of the work force would be hired locally. The remaining workforce would take up temporary accommodation nearby and commute to the site on a daily basis.

Table 4-2
Estimated Personnel and Equipment

Activity	People	Quantity and Type of Equipment	
Demolition of Existing Structures			
Demolition		1	Excavator (with thumb)
		1	Track loader
		2	Dump trucks
Total workforce	**4***		
Substation Construction			
Construction management	1	1	Pickup truck

Table 4-2
Estimated Personnel and Equipment

Activity	People	Quantity and Type of Equipment	
Survey	3	1	Pickup truck
Site preparation/grading	5	1	Backhoe
		1	Bulldozer
		2	Dump trucks
		1	Water truck
		1	Pickup truck
Material haul	3	1	Tractor/trailer
		2	Yard and field cranes or line trucks
		1	Fork lift
Access road construction	2–3	1	Bulldozer (D-8 Cat)
		1	Motor grader
		1	Pickup truck
		1	Water truck (for construction)
Concrete placement and formwork	5	1	Pickup truck
		1	Concrete truck
		1	Flatbed truck
Steel installation	5	1	Pickup truck
		1	Crane
		1	Bucket truck
		1	Forklift
Equipment installation	4	1	Pickup truck
		1	Forklift
		1	Crane
		1	Manlift
Bus work	4	1	Pickup truck
		1	Manlift
		1	Welder
		1	Crane
Testing and energization	2	1	Pickup truck
Fencing	4		—
Marshalling yard	2		—
Right-of-way restoration and cleanup	4	1	Bulldozer wide track
		1	Dump truck
		1	Pickup truck
Total workforce	**42–43***		
Transmission/Distribution Line Construction			
Construction management	1	1	Pickup truck
Survey	3	1	Pickup truck
Access road construction	2	1	Bulldozer (D-8 Cat)

Table 4-2
Estimated Personnel and Equipment

Activity	People	Quantity and Type of Equipment	
		1	Motor grader
		1	Pickup truck
		1	Water truck
Auger holes, direct embed poles	5	1	Hole digger
		1	Water truck
		1	Pickup truck
		1	Line truck
		1	Pump
Material haul	3	1	Tractor trailer
		2	Yard and field cranes or line truck
		1	Forklift
Structure assembly and installation	5	1	Pickup truck
		1	Line truck
		1	2-ton truck
		1	Bucket truck
Structure erection	5	1	2-ton truck
		1	Pickup truck
		1	Bucket truck
		1	Line truck
Wire installation (includes old wire removal)	8	1	Wire reel trailer
		1	Diesel tractor
		1	Crane
		1	Line truck
		3	Pickup trucks
		2	Bucket trucks
		2	3-drum pullers
		1	Single-drum puller
		1	Double bull-wheel tensioner
		1	Static wire reel trailer
Right-of-way restoration and cleanup	4	1	Bulldozer wide track
		1	Dump truck
		1	Pickup truck
Total workforce	**31***		

Source: PacifiCorp 2015.

* Maximum total personnel required considering all tasks; actual personnel on site at any one time will be less.

4.6.1 Substation Construction

The proposed substation site would need to be prepared for construction. This would include the removal and demolition of existing structures, the blocking of the existing well, and the removal of existing vegetation, including all trees in the area proposed for the substation pad. It is anticipated that the size of the substation pad would require the removal of most trees on the two parcels identified for the substation. Figure 4-5 indicates the extent of tree removal expected to be required to accommodate the substation pad.

The site would then be graded in accordance with grading permit requirements of Siskiyou County. It is anticipated that up to 65,000 cubic feet of fill and material would be removed from the site during construction and disposed of at a regulated facility. It is not anticipated that additional clean fill would be brought onto the site. The site would be graded to maintain current drainage configuration and then covered in crushed rock aggregate. Clearing and grading activities are expected to take 6 to 8 weeks to complete.

After grading, belowground construction activities would begin for installation of vaults and electrical conduits for the 12.47 kV distribution circuits, the electrical conduits for equipment power and control, and the grounding grid. Following installation of these components, up to 1,500 cubic feet of concrete foundations would be poured to support the heavier aboveground steel supporting structures and substation equipment. At this time, a 7-foot-high perimeter security fence would be installed. Belowground construction activities are expected to take 4–6 weeks to complete.

The installation of aboveground equipment would overlap with the belowground work. The major substation components, including steel and aluminum support work, 69/12.47 kV transformer with enclosed load to charger, enclosed 12.47 kV switchgear, and 12.47 kV capacitor bank, would be installed over 4–8 weeks. This equipment would be configured to provide a loop in from the Path 2 69 kV transmission line to the transformer and provide three 12.47 kV circuits out to the Mount Shasta service area. The design includes bays for two additional distribution transformers that could be used to expand the capacity of the substation should load in the service area increase.

Following the installation of the aboveground structures, the control and power cables would be pulled into the substation and installed in the new equipment, which would take up to 8 weeks. Connection to the grid would be followed by commissioning, testing, and energization of the new substation, which would take another 8 weeks.

A construction staging area approximately 100 feet by 100 feet would be required to store material and equipment while the substation is being constructed. The temporary staging area would be sited adjacent to the proposed substation site on PacifiCorp property (Figure 4-7, Temporary Work Areas, Access Areas, and Access Routes). This location would include the site construction office and temporary workers' parking.

4.6.2 Overhead Transmission and Distribution Line Construction

This section describes the construction sequence and methods for overhead transmission and distribution lines. Transmission line upgrades would include the replacement of 36 poles and the existing conductor with poles capable of carrying additional distribution lines and a conductor capable of operating at 115 kV. Distribution line upgrades would include the addition of one new 12.47 kV line distribution line and the replacement of conductor and earth wires on two existing distribution lines.

Surveying

Prior to pole and conductor installation, PacifiCorp would survey for the right-of-way centerline and identify the locations and placement of new poles, the location of work boundaries, and temporary laydown areas for pole assembly.

Pole Replacement

Up to 36 poles would be replaced along the existing Line 2 right-of-way, and 2 new poles would be added to loop the existing transmission line into the new substation. It is anticipated that replacement poles would be 70–75 feet in height and no greater than 19 inches in diameter. Each pole would be brought to the location where it would be erected. Assembly would require a flat temporary work area of approximately 50 feet by 250 feet at each pole location. Wooden poles, cross arms, and insulators would be brought to the site and assembled prior to erection.

The proposed wooden poles would not require a foundation, but each pole would be directly buried. Each pole would require a 2.5-foot-wide by 11.5-foot-deep hole (removing approximately 56 cubic feet of fill). Where ground conditions allow it, each hole would be augered by a power auger mounted on the back of a vehicle. The pole would then be erected using a crane and the hole would be backfilled.

Prior to placement, wooden cross arms, insulators, insulator strings, and stringing sheaves would be installed on each pole to facilitate the subsequent pulling and tensioning of the transmission lines. Stringing sheaves are temporary pulleys that guide the conductor during the stringing process.

Pole Removal

Old poles would be loosened by a hydraulic jack and removed from the site using a truck-mounted crane and a line truck. The hole would then be backfilled using soil from project-related activities in the immediate area. The surface would then be restored to grade and reseeded using suitable native seed mix.

Erecting Guard Structures

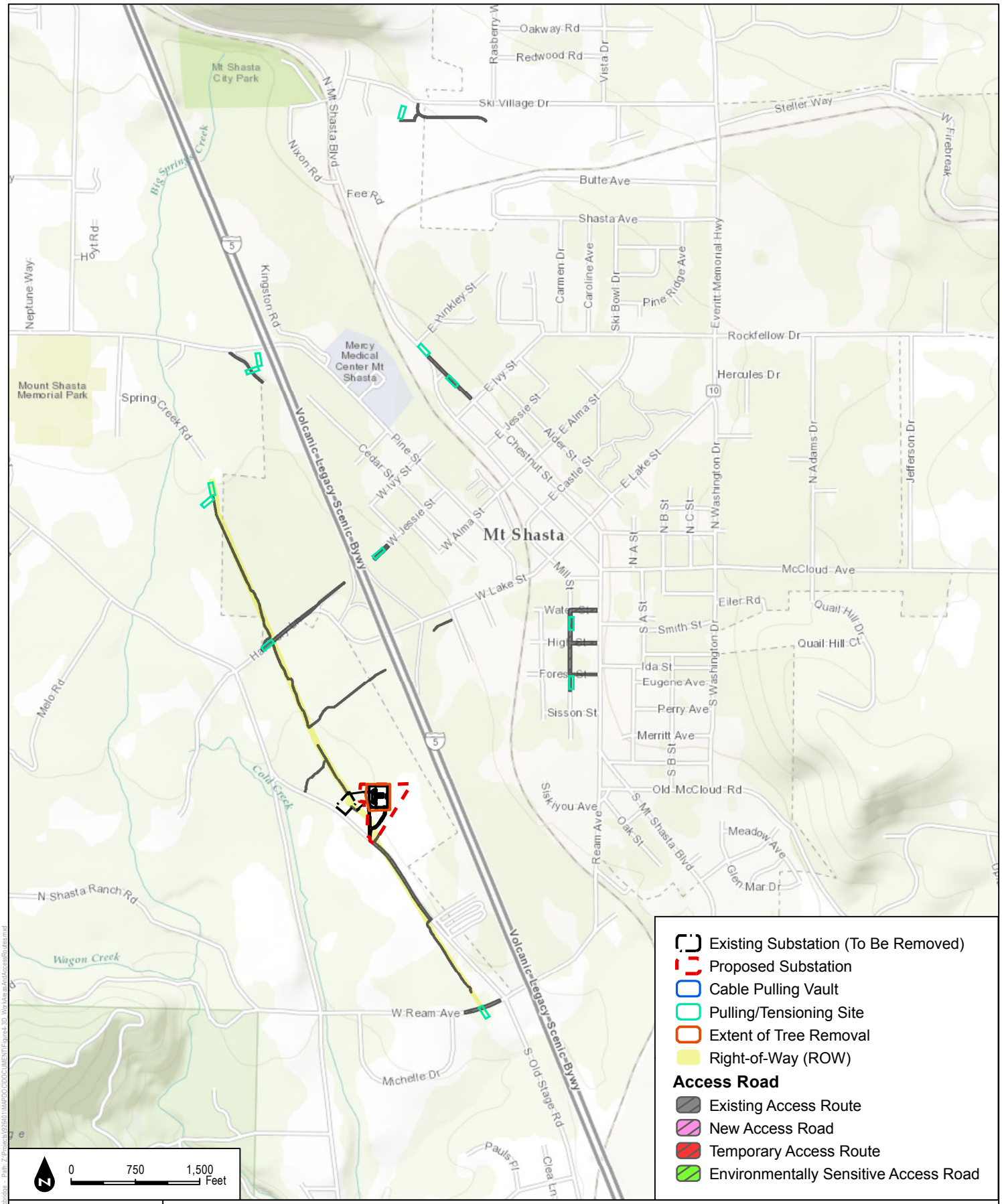
Prior to installation of conductors, guard structures would be erected over roadways for public safety. Guard structures would consist of H-frame poles placed perpendicular to the conductor line on either side of a highway crossing or obstacle. For this project, guard structures are likely to be required for crossing the railroad and North Mount Shasta Boulevard, West Lake Street, and West Ream Road.

Line Pulling and Tensioning

For pulling and tensioning, about 10 temporary work areas of about 50 feet by 250 feet would be cleared so that the puller, line trucks, and tractors could be positioned to pull and tension the conductors. The locations of temporary work areas have been selected to minimize the need for clearance and where feasible use existing, accessible graded areas. The locations of the temporary work areas are shown on Figure 4-7.

For each leg of the transmission and distribution line to be reconductored, a pilot line would be strung and pulled through the sheaves. The pilot line would in turn pull the thicker stringing line that would be used to guide the actual conductor though the sheaves on each pole. The process would then be repeated for each conductor and ground wire and the fiber optic shield until all wires are in position.

After the conductor is pulled in, lines would be spliced together and the wire tensioned and sagged to the required specifications before being secured to the dead-end structures. Any required mid-span splicing would be performed. Once the splicing has been completed, the wire would be sagged to the proper tension and dead-ended (secured) to structures. Finally, the wire would be secured to the insulators on each pole.



SOURCE: ESRI Basemaps (2016); PacifiCorp (2015)

FIGURE 4-7

Temporary Work Areas, Access Areas, and Access Routes

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK

4.6.3 Underground Distribution

Parallel runs of approximately 450 feet of conduit would be installed under I-5 from boring locations located on West Jessie Street to the west of I-5 and on West Jessie Street/Willow Street to the east of I-5. Once in place, the three insulated aluminum distribution cables would be passed through the conduit and connected to new riser poles on either side of I-5.

Temporary entry and exit pits of approximately 6 feet by 6 feet would be dug at the ends of West Jessie Street/Willow Street nearest I-5 to allow for the boring and placement of new 6-inch conduit under I-5 (a second 6-inch conduit would be installed immediately adjacent as a spare); the anticipated drill holes would be approximately 6 inches in diameter. The boring locations would occur within existing concrete areas; the street and concrete areas would be restored to existing conditions once construction of the underground distribution line is complete. Entry and exit pits would require temporary work areas of no more than 50 feet by 100 feet and would be located adjacent to the existing riser poles on West Jessie Street and Willow Street.

The drilling process generally consists of locating a conduit pipe in a hole drilled along an underground arc between entry and exit pits, if needed, on each end of the distribution line, using a boring machine that is a specialized horizontal drilling rig. The boring machine pushes and guides a drilling head connected to hollow pipe into the ground at a designated angle based on site conditions. Drilling mud and/or bentonite would be used to ensure that the hole around the conduit would be filled without voids. Based on the width of the boring (6 inches), the amount of drilling mud and/or bentonite would be minimal. When the bore head and rod emerge on the opposite side of the crossing, a special cutter, called a back reamer, is attached and pulled back through the pilot hole. The reamer bores out the pilot hole so that the pipe can be pulled through. Once the drilling is complete and the conduit is in place, the underground cables may be fed through the conduit.

Overhead to underground transition structures on both sides of the freeway would be replaced with new poles. However, it is anticipated that they would have the same configuration, height, and size as the existing structures and would be located in the same general location as the existing structures.

4.6.4 Mount Shasta Substation Demolition and Removal of Old Distribution Lines

Following the construction and energization of the Lassen Substation, the Mount Shasta Substation would be dismantled. The wooden frameworks, the transformers, and the larger

concrete bases would be removed. Fencing, concrete pads, and gravel surface would remain to form a compound that would be used by PacifiCorp as a storage yard for poles and for emergency construction purpose.

After the aboveground components have been removed, the underlying soil would be sampled for oil and PCB contamination. If any contamination is detected that is above state or federal concentrations, the area would be restored in accordance with current regulatory guidelines.

4.7 Construction Schedule

Construction of the substation and replacement of transmission lines and distribution lines would occur concurrently. In order to maintain continuous service, it is anticipated that demolition of the old substation would occur after the construction of the new substation and associated facilities. Working a 10-hour day over a 5-day week, the construction activity would consist of about 41 weeks of work over a maximum of 12 months. Table 4-3 provides a more detailed breakdown of the construction sequence, assuming a 41-week schedule (PacifiCorp 2016c).

Table 4-3
Proposed Schedule for Construction of the Project

Task	Maximum Work Days	Weeks
		1 – 8 – 15 – 23 – 31 – 39 – 41
Demolition and grading for new substation	40	
Below-grade Construction	30	
Above-grade construction	40	
Installation power and control cables	40	
Commissioning new substation	40	
Old substation demolition	10	
Aerial transmission construction	172	
Distribution line construction	192	

Source: PacifiCorp 2016c.

INTENTIONALLY LEFT BLANK

4.8 Operation and Maintenance

Operational activities would be similar to present activities; maintenance and repair crews would visit on a monthly or as-needed basis. Transmission line inspection would be in accordance with GO-95 and GO-165 and would usually be expected to occur on an annual or half-yearly basis, or as needed should repair issues or outages arise.

4.9 Applicant Proposed Measures

The PEA details project protocols that would be followed during project-related activities (PacifiCorp 2015). Project protocols are specific to environmental issue areas and are herein termed applicant proposed measures (APMs). Table 4-4 lists APMs proposed as project design features. These APMs are analyzed as part of the proposed project.

Table 4-4
Applicant Proposed Measures

APM Number	Description
	Air Quality
APM-AQ-1	**Construction Pollutant Reduction Measures:** Particulate matter emissions shall be controlled by implementing standard construction dust control measures including, but not limited to, the following: • Minimize soil disturbance. • Regularly water disturbed areas, including on-site vehicle/equipment travel routes and soil stockpiles. Watering should be sufficient to prevent airborne dust from leaving the site. • Curtail earthmoving activities on windy days. • Ensure that the engines of all construction equipment are properly tuned. • Limit the maximum speed to 15 miles per hour on unpaved surfaces. • Replant vegetation in disturbed areas as quickly as possible. • Implement other effective particulate matter control measures, as needed. Greenhouse gas emissions generated during project construction shall be minimized by implementing the following measures: • Use California Air Resources Board-certified construction equipment, where available. • Use alternative fuel types for construction equipment where feasible. • Use local building materials. • Limit construction vehicle idling time.
	Biological Resources
APM-BIO-1	Focused pre-construction surveys for special-status plant species shall be conducted in appropriate habitat, according to U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) protocols for species having a specified protocol, or according to standard, scientifically accepted systematic surveys appropriate for each species. Surveys will be conducted in areas of planned ground disturbance. To the extent feasible, avoidance modifications in the placement of transmission towers, access and spur roads, and of various marshalling and staging areas shall be made in accordance with the final project design and

Table 4-4
Applicant Proposed Measures

APM Number	Description
	needs. If special-status plant species are located during focused surveys within the project area, avoidance measures shall be incorporated. If avoidance is not possible, relocation efforts, including topsoil salvage and relocation, if necessary, will be implemented. If PacifiCorp proposes any changes to the current construction plan or pole replacement sites after focused surveys for special-status species are conducted, additional field surveys shall be required prior to construction activities. Pre-construction biological clearance surveys shall be conducted to avoid or minimize potential impacts to special-status wildlife species. If burrows are located during surveys, avoidance measures shall be incorporated and the Environmental Monitor shall proceed as described in APM-BIO-6.
APM-BIO-2	Prior to first use, the undercarriages, wheels, and bodies of construction and operations equipment previously used outside of the project area shall be thoroughly washed in maintenance yards by high-pressure jets to eliminate any soil buildup that may contain invertebrates, such as insects and insect eggs, or the seeds of exotic plant species.
APM-BIO-3	Every reasonable effort shall be made to minimize temporary and permanent removal of native vegetation at work areas. If required, native vegetation shall be flagged for avoidance. If native vegetation cannot be avoided, it will be crushed rather than bladed. A project revegetation plan shall be prepared for areas of native vegetation temporarily affected by project construction activities.
APM-BIO-4	Construction crews shall avoid affecting the streambeds and banks of any streams along the route, to the extent feasible. If necessary, a Lake and Streambed Alteration Agreement (LSAA) will be secured from the CDFW. Impacts will be mitigated based on the terms of the LSAA. No streams with flowing waters or those capable of supporting special-status species would be expected to have permanent adverse impacts from project implementation.
APM BIO-5	To avoid impacts from temporary access to wetland areas, existing access roads and temporary access methods (e.g., high density polyethylene (HDPE) driving mats, portable road platforms) shall be used to access pole replacement sites. Results of the wetland delineation (Appendix D of the PEA) shall be incorporated into vehicle access routes, which shall be designed to avoid and minimize wetland disturbance.
APM BIO-6	Environmental Monitors shall be assigned to the project, and will be responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, and unique resources are avoided to the fullest extent possible. The monitor shall delineate and mark for avoidance in the field all known sensitive resource locations and, where appropriate, use flagging to delineate boundaries of areas from where activities are restricted to protect native plants and wildlife or special-status species. If the monitor determines that project activities may adversely affect the species, the monitor shall consult with USFWS and/or CDFW regarding appropriate avoidance measures. These restricted areas shall be monitored during construction to ensure their protection.
APM BIO-7	PacifiCorp shall conduct all pole installation, conductor installation, tree trimming, tree removal, grading and clearing of vegetation from September 1 to February 28, outside of the nesting season. The March 1–August 31 nesting season dates are guidelines: nesting season may begin earlier or end later depending on weather conditions; active nests will be protected using appropriate buffers regardless of the calendar date. If construction cannot be completed outside of the nesting season, pre-construction surveys within the project area will be conducted by a qualified biologist for nests prior to ground disturbance, tree trimming, or other construction activities. The nesting bird clearance survey will be conducted within 3 days prior to construction activities. For passerines, a 50-foot buffer will be installed around the nest and maintained around the nest until the young have fledged. A larger buffer may be required if nesting birds appear stressed. Nesting raptors require a larger buffer area than passerines. If a raptor nest is observed, a 300-foot buffer will be installed. If a nesting raptor is observed within 300 feet of the project area prior to the start of construction, a qualified biologist will determine whether or not construction activities could potentially disturb nesting raptors and implement appropriate measures (e.g., on-site monitor, timing restriction) to adequately protect nesting raptors.

Table 4-4
Applicant Proposed Measures

APM Number	Description
APM-BIO-8	A Worker Environmental Awareness Program (WEAP) shall be prepared and all construction crews and contractors shall be required to participate in WEAP training prior to starting work on the project. The WEAP training shall include a review of the special-status species and other sensitive resources that could occur in the project area, the locations of any existing sensitive resources, their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all personnel trained shall be maintained.
APM-BIO-9	Migratory bird flight paths in the project area are currently unknown. An impact assessment study and bird observation surveys shall be conducted according to the Avian Power Line Interaction Committee's (APLIC's) (1994) survey protocol. The surveys shall be conducted within wetlands along both sides of the existing transmission line within the study area. The surveys shall be done in consultation with CDFW. Results of the bird observation surveys will determine potentially impacted species and locations to mark wires to increase their visibility to flying birds. Line markers should be designed to be raptor-safe in accordance with the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2012 (APLIC 2012), evaluated and approved by PacifiCorp engineers prior to implementation.
APM-BIO-10	Vehicles shall be restricted to previously established roadways and access routes.
APM-BIO-11	Trash, dumping, firearms, open fires, hunting, and pets shall be prohibited in the project area.
APM-BIO-12	If construction within and near potential Willow Flycatcher habitat (riparian scrub and surrounding wet meadow) cannot be completed outside of the Willow Flycatcher breeding season (June 1-August 31), broadcast surveys shall be conducted to determine presence/absence of the species prior to construction activities. If absence is determined, construction may begin within the potential Willow Flycatcher habitat. If presence is determined, flycatcher detections will be buffered by 150 feet, and construction activities will not occur within the buffer area for the remainder of the breeding season.
APM-BIO-13	Operation and Maintenance activities that must occur in or near potential Willow Flycatcher habitat (riparian scrub and surrounding wet meadow) will be conducted outside of the Willow Flycatcher breeding season (June 1 to August 31), whenever practicable.
Geology and Soils	
APM-GEO-1	The project will be designed and constructed in accordance with recommendations included in the project-specific geotechnical investigation: site grading, excavation and utility trenches, foundations, mitigation of soil corrosivity on concrete, seismic design criteria, and unpaved site access road.
Greenhouse Gas Emissions	
APM-AQ-1	**Construction Pollutant Reduction Measures:** Particulate matter emissions shall be controlled by implementing standard construction dust control measures including, but not limited to, the following: • Minimize soil disturbance. • Regularly water disturbed areas, including on-site vehicle/equipment travel routes and soil stockpiles. Watering should be sufficient to prevent airborne dust from leaving the site. • Curtail earthmoving activities on windy days. • Ensure that the engines of all construction equipment are properly tuned. • Limit the maximum speed to 15 miles per hour on unpaved surfaces. • Replant vegetation in disturbed areas as quickly as possible. • Implement other effective particulate matter control measures, as needed. Greenhouse gas emissions generated during project construction shall be minimized by implementing the

Table 4-4
Applicant Proposed Measures

APM Number	Description
	following measures: • Use California Air Resources Board-certified construction equipment, where available. • Use alternative fuel types for construction equipment where feasible. • Use local building materials. • Limit construction vehicle idling time.
	Hazards and Hazardous Materials/Fire Safety
APM-HAZ-1	**Health and Safety Plan.** A Health and Safety Plan shall be prepared and made available once a contractor is procured for the construction of the proposed project. The plan should include, and not be limited to, information on the appropriate personal protective equipment to be used during construction. All transport of hazardous materials would be in compliance with applicable laws, rules and regulations, including the acquisition of required shipping papers, package marking, labeling, transport vehicle placarding, training, and registrations.
APM-HAZ-2	**Hazardous Substance Control and Emergency Response Plan.** PacifiCorp shall prepare and implement a Hazardous Substance Control and Emergency Response Plan as needed. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of project construction through operation. The plan would include, but not be limited to, worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on site. If it is necessary to store chemicals on site, they would be managed in accordance with all applicable regulations. Material safety data sheets would be maintained and kept available on site, as applicable. All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following: • Proper disposal of potentially contaminated soils. • Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources. • Emergency response and reporting procedures to address hazardous material spills. • Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work will be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit. PacifiCorp will complete its Emergency Action Plan Form as part of project tailboard meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailboard information.
APM-HAZ-3	**Spill Prevention, Countermeasure, and Control (SPCC) Plan.** An SPCC plan shall be prepared and certified by a professional engineer; a complete copy would be maintained on site. The SPCC plan would include engineered and operational methods for preventing, containing, and controlling potential releases and provisions for a quick and safe cleanup.
	Hydrology and Water Quality
APM-WQ-1	**Stormwater Pollution Prevention Plan (SWPPP) or Erosion Control Plan Development and Implementation.** An erosion and sediment control plan would be developed prior to construction and included as part of the required SWPPP. The goal of the SWPPP will be to remove sediment and wastes from runoff before the runoff is discharged from the project site. This would be accomplished by: • Minimizing the acreage of disturbed and exposed soil during the construction phase and implementing

Table 4-4
Applicant Proposed Measures

APM Number	Description
	stabilization measures where necessary. • Removing sediment from runoff before it leaves the site. • Complying with specific erosion and sediment control measures specified within the erosion and sediment control plan. Methods may include preservation of existing vegetation or use of geomats, straw wattles, straw bale barriers, or silt fencing, which would be placed at construction boundaries. Gravel ramps may be installed at access points to public roadways to prevent or minimize the tracking of mud, dirt, sediment, or similar materials onto the roadway. Selection of appropriate erosion control materials will be based on soil properties, steepness of the slope, and anticipated surface flow or runoff. Diesel fuel, gasoline, oil, and other lubricants, as well as adhesives and sealants, would be utilized during the construction of the transmission line and substation. Bulk quantities may be stored in the designated construction yard/staging area. Vehicle fueling and maintenance activities would be restricted to staging areas or approved areas away from drainage channels and sensitive habitats. All construction vehicles would be monitored for leaks and receive regular off-site preventive maintenance to reduce the chance of leakage. A copy of the SWPPP and of Receipt of the Letter of Intent, including the project's Waste Discharge ID Number, will be provided to the California Public Utilities Commission prior to construction to certify compliance with Order 2009-0009-DWQ Construction General Permit. The SWPPP will be updated during construction as required by the State Water Resources Control Board.
APM-WQ-2	**Restoration.** To reduce visual contrast and siltation in construction where ground disturbance is substantial, surface preparation and reseeding shall occur during the last phase of construction. The method of restoration would normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches. These actions shall occur in areas of exposed soils large enough that, if they remain unremediated once construction is completed, they could exceed water quality objectives of receiving waters (e.g., for sediment, turbidity, temperature, and dissolved oxygen) set forth in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins.
APM-WQ-3	**Pole Placement Minimization/Avoidance:** To minimize the amount of sensitive features disturbed in designated areas, poles would be placed so as to avoid sensitive features and/or to allow conductors to clearly span the features, within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance.
Transportation and Traffic	
APM-TT-1	**Traffic Management Plan:** Prior to the start of construction, PacifiCorp shall prepare a Traffic Management Plan. The Plan would define the use of flag persons, warning signs, lights, barricades, cones, etc. to control construction traffic. The Plan would include but not be limited to the following: • All property owners and residents of streets affected by construction shall be notified prior to the start of construction. Advance public notification shall include postings of notices and appropriate signage of construction activity. Access to all residences and properties near the project shall be maintained at all times. • All construction activities shall be coordinated with local law enforcement and fire protection agencies. Emergency service providers shall be notified of the timing, location, and duration of construction activities. • Road use-related wear and tear shall be documented during construction of transmission line facilities and PacifiCorp shall repair any damaged roadway sections, as applicable.

Sources: PacifiCorp 2015, 2016a.

4.10 Key Permits and Approvals

Key permits and approvals presumed necessary for implementation of the proposed project are presented in Table 4-5.

Table 4-5
Required Permits and Approvals

Permit/Approval	Accepting Authority/ Approving Agency	Statutory Reference
Federal		
Clean Water Act 404 Preconstruction Notification	U.S. Army Corps of Engineers	Clean Water Act, Section 404; 33 CFR 320–330
Permit to cross Federal-Aid Highway	Federal Highway Administration	23 CFR 1.23 and 1.27; 23 CFR 645 Subpart B; 23 CFR 77
State of California		
Permit to Construct	CPUC	CEQA, Cal Pub. Res. Code Sec. 21000 et seq. and Public Utilities Code Section 1001
Encroachment Permit	California Department of Transportation, District 2 - Redding	Section 671.5(a) of the California Streets and Highways Code
Streambed Alteration Program – Notification	California Department of Fish and Wildlife, Northern Region (1)	Fish and Game Code, Sections 1602 and 1603
Section 401 CWA Water Quality Certification	State Water Resources Control Board – California Water Quality Control Board for Central Valley, Region 5 (Redding Office)	Federal Clean Water Act, Section 401
State Waste Discharge Requirements (WDRs) – obtained as part of the 401 Water Quality Certification	State Water Resources Control Board – California Water Quality Control Board for Central Valley, Region 5 (Redding Office)	Porter-Cologne Water Quality Control Act
General Discharge Permits for Storm Water Associated with Construction Activity	State Water Resources Control Board – S.M.A.R.T.S. Database	Federal Clean Water Act, Section 402

4.11 References

17 CCR 95350–95359. "Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear (Refs & Annos)."

PacifiCorp. 2015. *Lassen Substation Proponent's Environmental Assessment*. Prepared by Power Engineers. October 2015.

PacifiCorp. 2016a. Lassen Substation Response to CPUC Data Request 2.0. Prepared by Power Engineers.

PacifiCorp. 2016b. Lassen Substation Amendment. Prepared by Power Engineers.

PacifiCorp. 2016c. Lassen Substation Response to CPUC Data Request 1.0. Prepared by Power Engineers.

INTENTIONALLY LEFT BLANK

5 ENVIRONMENTAL CHECKLIST AND DISCUSSION

This Initial Study includes analyses of the 17 environmental issue areas listed below by section number. These issue areas incorporate the topics presented in the California Environmental Quality Act (CEQA) Environmental Checklist (14 CCR 15000 et seq., Appendix G).

5.1 Aesthetics
5.2 Agriculture and Forestry Resources
5.3 Air Quality
5.4 Biological Resources
5.5 Cultural Resources
5.6 Geology and Soils
5.7 Greenhouse Gas Emissions
5.8 Hazards and Hazardous Materials
5.9 Hydrology and Water Quality
5.10 Land Use and Planning
5.11 Mineral Resources
5.12 Noise
5.13 Population and Housing
5.14 Public Services
5.15 Recreation
5.16 Transportation and Traffic
5.17 Utilities and Service Systems

Explanations for the checklist findings, as well as existing conditions, are provided for each environmental issue area.

Environmental Setting

The Environmental Setting sections present a description of the physical environment for each of the 17 environmental parameters analyzed for the South of Palermo 115-kilovolt (kV) Power Line Reinforcement Project (proposed project). The discussion of environmental setting varies among the parameters. The content and level of detail of the Environmental Setting section is relative to the parameter discussed and the extent of the potential impacts that could occur from project activities.

Regulatory Setting

Current regulatory settings are presented in the Regulatory Setting sections of the 17 environmental parameter sections. Federal, state, regional, and local regulations applicable to the project are identified.

Applicant Proposed Measures

PacifiCorp, the proposed project applicant (applicant), has proposed project design features to be integrated into the proposed project. These features are elements of the project design,

construction, and operation that are specifically designed to avoid and minimize impacts to environmental resources. These are referred to as applicant proposed measures (APMs) and are numbered and provided in full in this section of each environmental parameter discussion.

Environmental Impacts and Mitigation

The results of the environmental analyses conducted for the proposed project are presented in these portions of Sections 5.1 through 5.17. Each of the environmental analysis discussions presents the following:

- Significance criteria
- Impact discussion
- Levels of significance
- Mitigation measures

The significance criteria are a benchmark for determining whether a project would result in significant environmental impacts when evaluated against the baseline (i.e., existing conditions). Each of the environmental analysis sections presents discussions about the potential effects of the proposed project on the environment. Analyses are presented for each CEQA Environmental Checklist question, accompanied by a determination made as to whether or not the proposed project would result in a significant environmental impact based on the established thresholds of significance. Mitigation measures are identified, if warranted, that could reduce the impact to a less than significant level. The impact analyses are divided into the basic phases of the project (i.e., construction, operation, and maintenance) and further divided by component if warranted by the environmental parameter, significance criterion, or impact analysis.

5.1 Aesthetics

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

5.1.1 Environmental Setting

Scenic Vistas

Although the Siskiyou County (County) and City of Mount Shasta (City) General Plan do not identify or formally designate scenic vistas in the County or City, the segment of Interstate 5 (I-5) within the proposed project area is part of the 500-mile-long Volcanic Legacy Scenic Byway and is an eligible state scenic highway. The segment of I-5 between U.S. Route 97 (US-97) and State Route 89 (SR-89) is a County-designated scenic freeway. In addition to occasional open meadows and pastures that are interrupted by tall stands of pine trees in the freeway right-of-way, coniferous forest and oak woodland-covered hills; the tall, conical form of Black Butte; and the rugged terrain of the snowcapped Mount Shasta and satellite cones are visible in middleground and background views from I-5 as it traverses the project area. Figure 5.1-1, Existing Views Available from I-5 through the Project Area, is representative of existing views of the surrounding landscape available to northbound I-5 motorists as they pass through the Mount Shasta area. In addition to interstate motorists, the area's scenic resources are also visible from surface roadways and Mount Shasta area residences. Figure 5.1-2, Existing Views Available from Hatchery Lane, depicts existing views to area scenic resources from Hatchery Lane, a local public road. Given the scenic designations associated with I-5 through the project area and the visibility of scenic resources (i.e., vegetation and terrain) that are characteristic of the local landscape, scenic vistas are available in the project area.

Scenic Highways

In the proposed project area, the approximately 10-mile-long segment of I-5 between US-97 near the City of Weed and SR-89 near the City of Mount Shasta is part of the 500-mile-long Volcanic Legacy Scenic Byway, a congressionally recognized roadway designated by the Federal Highway Administration (FHWA) as an "All-American Road." The same segment of I-5 is an eligible state scenic highway (and a component of the California Department of Transportation (Caltrans)-managed State Scenic Highway Program) and a County-designated scenic freeway. According to Siskiyou County, scenic freeways are those that traverse the most efficient route to or between areas of major scenic, cultural, or recreational attractions (Siskiyou County Planning Department 1974). Existing views from I-5 in the project area are dominated by mountainous terrain (including Mount Eddy and the Eddy Range) to the west, Mount Shasta and its satellite cones to the east, and the volcanic Black Butte to the north.

Please refer to Section 5.1.2, Regulatory Setting, for information regarding federal, state, and regional/local scenic roadway designations.

Existing Visual Character

The proposed project is located in and just outside of the City of Mount Shasta's city limits and within the pastoral landscape of the Strawberry Valley area. In addition to I-5, which features two travel lanes in each direction, a central swale planted with grasses and occasional coniferous trees, and 8-foot-wide shoulders lined by low metal guard railing (see Figure 5.1-1), development in the immediate project area (i.e., west of I-5) is scattered and largely composed of single-story, low-density rural residences, agricultural outbuildings, limited mobile home park development, and electrical distribution and transmission infrastructure. Although the mobile home park development displays an orderly layout, rural residences in the area are generally dispersed throughout the landscape and separated by clusters of tall coniferous trees and undeveloped expanses of golden-hued wet or dry montane meadows managed as grazing pastures or wetland areas. In addition to coniferous forest and meadows, vegetation communities in the project area include non-native grasslands, fen, and riparian scrub. The Strawberry Valley abuts densely forested hills and rugged, volcanic mountainous terrain. Figures 5.1-3 and 5.1-4, Existing Landscape Setting, depict existing views of the project area landscape available from local roadways near the existing Mount Shasta Substation.

Existing View from NB I-5 near West Ream Avenue

Existing View from NB I-5 near West Lake Street

SOURCE: Google 2015

FIGURE 5.1-1

Existing Views Available from I-5 through the Project Area

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK

Existing View from Hatchery Lane looking north

Existing View from Hatchery Lane right-of-way looking east

SOURCE: Dudek 2016

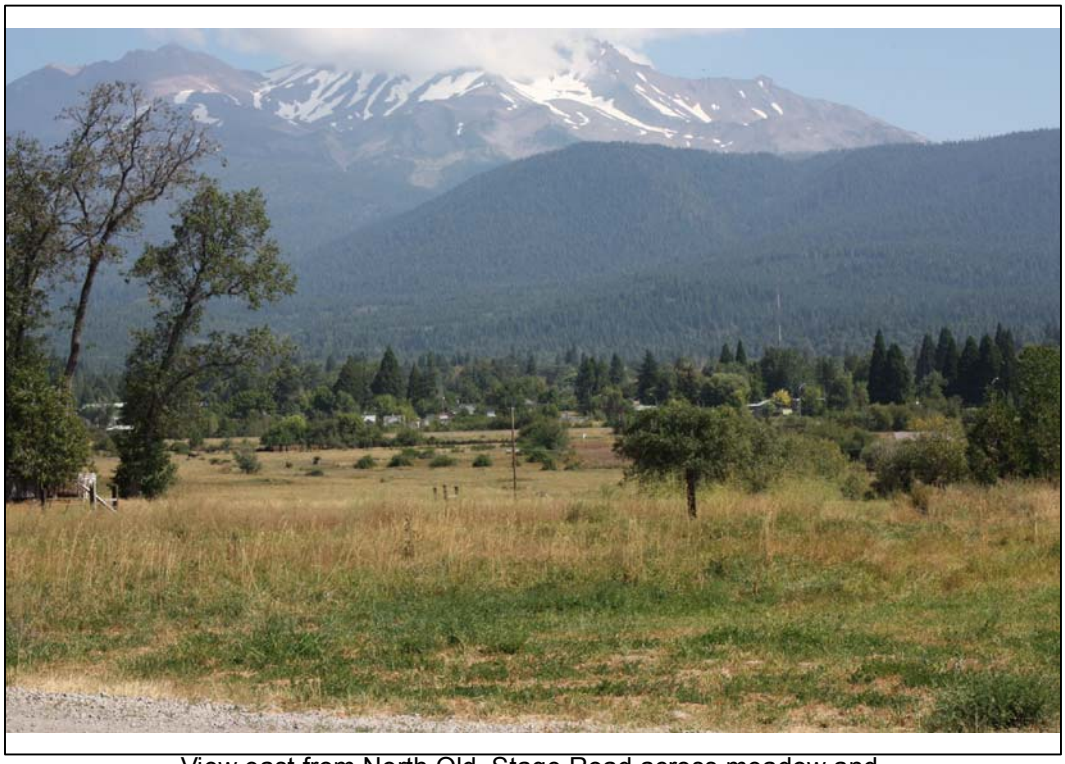
FIGURE 5.1-2

Existing Views Available from Hatchery Lane

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK



View east from North Old Stage Road across meadow and coniferous forest landscape toward Mt. Shasta

View west from South Old Stage Road across meadow and coniferous forest landscape toward the Eddy Range

SOURCE: Dudek 2016; Power Engineering, Inc. (2016)

FIGURE 5.1-3

Existing Landscape Setting (1 of 2)

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK

View northwest from Hatchery Lane toward meadow and coniferous forest landscape

View north from North Old Stage Road

SOURCE: Dudek 2016; Power Engineering, Inc. (2016)

FIGURE 5.1-4

Existing Landscape Setting (2 of 2)

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK

Development east of I-5 in the Mount Shasta area is denser and more varied and features hotel, retail, fast-food restaurant, and commercial businesses; however, the area is similarly dotted with mature street and landscape trees and occasional expanses of densely vegetated natural areas.

Although Mount Shasta (approximate elevation of 14,162 feet above mean sea level) and its satellite cones tend to dominate easterly views from I-5, local surface streets, and other viewing locations in the Mount Shasta area, rolling, coniferous forest-covered hills, the wide, slightly concave form of Mount Eddy, and the conical form of Black Butte are also visible and contribute to the volcanic landscape of the surrounding area.

Sensitive Receptors

As discussed above, existing development in the immediate project area consists of rural residences, scattered agricultural outbuildings, I-5, and local surface roads. As such and for the purposes of this analysis, sensitive receptors include surrounding area residents and motorists on I-5 and local surface roads. Due to the proximity of Lake Siskiyou, City of Mount Shasta parks, and the Shasta–Trinity National Forest to the project area, recreationists were also considered. However, due to intervening terrain and vegetation, views to the proposed project component locations are generally not available from recreational areas. For example, Lake Siskiyou is located as close as 0.75 miles to the southern extent of the project area as measured from the intersection of West Ream Avenue and Michele Drive. However, existing pine-tree-covered terrain located north of North Road and dense stands of trees located east and west of West A Barr Road would block proposed project component locations from views of Lake Siskiyou recreationists. Furthermore, the nearest National Forest recreational amenity, McBride Springs Campground, is located more than 2.5 miles northeast of the nearest project component location. Forested terrain surrounding the campground obstructs much of the City of Mount Shasta, including proposed project component locations, from view. As such, the views of recreationists are not considered in this analysis.

Residents

Proposed project components would be primarily located within the Strawberry Valley area, a pastoral landscape that features montane meadows, natural areas covered with stands of coniferous forest and riparian scrub, and scattered rural residences. Areas afforded views of the proposed project components would include the residential neighborhoods on North and South Old Stage Road, West Ream Avenue, West A Barr Road, Hatchery Lane, West Jesse Street, and Michele Drive. In addition to rural single-family residences, project components (i.e., several rebuilt transmission structures) may be visible to residents of the 63-site Chateau Shasta Mobile Home Park (704 South Old Stage Road). Depending on the location

and presence of vegetation, residences may be afforded obstructed or partially obstructed views to proposed project components. Although existing transmission and distribution lines and structures and the Mount Shasta substation are existing features in the landscape and are visible to area residents, this viewer group is consider highly sensitive to changes in the landscape due to expectations of views to a primarily natural pastoral and mountainous landscape and the stationary nature of their views.

Representative views of the surrounding landscape from project area residential areas are depicted on Figures 5.1-2 through 5.1-4.

Motorists

As they travel through the project area, motorists on local area roads, including North and South Old Stage Road, West Ream Avenue, West A Barr Road, Hatchery Lane, West Jesse Street, and Michele Drive, would be afforded views to proposed project components, including rebuilt transmission and distribution lines, new wooden poles, and the proposed Lassen Substation. Existing transmission and distribution lines are installed along Old Stage Road and West Ream Avenue, and the existing Mount Shasta Substation is located immediately adjacent to West Ream Avenue. Because the majority of local area road motorists are assumed to be local residents, these viewers are considered highly sensitive to changes in the landscape.

In addition to motorists on local roads, northbound and southbound I-5 motorists would also be afforded views to a segment of the proposed reconductored existing distribution line located west of the interstate and a new overhead circuit that would span the interstate approximately 0.25 miles north of the West Lake Street overpass. As previously stated, the segment of I-5 located in the project area is part of the Volcanic Legacy Scenic Byway and is designated as an All-American Road by the FHWA. In addition, the segment is an eligible state scenic highway and is a Siskiyou-County designated scenic freeway due to available views to the scenic volcanic and mountainous landscape of the Mount Shasta area. For example, motorists' views from north- and southbound I-5 are dominated by volcanic, mountainous terrain located in the background viewing distance to the west (i.e., Mount Eddy and the Eddy Range) and to the east (i.e., Mount Shasta and satellite cones, including Shastina). The conical form of Black Butte is also visible to northbound I-5 motorists as they pass through the project site and is visually prominent in northerly-oriented views. Although I-5 motorists travel through the area at high speeds (the posted speed limit is 65 miles per hour) and existing electrical transmission and distribution infrastructure is visible from north- and southbound travel lanes, the I-5 viewshed contains scenic resources and is considered scenic by the FHWA, Caltrans, Siskiyou County, and the City of Mount Shasta. Therefore, because of the scenic designation of I-5 through the project area, interstate motorists are considered moderately sensitive to changes in the landscape.

Light and Glare

Existing sources of nighttime lighting in the project area are relatively limited and consist of interior and exterior lighting associated with scattered residential development adjacent to Old Stage Road, tall overhead cobra-style streetlights aligned along the north- and southbound I-5 off-ramps at Lake Street, security lighting mounted to the building exteriors of auto-oriented services along Mount Shasta Boulevard, and vehicle headlights on the interstate and surface roads. In addition to overhead lighting and vehicle headlights, existing sources of glare consist of metallic siding buildings on Mount Shasta Boulevard and metallic siding roofs atop occupied and vacant structures along Old Stage Road.

5.1.2 Regulatory Setting

Federal

National Scenic Byway Program

The FHWA's National Scenic Byway Program was established to help recognize, preserve, and enhance selected roads throughout the United States. Criteria for the National Scenic Byways Program were established by the FHWA in 1995 and National Scenic Byways (or All-American Roads) are designated based on their archaeological, cultural, historic, natural, recreational, and scenic intrinsic qualities (FHWA 2016a). To be designated as a National Scenic Byway, a road or highway must meet at least one of the six scenic byway intrinsic qualities. To be designated an All-American Road, the road or highway must meet the criteria for at least two of the intrinsic qualities. In addition, the road or highway must provide "an exceptional traveling experience that is so recognized by travelers that they would make a drive along the highway a primary reason for their trip" (60 FR 26759–26762). In addition to meeting intrinsic quality criteria, a corridor management plan developed with community input must be prepared for the scenic corridor and submitted for review during the nomination process. As one of 14 necessary components, a strategy describing how new development might be accommodated while still preserving the intrinsic qualities of the corridor must be included in the corridor management plan (60 FR 26759–26762). Once designated, funding for improvements to the scenic byway to enhance access and visitation to the area through a grant application process is made available to the state in which the scenic byway is located.

In the project study area, the approximately 10-mile-long segment of I-5 between US-97 near Weed and SR-89 is part of the Volcanic Legacy Scenic Byway (FHWA 2016b). Designated as an All-American Road by the FHWA and recognized by Congress in the National Scenic Byways Program, the Volcanic Legacy Scenic Byway encompasses approximately 500 miles

of highways from which motorists are afforded views of a dramatic volcanic landscape between Lassen Volcanic National Park in California and Crater Lake National Park in Oregon (FHWA 2016b).

Funding for the National Scenic Byways Program ceased in fall 2013 and the FHWA is no longer soliciting grant applications or Scenic Byway/All-American Road designations (FHWA 2016a).

State

Caltrans Scenic Highway Program

In 1963, the California Legislature created the Scenic Highway Program to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to the highways. The state regulations and guidelines governing the Scenic Highway Program are found in Section 260 et seq. of the Streets and Highways Code. A 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 upon the travelers' enjoyment of the view (Caltrans 2008). A state route must be included on the list of highways eligible for scenic highway designation in Streets and Highways Code Section 263 for it to be nominated for official designation (eligible state routes are those that have been listed in Section 263 by the State Legislature). The application to nominate eligible scenic highways for official designation requires the preparation of a visual assessment and a scenic highway proposal. The proposal must include a letter of intent from the local governing body, topographic and zoning maps, and a narrative description of the scenic elements in the corridor that includes a discussion of any visual intrusions on scenic views (Caltrans 2008). In addition, the local governing body must also develop, adopt, and submit to Caltrans for review and approval a corridor protection program composed of protection measures in the form of protective ordinances, zoning, and/or planning policies that apply to the area of land within the scenic corridor (Caltrans 2008).

In the proposed project area, the approximately 10-mile-long segment of I-5 between US-97 near Weed and SR-89 near the City of Mount Shasta is listed in Section 263 of the Streets and Highways Code and as such is an eligible state scenic highway (Caltrans 2016).

Regional/Local

Siskiyou County General Plan

The Siskiyou County General Plan includes goals, objectives, and policies relevant to aesthetics and visual resources in the Scenic Highways Element and the Energy Element. Scenic routes and

the principles of the scenic route system and scenic route corridor are also addressed in the Scenic Highways Element.

Scenic Highways Element

The Scenic Highways Element identifies three types of scenic routes: (1) scenic freeways, (2) scenic highways, and (3) scenic rural routes (Siskiyou County Planning Department 1974). From its confluence with US-97 in Weed to its confluence with SR-89 south of Mount Shasta, I-5 is a County-designated scenic freeway. The overarching principle of the County's scenic route system is to "provide attractive and efficient links between recreational and cultural centers, while providing a variety of experiences and views giving uninterrupted movement of pleasure driving" (Siskiyou County Planning Department 1974). To protect the visual quality along scenic route corridors, the County adopted the following principles, which are applicable to the proposed project:

1. Provide for normal use of the land and protect against unsightly features.
2. Locate transmission lines and towers outside of Scenic Corridors when feasible.
3. Establish architectural and site design review by the appropriate local jurisdiction.
4. Use landscaping to increase scenic qualities (Siskiyou County Planning Department 1974, Principle C: The Scenic Route Corridor).

In addition to the above-listed principles, the following Scenic Highways Element objectives concern the protection of scenic views from scenic routes and as such are considered applicable to the proposed project:

Objective 2. To conserve, enhance, and protect scenic views observable from scenic routes without unduly restricting the primary use of the lands involved.

Objective 4. To preserve for all travelers the outstanding characteristics of Siskiyou County, primarily clean air and magnificent scenery, so that it may so remain, providing incentives for tourism, and to stabilize and increase property values and the economy of Siskiyou County (Siskiyou County Planning Department 1974, III: Objectives).

Energy Element

Because they address energy facilities and County scenery, the following goals, policies, and implementation measures are applicable to the proposed project:

32. In the absence of compelling or contravening considerations, energy facilities should not be sited in sensitive natural resources areas, including: unstable

geologic or soil areas; floodplains; wetlands; habitat of fish or wildlife species of rare, threatened, endangered, or special concern status; known paleontological, archaeological, ethnographic, or historical sites; or designated scenic areas. If siting in such areas is unavoidable, it shall be limited to the smallest possible portion of the energy facility in question, and shall be mitigated in accordance with CEQA.

33. Wherever possible, increased demand for energy transmission shall be accommodated with existing transmission facilities. Where new capacity is necessary, priority shall be given to upgrading or reconstruction of existing facilities, followed by new construction along existing transmission or other utility corridors. Any new transmission facilities shall be sited so as to minimize interference with surrounding land-uses, and in ways that minimize their visual impacts (Siskiyou County Planning Department 1993, Energy Facilities, Policies).

K.3. The siting of transmission lines shall avoid interfering with scenic views, and shall be visually integrated with the surrounding setting to the greatest extent possible. Applicable visual mitigations include, but are not limited to avoiding ridgelines or other visually prominent features, and using non-glare towers and non-specular lines which more readily blend into the natural landscape (Siskiyou County Planning Department 1993, Zoning Ordinance, Implementation Measures).

City of Mount Shasta General Plan

The following goals, policies, and implementation measures pertain to the protection of scenic resources within and outside the City of Mount Shasta city limits and therefore are applicable to the proposed project:

Open Space/Conservation Element

Goal OC-7: Protect the scenic resources of the Mt. Shasta area.

Policy OC-7.1: Promote the protection of the scenic beauty of the Mt. Shasta area through appropriate zoning, development standards, and the development review process involving lands in both the City and outside the city limits. The County is encouraged to support and help implement this policy.

Implementation Measures:

OC-7.1(a): Locate new development outside of scenic vistas and off of prominent slope exposures and ridge lines, except when land in such areas is specifically zoned and planned for development, in which case special design standards shall be required to reduce visual impacts.

OC-7.1(c): Establish and enforce standards for outdoor lighting to reduce light pollution.

OC-7.1(d): Require undergrounding of all new utilities wherever practical. Encourage other agencies and entities to underground their facilities. Where undergrounding is impractical, aboveground lines shall be located to minimize impacts on sensitive scenic areas (City of Mt. Shasta Planning Department 2007, Scenic Resources).

5.1.3 Applicant Proposed Measures

Applicant proposed measures that would directly address construction and/or operational aesthetic impacts have not been proposed.

5.1.4 Environmental Impacts and Mitigation

a) Would the project have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. The Siskiyou County General Plan and City of Mount Shasta General Plan do not formally designate scenic vistas. However, the proposed project is located in a volcanic landscape featuring significant scenic features, including the "glacial-carved features" of Mount Shasta, Mount Eddy and the Eddy Range, Black Butte, and densely forested hills and mountains. Therefore, scenic vistas do occur from viewpoints in the project area, and clear to partially obstructed views to features of significant aesthetic value are available to residents and motorists.

As described in more detail in Section 5.1.4(b), views of volcanic and mountainous terrain including Mount Shasta, Mount Eddy, and Black Butte are available from I-5 as motorists and passengers pass through the project area. Additional viewers in the project area who are afforded views of these prominent landscape features include motorists on local public roads, including North and South Old Stage Road, West Ream Avenue, West A Barr Road, Hatchery Lane, West Jesse Street, and Michele Drive. The proposed project primarily entails reconductoring an existing distribution line and replacing existing distribution line support poles, and aboveground electrical

infrastructure is present in existing views from I-5 and local public roads. For example, an existing distribution line and associated support poles are aligned along the eastern right-of-way of North Old Stage Road and several dark-colored horizontal conductor wires and tall wooden support poles are present in the foreground of existing views toward Mount Shasta. Similarly, transmission and distribution lines and support poles run parallel and perpendicular to Hatchery Lane and are present in the existing views toward Mount Shasta, northern views towards Black Butte, and western views toward Mount Eddy available to eastbound motorists.

As described in more detail in Section 5.1.4(b), implementation of the proposed project would not substantially affect existing scenic views available from I-5 through the project area. Due to the presence of tall coniferous trees immediately west of I-5, project components would be screened from view along the interstate between West Ream Avenue and West Lake Street. North of West Lake Street, interstate-adjacent trees are less dense and tend to display a shorter form, which provides for briefly experienced viewing corridors to project distribution and transmission lines. Although interstate motorists and passengers traveling through the Mount Shasta area at approximately 65 miles per hour would experience brief views of proposed project components, electrical transmission and distribution infrastructure displaying similar form and line are present in existing views from north- and southbound I-5. The addition of conductor wires and introduction of taller support poles along the existing distribution alignment located in the foreground viewing distance would create more readily noticeable line contrast; however, these features would be backscreened by dark coniferous forest and would not generally rise above the existing tree line. As such, additional conductor wires and replacement support poles would not substantially obstruct or screen from view densely forested hilly and mountainous terrain in the middleground to background viewing distance. These features would not dominate views as motorists and passengers pass through the scenic Mount Shasta area landscape. Because views of the new conductor wire and replacement support poles would be experienced briefly and these features would be backscreened by mature coniferous trees, project components would not substantially obstruct or interrupt available views of Mount Eddy.

In addition, project components would not result in a substantially adverse effect to existing views of Mount Shasta and Black Butte available from I-5. New support poles and conductor lines associated with the proposed distribution line that would run from Pine Street northeast to Ski Village Drive would generally be screened from view of I-5 motorists by dense, mature stands of interstate-adjacent trees. As such, existing available views to Mount Shasta would not be substantially affected. In addition, the proposed

project would not include the introduction of new conductor lines or other linear features that would span I-5 such that existing views to Black Butte available to northbound motorists and passengers would be substantially interrupted or obstructed. Therefore, implementation of the proposed project would result in **less than significant** impacts to scenic vistas available on I-5.

For similar reasons as described above, implementation of the proposed project would result in less than significant impacts on scenic vistas available on local public roadways. For example, in views from eastbound West Ream Avenue, the introduction of additional conductor wires and taller replacement poles along South Old Stage Road would be noticeable to motorists and passengers and would include slightly greater line contrast when compared to existing electrical distribution infrastructure; however, these foreground features would not be visually prominent. Rather, conductor wires and replacement poles would generally be backscreened by tall, dark coniferous forest and due to sheer dominance in form and scale, Mount Shasta would continue to command the attention of motorists and passengers as they travel eastbound on West Ream Avenue. Implementation of the proposed project would slightly enhance views from South Old Stage Road toward Mount Shasta. As part of the proposed project, PacifiCorp would remove the existing South Old Stage Road-adjacent Mount Shasta Substation from service (all existing components would be removed but the substation yard would be used for storage of support poles and other infrastructure) and would construct the proposed Lassen Substation a greater distance from the roadway. As a result, substation components would be less visually prominent due to a perceived reduction in scale as viewed from South Old Stage Road. As such, implementation of the proposed project would result in **less than significant** impacts to scenic vistas available from local public roads in the project area.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

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

Less Than Significant Impact. Although not an officially designated state scenic highway, the stretch of I-5 through the project area is eligible for state scenic designation. According to the FHWA, Siskiyou County, and the City of Mount Shasta, I-5 through the project area also affords motorists views of scenic resources of significant aesthetic value, including Mount Shasta, Mount Eddy, and Black Butte. Although not officially designated, the I-5 viewshed contains scenic resources, and development projects

occurring within the viewshed could potentially affect plans of the County and/or City to seek official state scenic designation for the segment of I-5 within their jurisdiction. Therefore, for purposes of disclosure and consideration of future official scenic designation efforts, potential impacts to existing views from I-5 resulting from implementation of the proposed project are analyzed in this section.

Proposed reconductoring of the existing distribution line located west of I-5 would be visible to north- and southbound I-5 motorists. Under existing conditions, the distribution line and wooden support poles are visible to motorists in westerly views toward Mount Eddy and the Eddy Range and are located within 0.25 miles of the interstate. Regularly spaced thin wooden poles and largely horizontal conductor wire are backscreened by tall, dark, and dense coniferous forest, and existing infrastructure does not substantially obstruct or interrupt views of mountainous terrain in the middleground and background viewing distance. Under proposed conditions, existing wooden support poles would be replaced (new poles would display a similarly narrow width but a slightly greater height) and additional horizontal conductor wires would be strung between poles, increasing the visible line contrast in the foreground viewing distance. Despite the increased horizontal line contrast, the visual effects of the proposed project would be experienced briefly as motorists pass through the area and would be tempered by the presence of existing electrical distribution infrastructure that contributes to the existing character and quality of westerly views from the interstate. In addition, reconductoring of the existing distribution line and the introduction of new support poles would not damage scenic resources such as trees, rock outcroppings, and historic buildings within a state scenic highway. New poles would generally be installed in the same general area as existing poles. As such, scenic highway impacts associated with distribution reconductoring, including the introduction of addition conductor wire and increasing the height of existing support poles, would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less Than Significant Impact. To assist in the visual character analysis, three viewpoints in the project area from which views of proposed project components would be available were selected. The three viewpoints are representative of available public views to project components in the project area and consider the views of sensitive receptors in the area. The viewpoints also reflect the various distances, viewing angles,

and visibility conditions at locations from which sensitive receptors would view project components. To that end, the existing landscape setting as viewed from each viewpoint was documented and photographed and visual simulations of proposed project components were prepared. The visual simulations depict the anticipated visual change associated with implementation of the proposed project, and along with photographs of the existing landscape setting, present a before-and-after view of existing and proposed conditions. Visual simulations were prepared by Power Engineers Inc. and the visual simulation preparation process is documented in detail in PacifiCorp's Proponent's Environmental Assessment (PacifiCorp 2015).

The locations of the three representative viewpoints considered in this analysis are shown on Figure 5.1-5, Viewpoint Locations. The view orientation of each viewpoint is also depicted in the figure, as is the location of the proposed project components. The discussion in this section examines existing and proposed conditions at each of the three viewpoints; characterizes the anticipated visual change as low, moderate, or high; and includes a determination of significance.

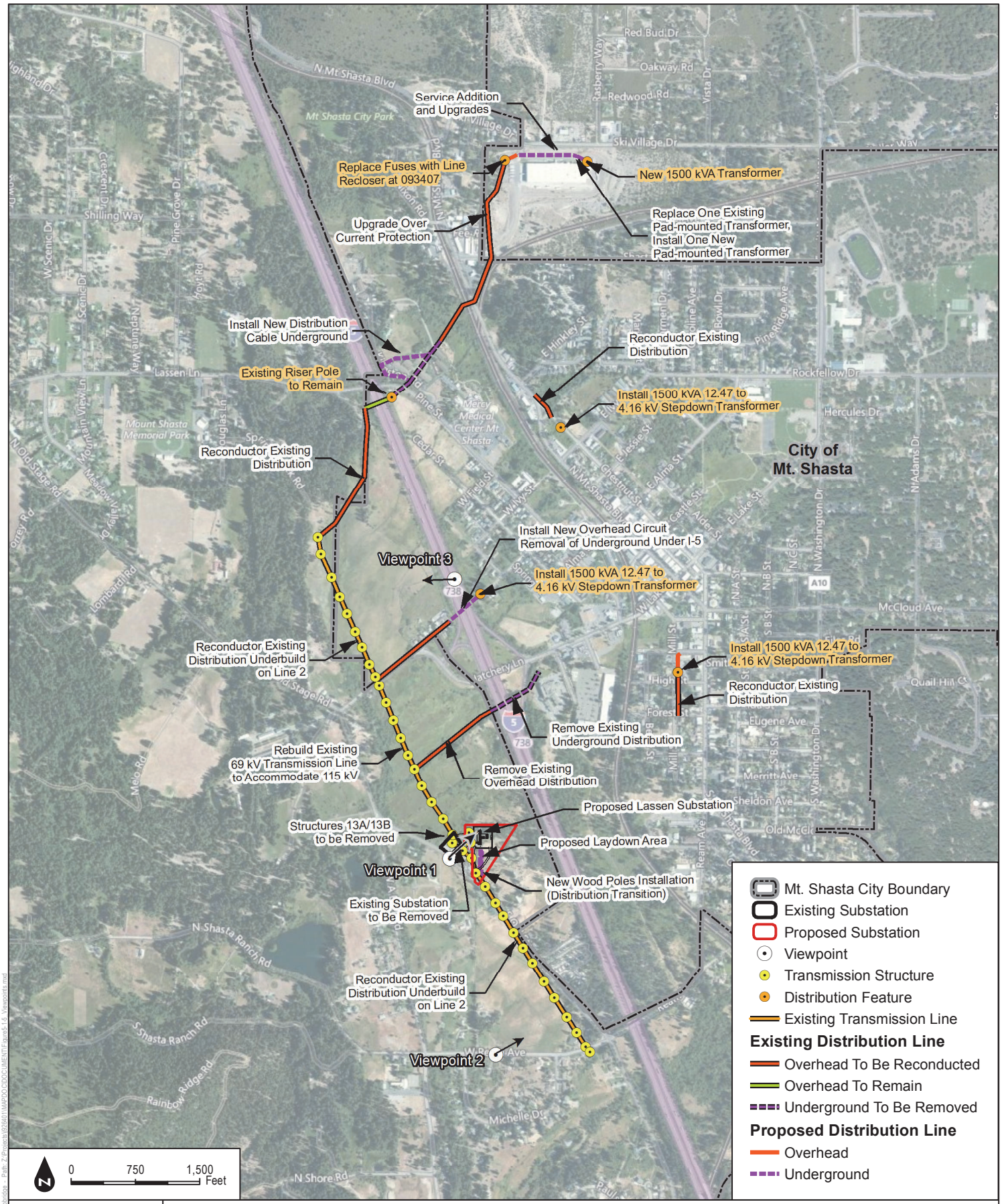
Viewpoint 1 – Old Stage Road

Viewpoint 1 is on northbound Old Stage Road, approximately 0.5 miles north of West Ream Avenue, and the view orientation is to the northeast, toward the existing Mount Shasta Substation and the proposed Lassen Substation (see Figure 5.1-6, Viewpoint 1: Old Stage Road). Viewpoint 1 is representative of views available to passing motorists on local surface roads and project area residents located within the immediate foreground (i.e., within 500 feet) to foreground (i.e., 500 feet to 0.25 miles) distance of the existing Mount Shasta Substation and the proposed Lassen Substation.

The snow-covered slopes of Mount Shasta and the conical form of Black Butte are visible in the background viewing distance. As depicted on Figure 5.1-6, vertical and horizontal wooden beams composing substation support racks; thin, busy wiring; and grayish and off-white rectangular cabinets and transformers within the chain-link-fenced Mount Shasta Substation are visible in the foreground and produce a jumbled visual experience. Although these components do not substantially block views of Black Butte, they do tend to distract views and offer competing vertical elements of interest. Existing transmission and distribution lines and wooden support poles are also visible and are either backscreened by tall pine trees or silhouetted against the sky. Tall, dark-green coniferous forest and spreading riparian scrub vegetation is visible beyond the substation fence and distribution and transmission infrastructure.

As proposed, the existing Mount Shasta Substation would be disassembled and removed and the proposed Lassen Substation would be constructed approximately 350 feet to the east. Substation infrastructure would be removed from the existing site, but the perimeter chain-link fence and gravel surface would be maintained. The site would be used by PacifiCorp as an equipment storage yard (while difficult to detect due to poles being laid on the ground, the storage of wooden support poles and other equipment is depicted on Figure 5.1-6). The flat grayish graveled surface of the existing substation site would continue to create color contrast with the green, yellow, and brown color palette displayed by area vegetation and terrain; however, the removal of existing substation racks and infrastructure would create a less jumbled scene and would improve the quality of views toward Black Butte.

In regard to the proposed Lassen Substation, the light grayish tones and simple horizontal and vertical lines displayed by substation infrastructure would be distinct when viewed against dark-green coniferous forest vegetation. However, constructing the substation farther away from Old Stage Road (the substation would be located approximately 375 feet away) would reduce the apparent scale of this feature in the landscape. As a result, substation components would not be visually prominent and would not rise above the dark ridgeline of mountainous terrain in the middleground distance. In regard to electrical distribution and transmission infrastructure, replacement wooden support poles would be slightly taller than existing poles (additional conductor wires would also be strung between poles) but would contribute similar vertical forms (and thin horizontal lines) as existing infrastructure present in views. Lastly, the new wooden angle-support pole to be installed just outside the fence line of the Lassen Substation would be located in line with the Mount Shasta summit as viewed from Viewpoint 1. Despite this line-of-sight obstruction, the rugged ridgeline and slopes of the mountain would remain visible and views of the new pole would be experienced briefly by passing motorists. Therefore, because implementation of the proposed project would represent moderate visual change and would enhance the quality of existing views, impacts to existing visual character and quality would be **less than significant**.



DUDEK

SOURCE: Bing Maps (2016); PacifiCorp (2015)

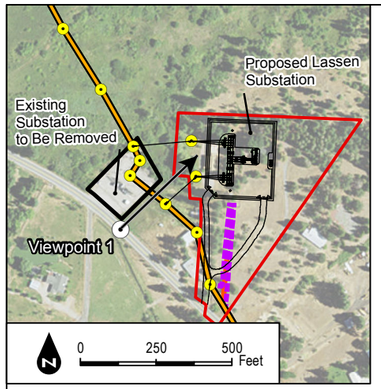
FIGURE 5.1-5

Viewpoint Locations

Lassen Substation Project

Date: 8/30/2016 — Last saved by: mbolyard — Path: Z:\Projects\09364\01\MAPDOC\DOCUMENT\Figure5-1-5_Viewpoints.mxd

INTENTIONALLY LEFT BLANK



Existing

Proposed

DUDEK

SOURCE: Bing Maps (2016); PacifiCorp (2015); Power Engineering, Inc. (2016)

FIGURE 5.1-6

Viewpoint 1: Old Stage Road

Lassen Substation Project

INTENTIONALLY LEFT BLANK

Viewpoint 2 – West Ream Avenue

Viewpoint 2 is situated on eastbound West Ream Avenue, approximately 0.3 miles west of Old Stage Road. The view orientation is to the northeast, across a low golden meadow and toward the existing transmission line installed along Old Stage Road (see Figure 5.1-7, Viewpoint 2: West Ream Avenue). Viewpoint 2 is representative of views available to passing motorists on local surface roads and project area residents located within the middleground (i.e., 0.25-mile to 0.75-mile) distance of the existing 69 kilovolt (kV) transmission line.

As shown on Figure 5.1-7, the low golden grasses of the foreground meadow in the landscape abruptly give way to tall, dark-green coniferous forest east of Old Stage Road. The rectangular form and tan and blue exteriors of mobile homes within the Chateau Shasta Mobile Home Park are noticeable but partially obstructed by vegetation. The dark silhouette of a prominent (and forested) hill located east of the City of Mount Shasta is visible and the rugged, noticeably steep slopes of Mount Shasta are dominant features in the scene. Existing transmission line support poles are visible but because of their thin vertical form and due to distance, the structures are not visually prominent when viewed from Viewpoint 2. Lastly, the thin horizontal line of conductor lines strung between support poles is difficult to detect when viewed against the dense cluster of dark-green pine trees.

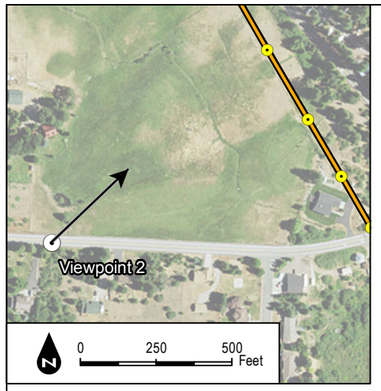
Upon project implementation, existing wooden support poles installed along Old Stage Road would be replaced with slightly taller wooden support poles and additional conductor lines would be strung on the replacement poles. As viewed from Viewpoint 2, the replacement poles would display a thin vertical profile similar to the existing poles and the increased structure height would not substantially alter existing views or create noticeably stronger line contrast. The additional conductor lines installed on transmission structures would slightly increase line contrast due to the introduction of multiple horizontal and slightly concave lines. Furthermore, as shown on Figure 5.1-7, the new conductor lines would be more visible than existing line (the diameter of the new 795 thousand circular mil (kcmil) aluminum conductor steel-reinforced cable (ACSR) conductor lines is greater than that of existing conductor lines), but the increased visibility of these features would not substantially alter the existing quality of the view or the character of the visible landscape. Views of Mount Shasta would also not be obstructed or substantially altered due to implementation of the proposed project. Overall visual contrast and change associated with the proposed project would be low/weak and impacts would be **less than significant**.

Viewpoint 3 – I-5

Viewpoint 3 is on northbound I-5, approximately 0.35 miles north of the West Lake Street Overpass. View orientation is to the west, across interstate travel lanes, adjacent riparian scrub vegetation, and a low meadow landscape toward the existing transmission line, which is approximately 0.25 miles away (see Figure 5.1-8, Viewpoint 3: I-5). A dense stand of tall, dark-green forest is located beyond the transmission line and coniferous-forest-covered hills are located in the middleground distance. The rolling, relatively flat ridgeline of a topographical saddle located south of Mount Eddy is visible in the background. Viewpoint 3 is representative of views available to passing I-5 motorists and project area residents located within the middleground (i.e., 0.25-mile to 0.75-mile) distance of the existing 69 kV transmission line.

As shown on Figure 5.1-8, existing wooden support poles and conductor lines are visible in westerly views from I-5. More than the support poles, the horizontal line and color displayed by conductor lines contrast with the vertical form and dark-green color of coniferous forest vegetation. Support poles tend to replicate the tall form and thin line displayed by backscreening pine trees and as a result, these features tend to recede into existing landscape features. Implementation of the proposed project and the installation of taller replacement poles would create negligible visual change and negligible form and line contrast as viewed from Viewpoint 3. The stringing of new (and additional) conductor lines would result in increased line contrast; however, because these features are currently present in the landscape, the overall visual change would be incremental and would not substantially affect the quality of existing views. Visual contrast would be weak/low and would be experienced briefly by motorists passing through the area at 65 miles per hour. Therefore, impacts to existing visual quality and character associated with the proposed project as viewed from Viewpoint 3 would be **less than significant**.

Because the existing visual character and quality of available views in the project area has been influenced by existing substation facilities and transmission and distribution infrastructure displaying similar scale, form, line, and color as the proposed project components, the existing visual character and quality of the project area would not be substantially degraded by implementation of the proposed project. Demolition of the existing substation, construction of the new substation approximately 375 feet to the east, and modification of existing overhead distribution and transmission lines would result in overall low visual change and contrast and would occur where these features currently exist in the landscape. Therefore, impacts would be **less than significant**.



Existing

Proposed

SOURCE: Bing Maps (2016); PacifiCorp (2015); Power Engineering, Inc. (2016)

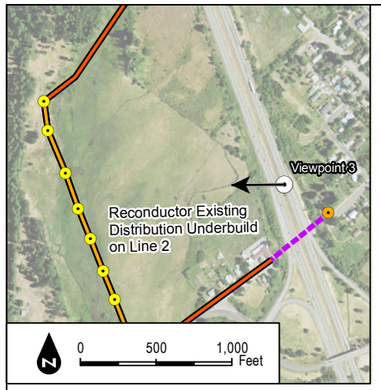
DUDEK

FIGURE 5.1-7

Viewpoint 2: West Ream Road

Lassen Substation Project

INTENTIONALLY LEFT BLANK



Existing

Proposed

SOURCE: Bing Maps (2016); PacifiCorp (2015); Power Engineering, Inc. (2016)

FIGURE 5.1-8
Viewpoint 3: I-5

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. In addition to construction activities, routine operations and maintenance work associated with the proposed project would occur during daytime hours and temporary, mobile nighttime lighting would not be required. Although the proposed Lassen Substation would require the introduction of new lighting for security purposes, lighting would be minimal and would be directed downward to minimize potential skyglow and light trespass onto adjacent properties. In addition, lighting would be motion-sensor controlled and would normally be turned off unless maintenance personnel were to access the substation during emergencies that may occasionally occur. During emergencies necessitating nighttime work, use of mobile lighting sources would be required but would be temporary and focused onto work areas, as opposed to directed toward motorists or residences in the surrounding area. Proposed transmission line upgrades would include the replacement of existing wooden poles with new wooden poles and would not require permanent lighting, and the wooden poles would not generate glare. With the exception of maintenance vehicles accessing the site during nighttime hours, no additional sources of permanent or temporary nighttime lighting or glare are anticipated during operation of the proposed Lassen Substation. Therefore, because permanent lighting introduced at the substation facility would be limited to that required for security and safety (and would be motion-sensor controlled), and because lighting used during nighttime emergencies would be directed downward and operated only on an emergency basis, impacts would be **less than significant** and no mitigation is required.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

5.1.5 References Cited

60 FR 26759–26762. Notice of FHWA interim policy: "National Scenic Byways Program." May 18, 1995.

Caltrans (California Department of Transportation). 2008. *Landscape Architecture Program Scenic Highway Guidelines*. October 2008.

Caltrans. 2016. "Scenic Highway Program: Siskiyou County."

City of Mount Shasta Planning Department. 2007. "Open Space/Conservation Element." *City of Mt. Shasta General Plan*.

FHWA. 2016a. "National Scenic Byways Program." Accessed August 9, 2016. http://www.fhwa.dot.gov/hep/scenic_byways/.

FHWA. 2016b. "Volcanic Legacy Scenic Byway." Accessed August 9, 2016. http://www.fhwa.dot.gov/byways/byways/2587.

PacifiCorp. 2015. *Lassen Substation Proponent's Environmental Assessment*. Prepared by Power Engineers. October 2015.

Siskiyou County Planning Department. 1974. "Scenic Highways Element." *General Plan for Siskiyou County, California*. May 1974.

Siskiyou County Planning Department. 1993. "Energy Element." *Siskiyou County General Plan*. March 1993.

5.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined 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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☒	☐
e) 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?	☐	☐	☐	☒

5.2.1 Environmental Setting

The project site is within the City of Mount Shasta (City) and unincorporated Siskiyou County (County) and land uses are therefore governed by the City General Plan and the County General Plan. The site of the proposed substation is within the city limits of the City of Mount Shasta, while the overhead and underground distribution lines proposed for upgrades extend into unincorporated Siskiyou County in several locations (Figure 4-2, Project Overview). Land uses surrounding the proposed Lassen Substation and the Line 2 alignment consist primarily of rural residential, agricultural, and undeveloped land, while land uses surrounding the proposed distribution line upgrades consist of a variety of uses including rural and urban residential, Interstate 5, commercial and office buildings, light industrial uses, and a hotel and senior housing community.

The site of the proposed new substation is within an area designated as Farmland of Local Importance by the Farmland Mapping and Monitoring Program (FMMP). The Line 2 Alignment and proposed distribution upgrade areas traverse areas designated by the FMMP as Other Land, Farmland of Local Importance, and Urban and Built-Up Land. The proposed project would not occur within any areas designated by the State of California as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) (CDOC 2014). No Williamson Act lands occur within the project footprint (CDOC 2016).

Forest Land and Timberland

No lands within the City of Mount Shasta with zoning designations for forest land, timberland, or timberland zoned Timberland Production occur within the footprint of the proposed project (City of Mount Shasta 2015). The Siskiyou County General Plan applies general woodland productivity suitability ratings to areas of the County based on soil types mapped within the County. Although the Woodland Productivity map is low resolution and general in nature, the area around the portions of the project within Siskiyou County, including the Line 2 alignment and the existing and proposed substations, appear to be assigned High and Moderate suitability ratings (Siskiyou County 1980). However, according to the Siskiyou County Code, no County lands formally zoned forest land, timberland, or timberland zoned Timberland Production occur within the project footprint (Siskiyou County 1961). County lands traversed by the power line alignment and the existing substation and proposed substation sites are within the following zone districts: Multiple-Family Residential (RES-4), Neighborhood Commercial (C-U), Rural Residential Agricultural (R-R), Non-Prime Agricultural (AG-2), and Planned Development (P-D) zoning. The site of the proposed substation is within the Rural Residential Agricultural (RR) zoning district, which allows for rural residential uses mixed with commercial agricultural uses and allows for public utility uses with approval of a conditional use permit (Siskiyou County 2016). Utility uses do not conflict with any zoning assigned to lands traversed by the proposed project and no forest land, timberland, or timberland zoned Timberland Production occur within the footprint of the proposed project.

5.2.2 Regulatory Setting

Federal

There are no applicable federal regulations or policies related to agriculture and forestry resources for the proposed project.

State

California Department of Conservation's Farmland Mapping and Monitoring Program

The California Department of Conservation's FMMP produces maps and statistical data used to monitor the conversion of the state's farmland to and from agricultural use. Every 2 years the maps are updated using data obtained from aerial photographs, public review, and field reconnaissance. The FMMP is an informational service only and does not have regulatory jurisdiction over local land use decisions. For the purpose of this environmental analysis and consistency with the Farmland Policy Act of 1981, the term "Farmland" includes Prime Farmland, Unique Farmland, and Farmland of Statewide Importance, and any conversion of land within these categories is typically considered to be an adverse impact.

Descriptions of the FMMP Farmland categories are provided below.

Prime Farmland

Prime Farmland has 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. Prime Farmland must have been used for irrigated agriculture production at some time during the 4 years prior to the FMMP mapping date.

Farmland of Statewide Importance

Farmland of Statewide Importance is similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. In addition, to be considered, lands must have been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.

Unique Farmland

Unique Farmland consists of lands supporting lesser-quality soils used for the production of the state's leading agricultural crops. Lands are usually irrigated but may also include non-irrigated orchards or vineyards. Lastly, to be considered, lands must have been cropped at some time during the 4 years prior to the mapping date.

California Land Conservation Act of 1965 (Williamson Act)

The California Land Conservation Act of 1965 (commonly referred to as the Williamson Act) (California Government Code Sections 51200–51297.4, as amended), enables local governments to enter into rolling 10-year contracts with private landowners to restrict specific parcels of land to

agricultural or related open-space use. In return for their commitment, landowners receive property tax assessments based on farming and open space uses rather than other potentially higher tax bases. In August 1998, the Williamson Act was amended to establish Farmland Security Zones that grant greater tax reductions for property owners in return for 20-year contract commitments. Siskiyou County participates in the Williamson Act and Farmland Security Zone programs. It is relevant to note that under California Government Code Section 51238, electrical utility facilities are a compatible use on lands under a Williamson Act contract.

Forest Land and Timberland

California Public Resources Code Section 12220(g) defines "Forest land" as "land that can support 10% 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." In turn, "timberland" is defined by California Public Resources Code Section 4526 as "land, other than land owned by the federal government, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees." Finally, "Timberland production zone," or "TPZ," is defined by California Government Code Section 51104(g) as "an area which has been zoned pursuant to [Government Code] Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h). With respect to the general plans of cities and counties, 'timberland preserve zone' means 'timberland production zone."

Local

Siskiyou County General Plan and County Zoning Ordinance

The Siskiyou County General Plan includes overlays that identify constraints to development, including constraints associated with soils that indicate woodland productivity potential. County zoning identifies allowable uses within zone districts established for all County lands.

City of Mount Shasta General Plan and Zoning Ordinance

The City of Mount Shasta General Plan assigns land use designations to all lands within the City's limits and specifies allowable land uses within each designation. This includes land use designations for a variety of uses, including forestry and agricultural uses, which are accommodated within Resource or Agriculture land use designations. The City's Municipal Code assigns zone districts to all areas of the City and establishes allowable land uses and development standards within each district.

5.2.3 Applicant Proposed Measures

No applicant proposed measures have been proposed for or apply to agriculture and forestry resources.

5.2.4 Environmental Impacts and Mitigation

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The proposed new substation represents the area of greatest permanent disturbance associated with the proposed project and is located within an area designated as Farmland of Local Importance. The Line 2 alignment and proposed distribution upgrade areas traverse areas designated by the FMMP as Other Land, Farmland of Local Importance, and Urban and Built-Up Land. The proposed project would not occur within any areas designated by the State of California as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) (CDOC 2014). Since these state-designated Farmland types are not mapped within the potential project disturbance area, no impacts to these types of Farmland would result from implementation of the proposed project.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. Portions of the proposed project within the City of Mount Shasta city limits are within the following zone districts: Unclassified, General Commercial, Downtown Commercial, Low Density Residential, and High Density Residential. The portion of the proposed project traversing Siskiyou County lands is within the following zone districts: Multiple-Family Residential (RES-4), Neighborhood Commercial (C-U), Rural Residential Agricultural (R-R), Non-Prime Agricultural (AG-2), and Planned Development (P-D) zoning. The site of the proposed substation is within the Rural Residential Agricultural (RR) zoning district, which allows for rural residential uses mixed with commercial agricultural uses and allows for public utility uses with approval of a conditional use permit (Siskiyou County 2016). With approval of a conditional use permit, utility uses would not conflict with any zoning assigned to lands traversed by the proposed project.

Upgrades to Line 2 and distribution line upgrades are within existing utility easement rights-of-way and would result in no conflict with existing zoning assigned to the project footprint. The project would result in no change to the existing land use within the utility rights-of-way.

No lands under a Williamson Act contract occur within the project footprint, so the project would result in no conflicts with uses specified by a Williamson Act contract. It may be useful to note that California Government Code Section 51238 states that electrical utility facilities are a compatible use on lands under a Williamson Act contract.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

No Impact. No lands within the City of Mount Shasta or Siskiyou County with zoning designations for forest land, timberland, or timberland zoned Timberland Production occur within the footprint of the proposed project. No conflict with zoning for forest land or timberland production would occur with implementation of the proposed project.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Less Than Significant Impact. The proposed new substation site and new right-of-way are within an area of rural residential development, and the subject parcels are zoned for and developed with rural residential uses, including residential structures and outbuildings. The parcels are not heavily forested; however, the northern portion of the work area supports a stand of trees, though it is discontinuous with surrounding forested land. The site is zoned for rural residential uses and the proposed project would result in the removal of trees from approximately 2.1 acres within the proposed substation site, which is not currently devoted to timber production or dedicated for forestry or timber uses by applicable zoning or land use designations. The proposed Line 2 and distribution line upgrades would be within existing rights-of-way and would result in no change in land use. The removal of tress associated with the proposed project would represent a less than significant impact associated with loss or conversion of forest land because the project site is zoned for rural residential uses.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. The project involves no other changes in the existing environment or zoning or land use designations that could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use. The project site is zoned for a variety of non-agricultural uses, the site consists primarily of existing rights-of-way, and the proposed substation site is within a site previously developed with rural agricultural uses.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.2.5 References Cited

California Government Code, Sections 51100–51104. California Timberland Productivity Act of 1982.

California Government Code, Sections 51200–51207. California Land Conservation Act of 1965 (Williamson Act).

California Public Resources Code, Section 4526. Timberland.

California Public Resources Code, Section 12220(g). Forest Land.

CDOC (California Department of Conservation). 2013. [Williamson Act and property tax assessments.]

CDOC. 2014. California Important Farmland Finder. http://maps.conservation.ca.gov/ciff/ciff.html.

CDOC. 2016. "Siskiyou County Williamson Act FY 2015/2016" [Map]. CDOC, Division of Land Resource Protection. Accessed August 30, 2016. ftp://ftp.consrv.ca.gov/pub/dlrp/wa/Siskiyou_15_16_WA.pdf.

City of Mount Shasta. 2015. City of Mount Shasta Zoning [map]. Accessed August 30, 2016. http://mtshastaca.gov/wp/wp-content/uploads/2016/01/ZoningMap.pdf.

Siskiyou County. 1961. Siskiyou County Code. https://www.municode.com/library/ca/siskiyou_county/codes/code_of_ordinances?nodeId=SICOCO. Accessed 08/30/2016.

Siskiyou County Planning Department. 1980. "Land Use and Circulation Element." *Siskiyou County General Plan*.

Siskiyou County. 2016. Rural Residential Agricultural (RR) zoning and public utilities. Telephone conversation with P. Piemme (Siskiyou County Planning Department). August 30, 2016.

5.3 AIR QUALITY

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

5.3.1 Environmental Setting

The Lassen Substation Project (proposed project) would be in the southern portion of Siskiyou County (County), which is within the Northeast Plateau Air Basin. Within the County, the regulatory agency with authority to regulate air quality is the Siskiyou County Air Pollution Control District (SCAPCD).

Climate and Meteorology

The Northeast Plateau Air Basin is located in the northeast corner of California and covers approximately 14,788 square miles. The air basin is bordered by Oregon to the north and Nevada to the east, and its geographic extent includes Lassen County, Modoc County, and Siskiyou County. Land uses within the air basin are characterized largely by rural and agricultural uses, and this area's populations are primarily concentrated in the cities of Yreka, Mount Shasta, Alturas, and Susanville. The southern and western portions of the air basin include forested mountains typical of this part of the state. Mount Lassen and Mount Shasta are prominent geographic features in the northern part of the Basin (CARB 2010).

As stated in the Proponent's Environmental Assessment (PEA):

> The climate of the Northeast Plateau is dominated by the strength and location of a semi-permanent, subtropical, high-pressure cell over the northeastern Pacific Ocean known as the Eastern Pacific high-pressure cell, with terrain variations creating various microclimates. The existence of mountains and hills within the basin is responsible, in large part, for the wide variations of rainfall, temperatures, and localized winds that occur throughout the region. Due to the position of the Eastern Pacific high-pressure cell, winter storms occur within the study area, and a bulk of the precipitation within the region occurs during this winter storm period. Annual rainfall is lowest in the valleys, higher in the foothills, and highest in the mountains. Weather systems in the region usually result in strong winds and unstable air masses, which lead to increased air dispersion. Dry, warm conditions are characteristic of the summer months, although thunderstorms are not uncommon.
>
> Airflow patterns in the region are predominantly northwesterly in the spring and summer; however, seasonal variations do occur. Regional airflow patterns affect air quality by directing pollutants downwind of sources. Localized meteorological conditions, such as light winds and shallow vertical mixing, as well as topographical features, such as surrounding mountain ranges, create areas of high pollutant concentrations by hindering dispersal (PacifiCorp 2015).

Weather data were derived from the Western Regional Climate Center, including temperature and precipitation information for the Mount Shasta area. Data generated between August 1986 and June 2016 were accessed to determine average weather indicators for the region. According to data collected for Mount Shasta, the average annual maximum temperature over this period was 62.5°F, and the average minimum temperature was 36.7°F. The average total annual precipitation was 39.94 inches, and the average total annual snowfall was 102.9 inches (WRCC 2016).

Attainment Status

Pursuant to the 1990 federal Clean Air Act amendments, the U.S. Environmental Protection Agency EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the National Ambient Air Quality Standards (NAAQS) have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there are not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the

area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on the California Ambient Air Quality Standards (CAAQS) rather than the NAAQS.

Table 5.3-1 depicts the current attainment status of the project site with respect to the NAAQS and CAAQS. As shown, the Northeast Plateau Air Basin is classified as attainment/unclassified for the NAAQS and CAAQS for all criteria pollutants.

Table 5.3-1
Federal and State Attainment Classification
Northeast Plateau Air Basin (Siskiyou County)

Pollutant	Averaging Time	Designation/Classification
Federal Standards		
Ozone (O_3)	8 hours	Unclassifiable/attainment
Nitrogen dioxide (NO_2)	1 hour, annual arithmetic mean	Unclassified
Carbon monoxide (CO)	1 hour, 8 hours	Unclassifiable/attainment
Sulfur dioxide (SO_2)	24 hours, annual arithmetic mean	Unclassified
Respirable particulate matter (PM_{10})	24 hours	Unclassifiable/attainment
Fine particulate matter ($PM_{2.5}$)	24 hours, annual arithmetic mean 24 hours	Unclassifiable/attainment Unclassifiable/attainment
Lead (Pb)	Rolling 3-month average	Unclassifiable/attainment
State Standards		
Ozone (O_3)	1 hour, 8 hours	Attainment
Nitrogen dioxide (NO_2)	1 hour, annual	Attainment
Carbon monoxide (CO)	1 hour, 8 hours	Unclassified
Sulfur dioxide (SO_2)	1 hour, 24 hours	Attainment
Respirable particulate matter (PM_{10})	24 hours, annual arithmetic mean	Attainment
Fine particulate matter ($PM_{2.5}$)	Annual arithmetic mean	Attainment
Lead (Pb)	30-day average	Attainment
Sulfates (SO_4)	24 hours	Attainment
Hydrogen sulfide (H_2S)	1 hour	Unclassified
Visibility-reducing particles	8 hours (10:00 a.m.–6:00 p.m.)	Unclassified

Source: CARB 2016a.

Local Ambient Air Quality

The California Air Resources Board (CARB), air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. Air quality

monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2013 to 2015 are presented in Table 5.3-2. The Yreka monitoring station is the nearest air quality monitoring station to the project site. The data collected at this station are considered representative of the air quality experienced in the project vicinity. Air quality data for ozone (O_3), coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) from the Yreka monitoring station are provided in Table 5.3-2. Nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and carbon monoxide (CO) are not measured in the Northeast Plateau Air Basin. The number of days exceeding the ambient air quality standards is also shown in Table 5.3-2.

Table 5.3-2
Local Ambient Air Quality Data

	Ambient Air Quality Standard	2013	2014	2015
Ozone (O_3) (Yreka Monitoring Station)				
Maximum 1-hour concentration (ppm)	0.09 ppm (state)	0.077	0.082	0.076
Number of days exceeding state standard (days)		*0*	*0*	*0*
Maximum 8-hour concentration (ppm)	0.070 ppm (state)	0.071	0.066	0.067
	0.070 ppm (federal)	0.071	0.065	0.066
Number of days exceeding state standard (days)		*1*	*0*	*0*
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Coarse Particulate Matter (PM_{10}) (Yreka Monitoring Station)				
Maximum 24-hour concentration (µg/m³)	50 µg/m³ (state)	50.4	82.9	59.6
	150 µg/m³ (federal)	54.6	90.6	65.5
Number of days exceeding state standard (days)		*0*	*3*	*1*
Number of days exceeding federal standard (days)		*0*	*0*	*0*
Annual concentration (state method) (µg/m³)	20 µg/m³ (state)	—	—	12.9
Fine Particulate Matter ($PM_{2.5}$) (Yreka Monitoring Station)				
Maximum 24-hour concentration (µg/m3)	35 µg/m³ (federal)	43.5	71.9	51.0
Number of days exceeding federal standard (days)		*2*	*2*	*2*
Annual concentration (µg/m³)	12 µg/m³ (state)	—	—	—
	12.0 µg/m³ (federal)	7.8	—	—

Source: CARB 2016b.
Notes: ppm = parts per million by volume; µg/m³ = micrograms per cubic meter.

5.3.2 Regulatory Setting

Federal

Criteria Air Pollutants

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

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

Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required the EPA to identify National Emission Standards for HAPs to protect public health and welfare. HAPs include certain volatile organic compounds (VOCs), pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

State

California Clean Air Act

The California Clean Air Act was adopted in 1988 and establishes the state's air quality goals, planning mechanisms, regulatory strategies, and standards of progress.

Under the federal Clean Air Act, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB is responsible for ensuring implementation of the California Clean Air Act, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products. Pursuant to the authority granted to it, CARB has established the CAAQS, which are generally more restrictive than the NAAQS. The NAAQS and CAAQS are presented in Table 5.3-3.

Table 5.3-3
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1 hour	0.09 ppm (180 µg/m³)	—	Same as primary standard[f]
	8 hours	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 µg/m³	150 µg/m³	Same as primary standard
	Annual arithmetic mean	20 µg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 µg/m³	Same as primary standard
	Annual arithmetic mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
Lead[j,k]	30-day average	1.5 µg/m³	—	—
	Calendar quarter	—	1.5 µg/m³ (for certain areas)[k]	Same as primary standard
	Rolling 3-month average	—	0.15 µg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 µg/m³)	—	—
Sulfates	24 hours	25 µg/m³	—	—

Table 5.3-3
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016c.

Notes: μg/m3 = micrograms per cubic meter; CO = carbon monoxide; mg/m^3= milligrams per cubic meter; NO_2 = nitrogen dioxide; O_3 = ozone; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; ppm = parts per million by volume; SO_2 = sulfur dioxide.

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

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m^3 is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

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

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

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

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

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

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

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

j CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

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

The EPA has transferred a number of responsibilities to the states and, in most cases, regional air quality management districts and air pollution control districts. As previously stated, the Lassen Substation Project would be in the southern portion of Siskiyou County, which is within the Northeast Plateau Air Basin, under the jurisdiction of the SCAPCD.

Toxic Air Contaminants

A toxic air contaminant (TAC) is defined by California law as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. Federal laws use the term "hazardous air pollutants," or "HAPs," to refer to the same types of compounds that are referred to as TACs under state law. California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill (AB) 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588).

AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC.

Pursuant to AB 2588, existing facilities that emit air pollutants above specified levels were required to (1) prepare a TAC emission inventory plan and report, (2) prepare a risk assessment if TAC emissions were significant, (3) notify the public of significant risk levels, and (4) if health impacts were above specified levels, prepare and implement risk reduction measures.

California Health and Safety Code Section 41700

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

CEQA Guidelines

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA Guidelines, which provides guidance that a project would have a significant environmental impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.

2. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
4. Expose sensitive receptors to substantial pollutant concentrations.
5. Create objectionable odors affecting a substantial number of people (14 CCR 15000 et seq.).

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied on to determine whether the project would have a significant impact on air quality. Siskiyou County and the SCAPCD have not adopted daily or annual numeric CEQA significance criteria for air quality, and no district-specific air quality plan is currently in place. However, the SCAPCD has adopted daily thresholds as established under SCAPCD Regulation VI – New Source Siting, Rule 6.1 – Construction Permit Standards for Criteria Air Pollutants. Those thresholds indicate that further analysis is required if a source's emissions exceed 2,500 pounds per day for CO and 250 pounds per day for all other criteria pollutants (SCAPCD 2001). These thresholds were used to evaluate the significance of impacts from the proposed project.

5.3.3 Applicant Proposed Measures

The applicant would implement Applicant Proposed Measure (APM) AQ-1 to reduce impacts related to fugitive dust during construction activities:

APM-AQ-1 Construction Pollutant Reduction Measures:

Particulate matter emissions shall be controlled by implementing standard construction dust control measures including, but not limited to, the following:

- Minimize soil disturbance.
- Regularly water disturbed areas, including on-site vehicle/equipment travel routes and soil stockpiles. Watering should be sufficient to prevent airborne dust from leaving the site.
- Curtail earthmoving activities on windy days.
- Ensure that the engines of all construction equipment are properly tuned.

- Limit the maximum speed to 15 miles per hour on unpaved surfaces.
- Replant vegetation in disturbed areas as quickly as possible.
- Implement other effective particulate matter control measures, as needed.

Greenhouse gas emissions generated during project construction shall be minimized by implementing the following measures:

- Use California Air Resources Board-certified construction equipment, where available.
- Use alternative fuel types for construction equipment where feasible.
- Use local building materials.
- Limit construction vehicle idling time.

Other criteria pollutant emissions generated during project construction shall be minimized by implementing the following measures:

- Use California Air Resources Board-certified construction equipment, where available.
- Use alternative fuel types for construction equipment where feasible.
- Use local building materials.
- Limit construction vehicle idling time.

5.3.4 Environmental Impacts and Mitigation

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

No Impact. The Northeast Plateau Air Basin is classified as attainment/unclassified for all criteria pollutants, as shown in Table 5.3-1. As such, the SCAPCD is not required to provide a plan for attainment of any pollutant for which the basin is nonattainment. Therefore, because no attainment plans or other local air quality plans are currently provided for the purposes of achieving attainment for any pollutant of concern within the Northeast Plateau Air Basin or any other plans currently implemented by the SCAPCD, construction of the proposed project would not conflict with or obstruct implementation of an applicable air quality plan.

Moreover, as shown in Tables 5.3-4 through 5.3-8, the proposed project would not exceed the New Source Review thresholds as established by the SCAPCD; therefore, the

project would not impede the SCAPCD's ability to maintain its current attainment/ unclassified status for all criteria pollutants. As a result, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact. Construction of the proposed project would result in temporary emissions of criteria air pollutants and fugitive dust as a result of soil disturbance and the use of on-site construction equipment, as well as from off-site trucks hauling construction materials to the project site. Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions. Fugitive dust emissions would primarily result from site preparation and road construction activities. Oxides of nitrogen (NO_x) and CO emissions would primarily result from the use of construction equipment and motor vehicles.

The project would include construction of the new Lassen Substation, transmission line upgrades, distribution line upgrades and subterranean cable installation work, and demolition of the existing Mount Shasta Substation following energization of the proposed Lassen Substation. For the purposes of emissions estimates, it was assumed that construction activities would commence in October 2016 and be completed in November 2017, requiring approximately 41 weeks of total construction time. Section 4.6, Construction Activities, of the Project Description provides details regarding the anticipated construction scenario, including equipment fleet, and Section 4.7 of the Project Description identifies the construction schedule, both of which were used to determine maximum daily emissions during construction activities.

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to estimate emissions generated during construction. To determine the maximum daily emissions that would occur during construction, all phases of construction were analyzed to account for earthwork required; maximum number of worker vehicle trips, water delivery trips, material delivery trips; and construction equipment fleet operation that would be occurring simultaneously during each construction phase. These estimates were entered into the CalEEMod air quality model and the most intense construction activities that would occur on any one day were analyzed, reported, and compared against the SCAPCD's thresholds provided in Regulation VI – New Source Siting, Rule 6.1, to determine significance under CEQA.

The maximum daily emissions for each construction phase are presented in Table 5.3-4 through Table 5.3-8.

Table 5.3-4
Maximum Daily Construction Emissions – Demolition

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Substation Demolition						
Heavy equipment	3.72	44.59	20.48	0.05	1.81	1.62
Hauling	0.02	0.14	0.18	0.00	0.01	0.01
Construction trucks	0.02	0.08	0.18	0.00	0.01	0.00
Worker vehicles	0.07	0.09	1.02	0.00	0.10	0.03
Total daily	**3.83**	**44.90**	**21.86**	**0.05**	**1.93**	**1.66**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No

Source: PacifiCorp 2016.
Notes: ROG = reactive organic gas (also known as volatile organic compound (VOC)); NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
Fugitive dust emissions from site preparation, grading, and underground distribution line construction have been based on the total size of the substation site (4.5 acres) for the substation; the total length of the transmission line (approximately 7,000 feet) times 50 feet, for a total of 8 acres; the total length of the distribution line (approximately 1,200 feet); and the size of the existing substation (0.5 acres).

Table 5.3-5
Maximum Daily Construction Emissions – Lassen Substation Construction

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Construction Management						
Construction trucks	0.02	0.08	0.18	0.00	0.01	0.00
Worker vehicles	0.02	0.02	0.25	0.00	0.02	0.01
Total daily	**0.04**	**0.10**	**0.43**	**0.00**	**0.03**	**0.01**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Lassen Substation – Survey						
Construction trucks	0.02	0.08	0.18	0.00	0.01	0.00
Worker vehicles	0.05	0.07	0.76	0.00	0.08	0.02
Total daily	**0.07**	**0.15**	**0.94**	**0.00**	**0.09**	**0.02**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Site Preparation/Grading						
Fugitive dust	—	—	—	—	2.97	1.62
Heavy equipment	5.26	58.65	32.58	0.06	2.58	2.37
Construction trucks	0.02	0.08	0.18	0.00	0.01	0.00

Table 5.3-5
Maximum Daily Construction Emissions – Lassen Substation Construction

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Worker vehicles	0.09	0.12	1.27	0.00	0.13	0.04
Total daily	**5.37**	**58.85**	**34.03**	**0.06**	**5.69**	**4.03**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Material Haul						
Fugitive dust	—	—	—	—	0.04	0.004
Heavy equipment	3.24	38.28	16.73	0.03	1.67	1.53
Worker vehicles	0.05	0.07	0.76	0.00	0.08	0.02
Total daily	**3.29**	**38.35**	**17.49**	**0.03**	**1.79**	**1.55**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Access Road Construction						
Fugitive dust	—	—	—	—	2.97	1.62
Heavy equipment	3.75	40.42	23.09	0.03	1.97	1.81
Construction trucks	0.02	0.08	0.18	0.00	0.01	0.00
Worker vehicles	0.05	0.07	0.76	0.00	0.08	0.02
Total daily	**3.82**	**40.57**	**24.03**	**0.03**	**5.03**	**3.45**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Concrete Placement and Framework						
Heavy equipment	2.18	24.59	11.71	0.03	0.91	0.84
Construction trucks	0.02	0.07	0.15	0.00	0.01	0.00
Worker vehicles	0.08	0.10	1.10	0.00	0.13	0.04
Total daily	**2.28**	**24.76**	**12.96**	**0.03**	**1.05**	**0.88**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Steel Installation						
Heavy equipment	2.16	24.19	10.86	0.03	1.07	0.99
Construction trucks	1.48	7.07	15.03	0.02	0.71	0.29
Worker vehicles	0.08	0.10	1.10	0.00	0.13	0.04
Total daily	**3.72**	**31.36**	**26.99**	**0.05**	**1.91**	**1.32**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Equipment Installation						
Heavy equipment	1.13	12.90	6.36	0.01	0.65	0.60
Construction trucks	1.48	7.07	15.03	0.02	0.71	0.29
Worker vehicles	0.06	0.08	0.88	0.00	0.10	0.03
Total daily	**2.67**	**20.05**	**22.27**	**0.03**	**1.46**	**0.92**

Table 5.3-5
Maximum Daily Construction Emissions – Lassen Substation Construction

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Bus Work						
Heavy equipment	1.50	12.79	7.19	0.01	0.62	0.59
Construction trucks	0.02	0.07	0.15	0.00	0.01	0.00
Worker vehicles	0.06	0.08	0.88	0.00	0.10	0.03
Total daily	**1.58**	**12.94**	**8.22**	**0.01**	**0.73**	**0.62**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Testing and Energization						
Construction trucks	0.02	0.07	0.15	0.00	0.01	0.00
Worker vehicles	0.03	0.04	0.44	0.00	0.05	0.01
Total daily	**0.05**	**0.11**	**0.59**	**0.00**	**0.06**	**0.02**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Fencing						
Worker vehicles	0.06	0.08	0.88	0.00	0.10	0.03
Total daily	**0.06**	**0.08**	**0.88**	**0.00**	**0.10**	**0.03**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Marshalling Yard						
Worker vehicles	0.03	0.04	0.44	0.00	0.05	0.01
Total daily	**0.03**	**0.04**	**0.44**	**0.00**	**0.05**	**0.01**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Right-of-Way Restoration and Cleanup						
Fugitive dust	—	—	—	—	2.94	1.61
Heavy equipment	2.58	28.78	18.28	0.03	1.22	1.12
Worker vehicles	0.06	0.08	0.88	0.00	0.10	0.03
Total daily	**2.64**	**28.86**	**19.16**	**0.03**	**4.26**	**2.76**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No

Source: PacifiCorp 2016.
Notes: ROG = reactive organic gas (also known as volatile organic compound (VOC)); NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
Fugitive dust emissions from site preparation, grading, and underground distribution line construction have been based on the total size of the substation site (4.5 acres) for the substation; the total length of the transmission line (approximately 7,000 feet) times 50 feet, for a total of 8 acres; the total length of the distribution line (approximately 1,200 feet); and the size of the existing substation (0.5 acres).

Table 5.3-6
Maximum Daily Construction Emissions – Transmission/Distribution Line Construction

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Construction Management						
Construction trucks	0.02	0.08	0.18	0.00	0.01	0.00
Worker vehicles	0.02	0.02	0.25	0.00	0.02	0.01
Total daily	**0.04**	**0.10**	**0.43**	**0.00**	**0.03**	**0.01**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Survey						
Construction trucks	0.02	0.08	0.18	0.00	0.01	0.00
Worker vehicles	0.06	0.07	0.76	0.00	0.08	0.02
Total daily	**0.08**	**0.15**	**0.94**	**0.00**	**0.09**	**0.02**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Access Road Construction						
Fugitive dust	—	—	—	—	2.99	1.62
Heavy equipment	3.75	40.42	23.09	0.03	1.97	1.81
Construction trucks	0.02	0.08	0.18	0.00	0.01	0.00
Worker vehicles	0.04	0.05	0.51	0.00	0.05	0.01
Total daily	**3.81**	**40.55**	**23.78**	**0.03**	**5.02**	**3.44**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Auger Holes, Direct Imbed Poles						
Heavy equipment	2.89	29.66	14.62	0.04	1.34	1.27
Worker vehicles	0.08	0.10	1.10	0.00	0.13	0.04
Total daily	**2.97**	**29.76**	**15.72**	**0.04**	**1.47**	**1.31**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Material Haul						
Fugitive dust	—	—	—	—	0.05	0.005
Heavy equipment	3.24	38.28	16.73	0.03	1.67	1.53
Worker vehicles	0.05	0.07	0.76	0.00	0.08	0.02
Total daily	**3.29**	**38.35**	**17.49**	**0.03**	**1.80**	**1.56**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Structure Assembly and Installation						
Heavy equipment	3.27	36.88	17.57	0.05	1.37	1.26
Construction trucks	1.48	7.07	15.03	0.02	0.71	0.29
Worker vehicles	0.08	0.10	1.10	0.00	0.13	0.04
Total daily	**4.83**	**44.05**	**33.70**	**0.07**	**2.21**	**1.59**

Table 5.3-6
Maximum Daily Construction Emissions – Transmission/Distribution Line Construction

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Structure Erection						
Heavy equipment	3.27	36.88	17.57	0.05	1.37	1.26
Construction trucks	1.48	7.07	15.03	0.02	0.71	0.29
Worker vehicles	0.08	0.10	1.10	0.00	0.13	0.04
Total daily	**4.83**	**44.05**	**33.70**	**0.07**	**2.21**	**1.59**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Underground Distribution Line						
Fugitive dust	—	—	—	—	0.01	0.001
Heavy equipment	0.85	8.83	7.27	0.01	0.53	0.49
Construction trucks	0.02	0.07	0.15	0.00	0.01	0.00
Worker vehicles	0.12	0.16	1.76	0.00	0.21	0.06
Total daily	**0.99**	**9.06**	**9.18**	**0.01**	**0.76**	**0.55**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Underground Distribution Line – Interstate-5						
Fugitive dust	—	—	—	—	0.01	0.001
Heavy equipment	1.48	17.99	8.35	0.03	0.62	0.57
Construction trucks	0.02	0.07	0.15	0.00	0.01	0.00
Worker vehicles	0.12	0.16	1.76	0.00	0.21	0.06
Total daily	**1.62**	**18.22**	**10.26**	**0.03**	**0.85**	**0.63**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Wire Installation						
Heavy equipment	9.68	110.05	56.16	0.11	4.99	4.59
Construction trucks	1.51	7.21	15.33	0.02	0.73	0.29
Worker vehicles	0.12	0.16	1.76	0.00	0.21	0.06
Total daily	**11.31**	**117.42**	**73.25**	**0.13**	**5.93**	**4.94**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Right-of-Way Restoration and Cleanup						
Fugitive dust	—	—	—	—	2.94	1.61
Heavy equipment	2.58	28.78	18.28	0.03	1.22	1.12
Worker vehicles	0.06	0.08	0.88	0.00	0.10	0.03
Total daily	**2.64**	**28.86**	**19.16**	**0.03**	**4.26**	**2.76**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*

Table 5.3-6
Maximum Daily Construction Emissions – Transmission/Distribution Line Construction

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Exceed threshold?	No	No	No	No	No	No

Source: PacifiCorp 2016.
Notes: ROG = reactive organic gas (also known as volatile organic compound (VOC)); NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
Fugitive dust emissions from site preparation, grading, and underground distribution line construction have been based on the total size of the substation site (4.5 acres) for the substation; the total length of the transmission line (approximately 7,000 feet) times 50 feet, for a total of 8 acres; the total length of the distribution line (approximately 1,200 feet); and the size of the existing substation (0.5 acres).

Table 5.3-7
Maximum Daily Construction Emissions – Demolition of Mount Shasta Substation

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Equipment Removal						
Fugitive dust	—	—	—	—	0.38	0.06
Heavy equipment	2.14	24.92	12.23	0.03	1.05	0.96
Hauling	0.11	0.85	1.12	0.00	0.09	0.04
Worker vehicles	0.06	0.08	0.88	0.00	0.10	0.03
Total daily	**2.31**	**25.85**	**14.23**	**0.03**	**1.62**	**1.09**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Foundation Removal						
Fugitive dust	—	—	—	—	0.79	0.12
Heavy equipment	2.97	32.20	17.70	0.04	1.49	1.37
Hauling	0.23	1.78	2.35	0.01	0.19	0.07
Worker vehicles	0.06	0.08	0.88	0.00	0.10	0.03
Total daily	**3.26**	**34.06**	**20.93**	**0.05**	**2.57**	**1.59**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
Grading						
Fugitive dust	—	—	—	—	2.96	1.62
Heavy equipment	2.97	32.59	21.27	0.03	1.52	1.39
Worker vehicles	0.06	0.08	0.88	0.00	0.10	0.03
Total daily	**3.03**	**32.67**	**22.15**	**0.03**	**4.58**	**3.04**
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No

Source: PacifiCorp 2016.
Notes: ROG = reactive organic gas (also known as volatile organic compound (VOC)); NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

Fugitive dust emissions from site preparation, grading, and underground distribution line construction have been based on the total size of the substation site (4.5 acres) for the substation; the total length of the transmission line (approximately 7,000 feet) times 50 feet, for a total of 8 acres; the total length of the distribution line (approximately 1,200 feet); and the size of the existing substation (0.5 acres).

Table 5.3-8
Maximum Daily Construction Emissions – Summary of Maximum Daily Emissions

Emission Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
2016	19.68	216.88	117.67	0.19	19.39	14.08
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No
2017	18.30	199.21	114.58	0.24	18.51	13.27
Significance threshold	*250*	*250*	*2,500*	*250*	*250*	*250*
Exceed threshold?	No	No	No	No	No	No

Source: PacifiCorp 2016.
Notes: ROG = reactive organic gas (also known as volatile organic compound (VOC)); NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.

As shown in Table 5.3-8, emissions would be below thresholds established under SCAPCD Regulation VI – New Source Siting, Rule 6.1 – Construction Permit Standards for Criteria Air Pollutants. As such, construction of the proposed project would not result in a significant air quality impact. Additionally, operational emissions would be generated as a result of maintenance and repair crews that would travel to the site on a monthly or as-needed basis. Transmission line inspection would be performed on an annual or half-yearly basis or as needed. Operational activities would be similar to current activities for the existing substation; therefore, implementation of the proposed project would not result in a net increase in operational emissions on a daily or annual basis.

Implementation of the project would therefore not violate any adopted air quality standards or result in a considerable increase in any nonattainment pollutants. Impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

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

Less Than Significant Impact. The geographic extent for the analysis of cumulative impacts related to air quality includes the limits of the Northeast Plateau Air Basin. The primary air quality impacts of the proposed project would occur during construction, because the operational impacts would result from limited vehicle trips for operations, maintenance, and inspection, similar to current operational activities at the existing site.

The Northeast Plateau Air Basin is currently attainment or unclassified for all criteria air pollutants; therefore, the proposed project would not contribute to a cumulatively considerable air quality impact regarding a pollutant for which the air basin is currently nonattainment. However, the primary air pollutants of concern would be NO_x and VOCs, which are ozone precursors, and PM_{10} and $PM_{2.5}$, because these pollutants can be generated in large quantities during construction from off-road construction equipment and on-road motor vehicles, including construction worker vehicles, vendor trucks delivering materials, and haul trucks. NO_x and VOCs are primarily emitted from motor vehicles and construction equipment, while PM_{10} and $PM_{2.5}$ are emitted primarily as fugitive dust during construction. Because of the nature of O_3 as a regional air pollutant, emissions from the entire geographic area for this cumulative impact analysis would tend to be important, although maximum O_3 impacts generally occur downwind of the area in which the O_3 precursors are released. PM_{10} and $PM_{2.5}$ impacts, on the other hand, would tend to occur locally; thus, projects occurring in the same general area and in the same period would tend to create cumulative air quality impacts.

As discussed previously, the proposed project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, as well as from off-site trucks hauling construction materials. However, the emissions of all criteria pollutants during construction would be below the significance levels and would not contribute to a cumulative impact.

Operation of the proposed project would include emissions generated primarily from vehicle trips associated with inspection and maintenance of the substation and would be similar to existing operational emissions and activities associated with the existing site. Operational emissions would therefore not violate any adopted air quality standards or result in a cumulatively considerable increase in any nonattainment pollutants.

Therefore, construction and operational activities would not result in a cumulatively considerable increase in any criteria air pollutant within the Northeast Plateau Air Basin and cumulative impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant.**

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts on sensitive receptors are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. Air quality regulators typically define sensitive receptors as schools (preschool–12th grade), hospitals, resident care facilities, daycare centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. However, for the purposes of CEQA analysis the definition of a sensitive receptor also includes residents. The two primary emissions of concern regarding health effects for land development projects are diesel particulate matter (DPM) during construction and CO hotspots related to traffic congestion.

As stated previously, construction and operation of the proposed project would not result in any violation of applicable air quality standards, including impacts from substantial pollutant concentrations on sensitive receptors; therefore, impacts would be **less than significant**.

CO Hotspots

Based on the current level of traffic on nearby roadways and the short duration of construction activities associated with the proposed project, construction traffic would not create traffic congestion that could create substantial CO hotspots. Construction-related traffic would be temporary and short term in nature, and would occur intermittently throughout the various phases of construction. Additionally, project-generated trips would be in rural areas where the existing traffic is light and they would include components that would be spread throughout the day. For these reasons, construction-related traffic is not expected to impact local intersections and cause an exceedance of the CO CAAQS. Moreover, as discussed under Section 5.3.4(b), operation

and maintenance vehicles would not exceed those under existing conditions for operation of the existing site, and would not significantly contribute peak-hour trips in the project area or impact roadway intersections. During operations, the proposed project would include periodic operation, maintenance, and inspection vehicle trips that would not result in a net increase in traffic on existing roadways. Therefore, the proposed project would not have the potential to create a CO hotspot or result in a considerable net increase of CO. Impacts would be **less than significant**.

Air Toxics

Diesel exhaust particulate matter (DPM) would be emitted from heavy equipment and trucks used in the construction process. Because DPM is considered to be carcinogenic, long-term exposure to diesel exhaust emissions could result in adverse health impacts. Implementation of the proposed project would result in short-term, temporary emissions of diesel exhaust from construction equipment that would be phased intermittently over approximately 41 weeks. Generation of construction-related emissions would occur during daytime working hours with varying uses over that time of equipment and vehicles dependent on diesel fuel. Because of the short-term nature and low frequency of construction emissions, diesel exhaust emissions would not expose sensitive receptors to substantial pollutant concentrations. Moreover, upon completion of construction activities, all construction-related DPM emissions would cease. Therefore, impacts to sensitive receptors due to emissions of air toxics would be **less than significant**.

With respect to operations, no impacts associated with DPM would result. Operation and maintenance activities would be limited due to infrequent activities associated with maintenance activities, inspections, and occasional repairs, and would resemble existing operational activities. Therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant.**

e) Would the project create objectionable odors affecting a substantial number of people?

Less Than Significant Impact. Odors are the form of air pollution that is most obvious to the public. Odors can present significant problems for both the source and surrounding community. Although offensive odors seldom cause physical harm, they can be annoying and cause concern.

The State of California Health and Safety Code, Division 26, Part 4, Chapter 3, Section 41700 and SCAPCD Rule 4.2 – Nuisance, commonly referred to as the public nuisance

law, prohibits emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors. Odor issues are very subjective by the nature of odors themselves and due to the fact that their measurements are difficult to quantify. As a result, this guideline is qualitative, and will focus on the existing and potential surrounding uses and location of sensitive receptors.

Construction of proposed project would result in the emission of diesel fumes and other odors typically associated with construction activities. These compounds would be emitted in varying amounts on the site depending on where construction activities are occurring, number and types of construction activities occurring, and prevailing weather conditions, among other factors. Sensitive receptors located in the vicinity of the construction site may be affected. Total construction would take up to approximately 41 weeks and would be distributed over an expansive linear area, as shown in Figure 4-2, Project Component Overview. The emissions would be isolated to the immediate vicinity of the construction site and would be limited to a finite period that would be relatively short as construction activities move along the alignment.

Regarding project operations, land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass-molding facilities. The proposed project would not generate objectionable odors off site, nor would significant odors be generated during operation and maintenance of the facility, because it is not associated with the aforementioned land uses and would not propose operational activities that would be commonly associated with substantial odor-generating activities such as fertilizer application for agricultural uses or the treatment of wastewater. Maintenance of the proposed project would involve limited activities such as periodic facility inspections, which would be intermittent and temporary; therefore, maintenance activities would not create objectionable odors. Additionally, no substantial increase in odors would occur as a result of implementation of the proposed project because operational activities would resemble those currently being conducted for the existing facilities. As such, impacts related to creation of odors during construction, operation, and maintenance of the proposed project would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant.**

5.3.5 References Cited

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

CARB (California Air Resources Board). 2010. California Air Resources Board's 2010 Monitoring Network Assessment Report. https://www3.epa.gov/ttnamti1/files/networkplans/CACARBAssess2010.pdf.

CARB. 2016a. Area Designations Maps/State and National. May 5, 2016. http://www.arb.ca.gov/desig/adm/adm.htm.

CARB. 2016b. iADAM: Air Quality Data Statistics. Top 4 Summary. http://www.arb.ca.gov/adam/topfour/topfour1.php.

CARB. 2016c. Ambient Air Quality Standards. May 4, 2016. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

PacifiCorp. 2015. *Lassen Substation Proponents Environmental Assessment for the Application of PacificCorp (U 901 E) for a Permit to Construct the Lassen Substation Project*. Prepared by Power Engineers. October 2015.

PacifiCorp. 2016. *Lassen Substation Proponents Environmental Assessment for the Application of PacificCorp (U 901 E) for a Permit to Construct the Lassen Substation Project*. Amendment. Prepared by Power Engineers. July 2016.

SCAPCD (Siskiyou County Air Pollution Control District). 2001. Regulation VI – New Source Siting. Rule 6.1 – Construction Permit Standards for Criteria Pollutants. April 17, 2001.

WRCC (Western Regional Climate Center). 2016. Period of Record Monthly Climate Summary: Mount Shasta, California. www.wrcc.dri.edu.

INTENTIONALLY LEFT BLANK

5.4 BIOLOGICAL RESOURCES

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

5.4.1 Environmental Setting

Methodology

Preliminary investigations included a review of information obtained from literature searches, examinations of habitat as discernible from aerial photographs, and database searches, including the California Native Plant Society and the California Natural Diversity Database (CNDDB) records. In addition, to better identify and characterize the existing biological resources present in and adjacent to the project area (defined as the area including the proposed construction

workspace area for each pole, the right-of-way (ROW), staging areas, and new and existing access routes), a GIS analysis was performed that consisted of mapping baseline biological resource data including vegetation, CNDDB records, and water resources.

An initial reconnaissance-level biological resource survey was conducted on September 14, 15, and 16, 2014, and again on July 15 and 16, 2015 (to account for updates in the project ROW). Wetland delineation surveys were conducted in September 2011 and again in July 2015. The biological study area (BSA) in which surveys were conducted included the immediate project area (footprint of disturbance, as described above) and all areas within 250 feet of the existing and proposed substation, existing and proposed transmission/distribution lines, and within 50 feet of existing and temporary access roads that would encompass sufficient area to assess the potential for indirect effects from site preparation activities and construction.

The reconnaissance-level surveys included more detailed vegetation mapping of the entire BSA and an assessment of the potential for various special-status plant and wildlife species to occur within areas proposed for disturbance. General botanical and wildlife observations were noted in and adjacent to the BSA during these surveys. Vegetation communities were classified according to Holland (1986). The botanical observations of the sites were floristic in nature, meaning that plants incidentally observed were identified to the taxonomic level needed to determine whether they were special-status plant species. Wildlife species were detected and identified either by observation, by vocalization, or by sign (e.g., tracks, burrows, scat). Details of the surveys are included in the Biological Resources Technical Report provided in Appendix B of the Proponent's Environmental Assessment (PEA; PacifiCorp 2015). All data collected were used along with data provided by the literature review to characterize habitat suitable to support special-status species known to occur in the vicinity and to make further determinations on the potential for those special-status species to occur in the BSA.

Vegetation Communities

Five vegetation communities were identified and characterized, pursuant to Holland (1986), in the BSA. These included lower montane coniferous forest, montane meadow, transmontane freshwater marsh, riparian scrub, and non-native grassland. Portions (121.0 acres) of the project area and BSA were also noted as being in a disturbed/developed condition. The acreage of each vegetation community is listed in Table 5.4-1. Figures depicting the location and extent of these communities in the BSA are included in the Biological Resources Technical Report (PacifiCorp 2015, Appendix B). The BSA, as compared to the project area, is larger and contains a larger amount of habitat.

Table 5.4-1
Vegetation Communities (Acreages)

Vegetation Community Type	Project Area (Acres)	Biological Study Area (Acres)
Lower montane coniferous forest	21.9	3,391.6
Montane meadows	50.9	8.2
Transmontane freshwater marsh	11.9	3.4
Riparian scrub	25.8	7.0
Non-native grassland	8.8	4.6
Total	**119.3**	**3,414.8**

A brief description of each of these communities follows.

Lower Montane Coniferous Forest

Lower montane coniferous forest is an open-to-dense forest dominated by conifers and is found at lower and middle elevations in the mountains and foothills of northern California. This community is dominated by ponderosa pine (*Pinus ponderosa*), with incense cedar (*Calocedrus decurrens*), black oak (*Quercus kelloggii*), and Douglas-fir (*Pseudotsuga menziesii*). The shrub layer contains scattered dogwood (*Cornus* spp.), gooseberry (*Ribes* spp.), and wild cherry (*Prunus* spp.). The understory varies, but is often dominated by creeping snowberry (*Symphoricarpos mollis*) with native perennial grasses and forbs. Fragmented lower montane coniferous forest borders the northwest and southeast ends of the BSA.

Montane Meadow

Two types of montane meadow, wet montane meadow and dry montane meadow, are described; both types can occur in a single meadow and are differentiated in the field by soil moisture and vegetation.

Wet montane meadow is a wetland typically associated with swamps, fens, or bogs in waterlogged soils, or may be adjacent to forest or scrub in better-drained soils. Wet montane meadow is characterized by dense growth of sedges (*Carex* spp.) or other perennial herbs such as rushes (*Juncus* spp.) and bulrushes (*Scirpus* spp.).

Wet montane meadow occurs in the BSA north of Hatchery Lane. A small creek flows from the northeast corner of the parcel to the southwest, filling the wetland that makes up the majority of the parcel. Soils were saturated with standing water and vegetation was dominated by obligate wetland species, including sedges, rushes, and cattails (*Typha* spp.). Cattails occurred in areas

with standing water that braided in and out of the ROW. Shrubs and trees, including willows (*Salix* spp.), white alder (*Alnus rhombifolia*), wild cherry, rose (*Rosa* sp.), and cedar occurred along the raised fence line and the stream channel in the northern portion of the wetland. Wet montane meadow along the ROW north of Hatchery Lane was disturbed by heavy grazing on the west side of the fence line and light grazing on the east side of the fence line.

Dry montane meadow can be described as seasonal wetlands and typically occurs adjacent to wet montane meadow communities, often associated with fens, bogs, and swamps. Dry montane meadow may not have capillary water available year-round and may dry out seasonally. Dry montane meadow generally occurs on fine-textured soils and is often adjacent to forest or scrub on better-drained soils.

Dry montane meadow occurs in the BSA east of Old Stage Road. Soils varied from dry to moist. Vegetation was dominated by facultative and obligate wetland species. Dry montane meadow along the ROW north of Hatchery Lane was heavily grazed. Dry montane meadow adjacent to and along the proposed project is seasonal in nature, but not considered "vernal" as described in current literature on vernal pool distribution (Holland 1998; Zedler 2003). No vernal pools occur in the BSA.

Transmontane Freshwater Marsh

Transmontane freshwater marsh is dominated by perennial emergent monocots, including cattails and rushes, which may form completely closed canopies (Holland 1986). Sites are semi-permanently flooded by freshwater, lack a significant current, and are often located adjacent to rivers or streams. Prolonged saturation accumulates deep, peaty soils.

Transmontane freshwater marsh was located in the northern portion of the BSA on both sides of Hatchery Lane. At the time of the surveys, soils were saturated with standing water and vegetation was dominated by stands of cattails and bulrushes. The existing transmontane freshwater marsh is associated with the montane meadow community described above. The boundary between transmontane freshwater marsh and wet montane meadow was distinguished by vegetation dominance. Both the transmontane freshwater marsh and montane meadow communities form the Morgan–Merrill Wetland Mitigation Site (Theiss and Associates 1990; Enplan 2008) south of Hatchery Lane Road and north of the Mount Shasta Substation. The transmontane freshwater marsh in the project area north of Hatchery Lane Road is currently grazed by cattle and horses.

Riparian Scrub

Riparian scrub is a dense, winter-deciduous thicket occurring along streams dominated by one or more species of willow and by other fast-growing shrubs and vines, including alders (*Alnus* spp.) and/or dogwoods. Within the BSA, riparian scrub is dominated by willows, dogwoods, and black hawthorn (*Crataegus douglasii*), with a dense cover of Himalayan blackberry (*Rubus armeniacus*) brambles along riparian edges in disturbed locations.

Non-Native Grassland

Non-native annual grassland is dominated by a variety of non-native grasses and forbs (Holland 1986). Non-native grassland in the BSA was heavily grazed and occurs on the west side of Old Stage Road and within the large fenced residential yards of the proposed Lassen Substation site. Dominant species included creeping bentgrass (*Agrostis stolonifera*), orchardgrass (*Dactylis glomerata*), annual bluegrass (*Poa annua*), and common velvetgrass (*Holcus lanatus*). Additionally, a creek was mapped within non-native grassland near the southern portion of the project ROW.

Creeks

Although not specifically described as a vegetation community, agricultural ditches and a portion of Cold Creek occur within the BSA and the project area and were mapped as creeks on the vegetation map (PacifiCorp 2015, Appendix B). These features ranged from 2 to 3 feet in width and 1 to 2 feet in depth. Due to their small surface area, the acreage for these features was included within the acreages of the dominant vegetation community in which they occur. Cold Creek, which occurs as an ecotone between freshwater marsh and montane meadow on the eastern side of the project area south of Pole 6-48, is thickly vegetated with sedges, bulrushes, and rushes. Cold Creek has a muddy bottom and very little observable open water, which is slow moving. Of the agricultural ditches in the project area, only one was prominent enough to map as a creek, crossing the project area just south of Pole 21-48. This feature is open water, with no emergent vegetation, and ranges from 2 to 3 feet in width and 1 to 2 feet in depth. This ditch occurs within non-native grassland, and its edges are dominated by non-native grasses. Other agricultural ditches that were narrower in width and shallower in depth were not noted on the vegetation map.

Disturbed/Developed

Although not a vegetation community, disturbed/developed areas occur throughout the BSA and include areas devoid of vegetation (cleared, graded, or containing buildings and offices), including dirt roads and paved roads. Other disturbed/developed areas support a sparse cover of

ruderal or ornamental vegetation and do not contain enough native or natural plant material to be considered a vegetation community.

Special-Status Species

For the purposes of this analysis, special-status species are defined as follows:

- Species listed or proposed for listing as threatened or endangered under ESA (50 CFR 17.12 for listed plants; 50 CFR 17.11 for listed animals; and various notices in the Federal Register for proposed species).
- Species that are candidates for possible future listing as threatened or endangered under ESA (74 FR 57804).
- Species that are listed or proposed for listing by the state of California as threatened or endangered under the California Endangered Species Act (CESA; 14 CCR 670.5).
- Species identified by the California Department of Fish and Wildlife (CDFW) as fully protected species, including fish and wildlife that do not have state or federal threatened or endangered status but may still be threatened with extinction (CDFW 2015).
- Species considered by the CDFW to be Species of Special Concern because of declining population levels, limited range, and/or continuing threats that have made them vulnerable to extinction (CDFW 2015).
- Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.).
- Plants considered by the California Native Plant Society to be "rare, threatened, or endangered in California and elsewhere" (California Rare Plant Rank 1B and 2) (CNPS 2016).
- Species that are not state or federally listed but under the California Environmental Quality Act (CEQA) Guidelines, Section 15380, meet the definition of rare (species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range) or endangered (species' survival and reproduction in the wild are in immediate jeopardy).

Plants

A total of 66 special-status plant species were identified from the literature and database review as occurring or potentially occurring in the project region. Of these 66 plant species, only 24 species were considered to have some potential of occurring in the BSA: 2 species were

determined to have a high potential for occurrence, 7 had moderate potential, and 15 had a low potential for occurrence. Potential for occurrence was based on habitat suitability, elevation, soil, and proximity to known recorded occurrences of a particular species in the region. The remaining 42 species are not expected to occur in the BSA and the immediate project area due to a lack of habitat and other criteria. None of the 24 special-status plants with potential to occur were detected during the field surveys; however, although a general plant inventory was conducted during the reconnaissance surveys, species-specific plant surveys for special-status species were not conducted because the reconnaissance surveys were performed outside the suitable blooming periods for some species.

A detailed description of each of the 24 special-status plant species determined to have some potential of occurring in the BSA is provided in the Biological Resources Technical Report (PacifiCorp 2015, Appendix B). A list of all plant species observed during the surveys is provided in Appendix A of the Biological Resources Technical Report.

Wildlife

A total of 30 special-status wildlife species were identified from the literature and database review as occurring or potentially occurring in the project region. Of these 30 wildlife species, 19 species were considered to have some potential of occurring within the BSA and immediate project area: 4 were determined to have a high potential for occurrence, 10 had moderate potential, and 5 had low potential. Potential for occurrence was based on habitat suitability for a particular species and proximity to known recorded occurrences of a species in the region. The remaining 11 species are not expected to occur in the BSA and the immediate project area due to a lack of habitat and other criteria. None of the 19 special-status wildlife species with potential to occur were detected during the field surveys; however, species-specific surveys were not conducted as part of the habitat assessment.

A detailed description of 26 of the special-status wildlife species determined to have some potential of occurring in the BSA is provided in the Biological Resources Technical Report (PacifiCorp 2015, Appendix B). A list of all wildlife species observed during the surveys is provided in Appendix B of the Biological Resources Technical Report.

Jurisdictional Wetlands

Methods

As previously noted, a jurisdictional wetland delineation in the BSA was conducted in September 2011 and in July of 2015. Prior to conducting the on-site field investigations, an inventory of readily available data, including aerial photography, U.S. Geological Survey

topographic maps, National Wetland Inventory maps, data from the National Hydrography Dataset, and U.S. Department of Agriculture, Natural Resources Conservation Service soil surveys of the project area were examined to determine areas of potential U.S. Army Corps of Engineers (ACOE) jurisdiction. A more detailed discussion of the definitions of types of wetlands and waters under ACOE jurisdiction and the overall regulatory framework associated with such jurisdiction can be found in the Jurisdictional Delineation Report provided in Appendix D of the PEA (PacifiCorp 2015).

Potential jurisdictional areas were evaluated and delineated in accordance with the methodology set forth in the ACOE's 1987 Corps of Engineers Wetland Delineation Manual (Manual; ACOE 1987), and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (WMVC; ACOE 2010). Each potential wetland area was investigated for wetland indicators (soils, vegetation, and hydrology). Wetland features were surveyed using Trimble GPS units with sub-meter accuracy and jurisdictional boundaries were initially mapped in the field using project field maps. These boundaries were then confirmed and refined using aerial imagery, including historical imagery (Google 2015), to capture the extent of each wetland intersecting the ROW. Only those potentially jurisdictional features that intersected the project ROW and proposed temporary access routes were delineated. Wetlands and other waters that are located outside the ROW and not within anticipated areas of project-related ground disturbance and that would not be affected by the project were not delineated.

Results

The field investigation resulted in the delineation of four jurisdictional wetlands in the project area, most of which are located north of the existing Mount Shasta Substation and all of which intersect the project ROW. All four wetlands were characterized as palustrine emergent (PEM) wetlands, in which the dominant vegetation species are erect, rooted, herbaceous hydrophytes with at least 30% aerial coverage. Vegetation in these wetlands (occurring within both the transmontane freshwater marsh and wet montane meadow vegetation communities described previously) is dominated by perennial plants and vegetation for most of the growing season in most years. Due to the relatively stable climate of the project area, these wetlands often maintain the same appearance year after year (Dahl et al. 2015), although in some years these wetlands may be heavily grazed. The portion of the wetlands delineated as occurring within the project ROW are relatively small; two of the wetlands are approximately 2 acres in size and the other two are less than 1 acre.

Detailed discussions of soil types and soil locations, and the hydrologic data, hydrogeomorphic characteristics, and locations of each of the four wetland areas can be found in the Jurisdictional Delineation Report (PacifiCorp 2015, Appendix D).

As described previously, Cold Creek is a perennial stream that derives flow from both local springs and surface runoff from precipitation or snowmelt (Theiss and Associates 1990). Riparian vegetation on both banks of Cold Creek is dominated by black hawthorn, Himalayan blackberry, willow thickets, and dogwoods. The ordinary high water mark of Cold Creek was not delineated during the investigations because the proposed access roads would not cross the stream or affect associated riparian habitat.

5.4.2 Regulatory Setting

Federal

Endangered Species Act

The federal Endangered Species Act (ESA) protects fish and wildlife species that have been listed by the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service as threatened or endangered. In general, the National Marine Fisheries Service is responsible for protection of federally listed marine species and anadromous fishes, while other listed species are under USFWS jurisdiction. Provisions of ESA Section 9, which prohibits take of threatened or endangered species, and Sections 7 and 10, which require permits for take of listed species, may be relevant to the proposed project. "Take" is defined under ESA as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct," including loss of habitat of listed species that would result in "harm".

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 U.S.C. 703 et seq.) prohibits the take of any migratory bird or any part, nest, or eggs of any such bird. Under the act, "take" is defined as the action of or attempt to "pursue, hunt, shoot, capture, collect, or kill." This act applies to all persons and agencies in the United States, including federal agencies.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 U.S.C. 668) specifically protects bald and golden eagles from harm or trade of nests, eggs, and body parts of these species. The Bald and Golden Eagle Protection Act is administered by the USFWS.

Clean Water Act

Waters of the United States including wetlands are subject to ACOE jurisdiction under Section 404 of the Clean Water Act. A Section 404 permit is required for the discharge of dredged or fill material into waters of the United States. The Sacramento district of the ACOE would provide review and permitting services for this project.

State

California Environmental Quality Act

CEQA requires California public agencies to identify and mitigate the significant environmental impacts of projects that they are considering for approval. A project normally has a significant environmental impact on biological resources if it substantially affects a rare or endangered species or the habitat of that species, substantially interferes with the movement of resident or migratory fish or wildlife, or substantially diminishes habitat for fish, wildlife, or plants. The CEQA Guidelines define rare, threatened, and endangered species as those listed under ESA or CESA or any other species that meet the criteria of the resource agencies or local agencies (e.g., Species of Special Concern, as designated by CDFW). The effects of a proposed project on these resources are important in determining whether the project has significant environmental impacts under CEQA. CEQA ultimately authorizes the lead agency to require mitigation measures that avoid, minimize, or mitigate potentially significant impacts.

California Endangered Species Act

The state implemented CESA in 1984. The act prohibits the take of state-listed endangered and threatened species; however, habitat destruction is not included in the state's definition of "take." Under CESA, "take" is defined as an activity that would directly or indirectly kill an individual of a species. Section 2090 requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. CDFW administers the act and may authorize take through Section 2081 agreements (except for species designated as fully protected). Regarding rare plant species, CESA defers to the California Native Plant Protection Act of 1977, which prohibits importing, taking, and selling rare and endangered plants. State-listed plants are protected in cases where state agencies are involved in projects under CEQA. In these cases, plants listed as rare under the California Native Plant Protection Act are not protected under CESA but can be addressed under CEQA.

Porter-Cologne Water Quality Control Act

The California Water Code addresses the full range of water issues in the state, and includes Division 7, known as the Porter-Cologne Water Quality Control Act (Sections 13000–16104 of the California Water Code). Section 13260 requires "any person discharging waste, or proposing to discharge waste, in any region that could affect the waters of the State to file a report of discharge (an application for waste discharge requirements (WDRs))" with the appropriate Regional Water Quality Control Board.

California Fish and Game Code

Fully Protected Species

The California Fish and Game Code provides protection from take for a variety of species, referred to as fully protected species. Section 5050 lists fully protected amphibians and reptiles. Section 3515 lists fully protected fish species. Fully protected birds are listed in Section 3511, and fully protected mammals are listed in Section 4700. The California Fish and Game Code defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research or as included under an approved Natural Community Conservation Plan, all take of fully protected species is prohibited under state law and no permits are available for such take.

Sections 3503 and 3503.5

Section 3503 of the California Fish and Game Code prohibits the destruction of active bird nests or eggs. Section 3503.5 prohibits the killing of raptor species and the destruction of active raptor nests or eggs.

Sections 1600–1616

CDFW regulates activities that would interfere with the natural flow of or substantially alter the channel, bed, or bank of a lake, river, or stream including disturbance of riparian vegetation under California Fish and Game Code Sections 1600–1616. CDFW requires a Lake and Streambed Alteration Agreement (Streambed Alteration Agreement) permit for these activities.

Local

Siskiyou County General Plan

The Conservation Element of the Siskiyou County General Plan (amended 2000) includes general objectives relating to biological resources. These objectives include the following:

1. Preserve, protect and manage the Forest Lands as both wild habitat and a productive economic resource.
2. Preserve, maintain streams, lakes, and forest open space as a means of providing natural habitat for species of wildlife (Siskiyou County Planning Department 1973).

City of Mount Shasta General Plan

The Open Space/Conservation Element of the City of Mount Shasta General Plan include the following Objectives and Programs for the Conservation of Natural Resources:

1. Conserve lands that support important fisheries, wildlife and botanical habitat, and wetlands.
2. Protect riparian habitat along streams in the Planning Area.
3. Conserve wetland areas (City of Mount Shasta 2007).

City Tree Ordinance

The City maintains a City Tree Ordinance with the stated purpose being the control, management, conservation, and planting of City trees to enhance the appearance of the City, and protection of related economic and environmental resources. The Tree Ordinance is only applicable to trees in the public ROW and in commercial and industrial zones.

5.4.3 Applicant Proposed Measures

Applicant proposed measures (APMs) are intended to minimize the potential for impacts resulting from construction, operation, and maintenance of the proposed project before such impacts can occur. APMs differ from mitigation measures, which are typically proposed for the purpose of mitigating specific impacts after they occur.

Specific APMs intended to avoid or minimize the potential for project-related impacts to biological resources are provided in this section.

APM-BIO-1 Focused pre-construction surveys for special-status plant species shall be conducted in appropriate habitat, according to U.S. Fish and Wildlife Service

(USFWS) and California Department of Fish and Wildlife (CDFW) protocols for species having a specified protocol, or according to standard, scientifically accepted systematic surveys appropriate for each species. Surveys will be conducted in areas of planned ground disturbance. To the extent feasible, avoidance modifications in the placement of transmission towers, access and spur roads, and of various marshalling and staging areas shall be made in accordance with the final project design and needs. If special-status plant species are located during focused surveys within the project area, avoidance measures shall be incorporated. If avoidance is not possible, relocation efforts, including topsoil salvage and relocation, if necessary, will be implemented. If PacifiCorp proposes any changes to the current construction plan or pole replacement sites after focused surveys for special-status species are conducted, additional field surveys shall be required prior to construction activities.

Pre-construction biological clearance surveys shall be conducted to avoid or minimize potential impacts to special-status wildlife species. If burrows are located during surveys, avoidance measures shall be incorporated and the Environmental Monitor shall proceed as described in APM-BIO-6.

APM-BIO-2 Prior to first use, the undercarriages, wheels, and bodies of construction and operations equipment previously used outside of the project area shall be thoroughly washed in maintenance yards by high-pressure jets to eliminate any soil buildup that may contain invertebrates, such as insects and insect eggs, or the seeds of exotic plant species.

APM-BIO-3 Every reasonable effort shall be made to minimize temporary and permanent removal of native vegetation at work areas. If required, native vegetation shall be flagged for avoidance. If native vegetation cannot be avoided, it will be crushed rather than bladed. A project revegetation plan shall be prepared for areas of native vegetation temporarily affected by project construction activities.

APM-BIO-4 Construction crews shall avoid affecting the streambeds and banks of any streams along the route, to the extent feasible. If necessary, a Lake and Streambed Alteration Agreement (LSAA) will be secured from the CDFW. Impacts will be mitigated based on the terms of the LSAA. No streams with flowing waters or those capable of supporting special-status species would be expected to have permanent adverse impacts from project implementation.

APM-BIO-5 To avoid impacts from temporary access to wetland areas, existing access roads and temporary access methods (e.g., HDPE driving mats, portable road platforms) shall be used to access pole replacement sites. Results of the wetland delineation (Appendix D of the Proponent's Environmental Assessment) shall be incorporated into vehicle access routes, which shall be designed to avoid and minimize wetland disturbance.

APM-BIO-6 Environmental Monitors shall be assigned to the project, and will be responsible for ensuring that impacts to special-status species, native vegetation, wildlife habitat, and unique resources are avoided to the fullest extent possible. The monitor shall delineate and mark for avoidance in the field all known sensitive resource locations and, where appropriate, use flagging to delineate boundaries of areas from where activities are restricted to protect native plants and wildlife or special-status species. If the monitor determines that project activities may adversely affect the species, the monitor shall consult with USFWS and/or CDFW regarding appropriate avoidance measures. These restricted areas shall be monitored during construction to ensure their protection.

APM-BIO-7 PacifiCorp shall conduct all pole installation, conductor installation, tree trimming, tree removal, grading, and clearing of vegetation from September 1 to February 28, outside of the nesting season. The March 1–August 31 nesting season dates are guidelines: nesting season may begin earlier or end later depending on weather conditions; nests will be protected regardless of the calendar date. If construction cannot be completed outside of the nesting season, pre-construction surveys within the project area will be conducted by a qualified biologist for nests prior to ground disturbance, tree trimming, or other construction activities. The nesting bird clearance survey will be conducted within 3 days prior to construction activities. For passerines, a 50-foot buffer will be installed around the nest and maintained around the nest until the young have fledged. A larger buffer may be required if nesting birds appear stressed. Nesting raptors require a larger buffer area than passerines. If a raptor nest is observed, a 300-foot buffer will be installed. If a nesting raptor is observed within 300 feet of the project area prior to the start of construction, a qualified biologist will determine whether or not construction activities could potentially disturb nesting raptors and implement appropriate measures (e.g., on-site monitor, timing restriction) to adequately protect nesting raptors.

APM-BIO-8 A Worker Environmental Awareness Program (WEAP) shall be prepared and all construction crews and contractors shall be required to participate in WEAP

training prior to starting work on the project. The WEAP training shall include a review of the special-status species and other sensitive resources that could occur in the project area, the locations of any existing sensitive resources, their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all personnel trained shall be maintained.

APM-BIO-9 Migratory bird flight paths in the project area are currently unknown. An impact assessment study and bird observation surveys shall be conducted according to the Avian Power Line Interaction Committee's (APLIC's) (1994) survey protocol. The surveys shall be conducted in wetlands along both sides of the existing transmission line within the study area. The surveys shall be done in consultation with CDFW. Results of the bird observation surveys will determine potentially impacted species and locations to mark wires to increase their visibility to flying birds. Line markers should be designed to be raptor-safe in accordance with the Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2012 (APLIC 2012), evaluated and approved by PacifiCorp engineers prior to implementation.

APM-BIO-10 Vehicles shall be restricted to previously established roadways and access routes.

APM-BIO-11 Trash, dumping, firearms, open fires, hunting, and pets shall be prohibited in the project area.

APM-BIO-12 If construction within and near potential willow flycatcher (*Empidonax traillii*) habitat (riparian scrub and surrounding wet meadow) cannot be completed outside of the willow flycatcher nesting season (June 1 to August 31), broadcast surveys shall be conducted to determine presence/absence of the species prior to construction activities. If absence is determined, construction may begin within the potential willow flycatcher habitat. If presence is determined, flycatcher detections will be buffered by 150 feet, and construction activities will not occur within the buffer area for the remainder of the nesting season.

APM-BIO-13 Operation and maintenance activities that must occur in or near potential willow flycatcher habitat (riparian scrub and surrounding wet meadow) will be conducted outside of the willow flycatcher nesting season (June 1 to August 31), whenever practicable.

5.4.4 Environmental Impacts and Mitigation

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

Special-Status Plants

Less Than Significant Impact with Mitigation Incorporated. As previously noted, 24 special-status plant species were determined to have some potential to occur within the BSA and immediate project area based on habitat suitability, elevation, soils, and proximity to known recorded occurrences of the species. None of these 24 plant species is state- or federally listed as threatened or endangered.

With implementation of APM-BIO-1 (pre-construction surveys), special-status plants located during pre-construction surveys or during construction will be avoided to the fullest extent feasible. Potential for habitat modification through removal of native vegetation that is determined to support special-status plant species would be avoided or minimized through implementation of APM-BIO-2 (vehicle undercarriage washing), APM-BIO-3 (minimize impacts to native vegetation), and APM-BIO-10 (established roadways and access routes). Implementation of APM-BIO-6 (Environmental Monitors during construction activities) would ensure that areas where special-status plants are located would be avoided during construction activities.

Pursuant to APM-BIO-1, if avoidance of special-status plants is considered infeasible, and topsoil salvage or plant relocation is determined to be the appropriate course of action to avoid impacts to special-status plants, Mitigation Measure (MM) BIO-1 shall be implemented, as follows:

MM-BIO-1 A topsoil salvage and relocation plan shall be prepared that includes the following information: (1) a description of the methods to be utilized with any topsoil salvage or plant relocation, (2) a description of the receiving location for salvaged topsoil or relocated plants, (3) a discussion of the criteria and measures to be used to determine success of relocated plants, (4) monitoring to be implemented to measure the success of plant relocation, and (5) adaptive management to be used in association with any plant relocation. Any topsoil salvage and/or plant relocation plans shall be reviewed and approved by the California Department of Fish and Wildlife.

Special-Status Wildlife

Reptiles and Amphibians

Less Than Significant. One special-status amphibian species, Cascades frog (*Rana cascadae*; state Species of Special Concern), has a moderate potential to occur within the BSA. Construction disturbances associated with the project could potentially crush individual frogs on the ground surface, within burrows, or sequestered beneath surface debris and rocks. With implementation of APM-BIO-1 (preconstruction surveys), APM-BIO-3 (minimize vegetation impacts), APM-BIO-4 (minimize riparian disturbance), APM-BIO-5 (temporary access to wetlands), APM-BIO-6 (Environmental Monitor during construction activities and consultation with CDFW regarding avoidance measures if a special-status species is located within proposed disturbance areas), APM-BIO-8 (WEAP), and APM-BIO-10 (restriction to established roadways and access routes), significant adverse impacts to this special-status amphibian are expected to be avoided.

Raptors

No Impact. Four species of raptors have a low potential to occur within the BSA: bald eagle (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*), northern goshawk (*Accipiter gentilis*), and Swainson's hawk (*Buteo swainsoni*). All four of these raptors are only expected to use the BSA and project area for occasional foraging and/or roosting, or to fly over the site during transit to other preferred foraging areas or during movement periods. Both the bald eagle and osprey tend to nest and forage near large bodies of water; Lake Siskiyou, Shasta Lake, and other lakes in the regions have historically served as foraging and nesting areas for these two large raptors (CNDDB 2015). Although the taller trees in the BSA and along the perimeter of the proposed project site could potentially serve as nest sites, no records exist of nesting by either species in the immediate vicinity of the project area. Furthermore, the fragmented nature of the woodlands in the BSA, the large amount of human activity in and adjacent to the BSA, and the relatively large distance of the project from large bodies of water are expected to serve as inhibitors to either of these species nesting in or adjacent to the BSA. In addition, the small creeks and drainages crossing the project area do not contain fish (the preferred prey of these raptors) and are too small to be used by either species as foraging habitat. Therefore, neither bald eagles nor ospreys are expected to nest in or immediately adjacent to the BSA, and they would likely use the site only as infrequent flyover habitat.

Although the CNDDB contains one historic record of nesting northern goshawk within a 5-mile radius of the project area, and more recent records occur farther away, the species prefers dense, mature coniferous forests at middle and higher elevations and is not expected to nest within the fragmented lower-elevation coniferous forest that occurs along portions of the project alignment. The species would potentially use surrounding woodlands as infrequent foraging habitat during movements between preferred habitat areas; however, the fragmented nature of the BSA and its proximity to ongoing human activities (residences, traffic on local roads, recreationists) likely limit the attractiveness of the BSA and project area as foraging or roosting habitat for northern goshawk. No CNDDB records exist for nesting Swainson's hawks within 5 miles of the project area. The open grassland areas in and adjacent to the BSA could serve as foraging habitat on an infrequent basis during regional movement episodes or migration. However, due to the lack of historic nesting of Swainson's hawk in the immediate region, the species is not expected to nest in or adjacent to the BSA.

Removal of vegetation in the project area may reduce the numbers of some prey for the northern goshawk or Swainson's hawk during infrequent foraging in the area, at least temporarily. However, because of the very small footprint associated with the proposed project, the loss of a minimal amount of grassland and woodland habitat would not be considered substantial with respect to foraging by either of these species. Moreover, after construction, the remaining grassland and woodland habitats are expected to continue to function as foraging habitat for these two raptor species as well as other more common raptor species in the area.

The spacing between conductors and grounding surfaces on the new 69 kilovolt (kV) structures for this project would be adequate to preclude electrocution potential for raptors. Replacement poles would meet the APLIC suggested practices for avian protection on power lines (APLIC 2006).

With implementation of APM-BIO-1 (preconstruction surveys), APM-BIO-6 (Environmental Monitor during construction activities and consultation with CDFW regarding avoidance measures), APM-BIO-7 (avoid impacts to active nests, should any occur), APM-BIO-8 (Worker Environmental Awareness Program), and APM-BIO-9 (bird surveys/impact assessment and line marker placement, and avian protection), and because none of these special-status raptors are expected to nest within the BSA, adverse impacts to these special-status raptor species, as well as common raptor species, will be avoided.

Nesting Bird Species

No Impact. Harm to or destruction of individual native bird species, or active nests of such species, is prohibited by the federal Migratory Bird Treaty Act and by various sections of the California Fish and Game Code. Suitable foraging habitat exists for two non-raptorial special-status bird species (willow flycatcher and great blue heron (*Ardea herodias*)) with some potential to occur in the BSA. While great blue heron is not expected to nest in or adjacent to the BSA or the immediate project area due to the lack of suitable trees for this colonially nesting species within the BSA, some riparian scrub and wet meadow habitat suitable for willow flycatcher nesting occurs within and adjacent to portions of the BSA. If vegetation clearing and other ground-disturbing activities occurred during the nesting season of willow flycatcher, these activities could result in destruction of active nests or, if within close proximity to active nests, abandonment of the nests by the adult birds. However, with implementation of APM-BIO-1 (preconstruction surveys), APM-BIO-3 (minimize vegetation impacts), APM-BIO-4 (minimize riparian disturbance), APM-BIO-5 (temporary access to wetlands), APM-BIO-6 (Environmental Monitor during construction activities and consultation with CDFW regarding avoidance measures if a special-status species is located within proposed disturbance areas), APM-BIO-8 (WEAP), APM-BIO-10 (restriction to established roadways and access routes), APM-BIO-12 (broadcast surveys for willow flycatcher and 150-foot setbacks from observed detections), and APM-BIO-13 (Operation and maintenance activities within or near willow flycatcher habitat to be conducted outside the willow flycatcher nesting season), significant adverse impacts to this special-status species are expected to be avoided. Therefore, no adverse impacts are expected to occur on either of these bird species.

The trees, shrubs, ruderal vegetation, and other structures in the BSA and the immediate project area provide suitable nesting habitat for a number of common bird species. Vegetation clearing and other ground-disturbing activities, if conducted within the avian nesting season (late February to August), could result in the destruction of or harm to active bird nests. If construction occurs during the nesting season, APM-BIO-7 requires that the construction area be surveyed for active nests prior to initiation of construction activities. If active nests are located, pursuant to APM-BIO-7 appropriate avoidance buffers would be established until all young have successfully fledged from the nest. With implementation of APM-BIO-7, APM-BIO-6 (Environmental Monitor during construction activities and consultation with CDFW regarding avoidance measures), and APM-BIO-8 (WEAP), no adverse impacts to nesting bird species are expected to occur.

Larger birds flying low over the site, especially species such as herons and egrets that could be foraging along the agriculture drainages and wetlands and/or open grasslands in the BSA, could collide with transmission lines or be electrocuted if perching on transmission poles or conductors. APM-BIO-9 requires that an impact assessment be conducted pursuant to APLIC's 1994 survey protocol and in consultation with CDFW to identify locations where bird collisions would potentially occur and to implement measures suggested by APLIC guidelines to reduce collision potential. With implementation of APM-BIO-9, no adverse impacts to low-flying bird species are expected to occur.

Mammals

No Impact. Three special-status bat species have some potential to occur in the BSA: spotted bat (*Euderma maculatum*), western mastiff bat (*Eumops perotis californicus*), and silver-haired bat (*Lasionycteris noctivagans*). Spotted bats could forage over the open areas of the site and possibly roost in the existing substation that will be removed. Western mastiff bat and silver-haired bat could also forage over the open areas of the site as well as in on-site woodlands. These species could also roost on the larger trees in the BSA and the immediate project area. Focused surveys for roosts of these species would be conducted prior to the initiation of construction activities pursuant to APM-BIO-1. With implementation of APM-BIO-1, APM-BIO-6 (monitors during construction to ensure avoidance of impacts), and APM-BIO-8 (WEAP), no adverse impacts to these bat species are expected to occur.

The west coast fisher (*Pekania pennanti*) is the only terrestrial special-status mammal with some potential to occur in the BSA. While the species has been documented as occurring in the project vicinity, the potential of this species to occur in the BSA is considered low because it is typically found in denser forest habitat than is found in the fragmented and more open woodlands that occur in portions of the BSA. With implementation of APM-BIO-1 (preconstruction surveys), APM-BIO-6 (Environmental Monitors during construction activities), APM-BIO-8 (WEAP), and APM-BIO-11 (restrictions on vehicles, trash, firearms, and pets), adverse impacts to this special-status mammal species are not expected to occur.

Invertebrates

No Impact. Six invertebrate species have some potential to occur in the BSA: Suckley's cuckoo bumblebee (*Bombus suckleyi*), confusion caddisfly (*Cryptochia shasta*), Castle Crags rhyacophilan caddisfly (*Rhyacophila lineata*), bilobed rhyacophilan caddisfly

(*R. mosana*), Siskiyou hesperian (*Vespericola sierranus*), and leaden slug (*Hesperarion plumbeus*). Five of these species are associated with creeks and other wet areas, while the bumblebee is a nest parasite and occurs where other bumblebees occur. With implementation of APM-BIO-4 (avoidance of streambeds and banks), APM-BIO-5 (use of driving mats and portable road platforms to minimize impacts to wetlands and streams), APM-BIO-6 (Environmental Monitor during construction activities and consultation with CDFW regarding avoidance measures), APM-BIO-8 (WEAP), and APM-BIO-10 (restriction to established roadways and access routes), no adverse impacts to these species are expected to occur.

Significance After Mitigation: Impacts would be less **than significant with mitigation incorporated**.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant Impact. The riparian scrub and montane meadow habitat that occur in the BSA are considered "sensitive natural communities" as identified by CDFW (the freshwater marsh habitat on site is considered a wetland habitat and is addressed below). Ground and vegetation clearing for access to pole sites and pole replacement has the potential to remove plant material associated with these habitat types. However, the actual footprint of impacts associated with this loss is expected to be minimal and would be further minimized to the greatest extent feasible with APM-BIO-3. Invasive plants may compete with native vegetation for resources and may also change the local fire regime. Implementation of APM-BIO-2 (vehicle undercarriage washing) will minimize the potential for construction vehicles and equipment to carry non-native vegetation into the project area. Implementation of APM-BIO-4 (avoidance of streambeds and banks), APM-BIO-5 (temporary wetland access), APM-BIO-6 (environmental monitors during construction), and APM-BIO-8 (WEAP) will further minimize potential impacts to riparian and montane meadow communities. With implementation of these APMs, adverse impacts to riparian and montane meadow vegetation would be largely avoided and minimized; impacts would therefore be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant Impact. Permanent impacts to wetlands would consist of placing fill, in the form of new poles and backfill materials, in wetlands. The new poles would be 19 inches in diameter with a permanent footprint of 1.77 square feet per pole, once installed. North of the existing Mount Shasta Substation, 14 poles would be replaced in wetlands, including 8 poles that would be replaced in a wetland mitigation area (Morgan–Merrill Wildlife Preserve, as discussed in the Jurisdictional Delineation Report (PacifiCorp 2015, Appendix D)). Installation of these 14 poles would result in permanent impacts of 28.58 square feet (0.0007 acres) within jurisdictional wetland areas.

Temporary impacts would result from ground disturbance as a result of temporary access to pole sites and disturbance of wetlands during construction activities, including removal of the distribution line adjacent to Cold Creek in the Morgan–Merrill Wildlife Preserve, resulting in a temporary disturbance area of 1.978 acres (86,165.6 square feet) in wetlands. Construction vehicles and equipment could create ruts or compress soils in wetland areas. Removal of wetland vegetation could alter wetland ecosystems and result in localized erosion and filling of waters or wetlands downgradient from the site through sedimentation.

Given the nature of the proposed project and the location of the ROW, impacts to small areas of wetlands resulting from pole placement cannot be avoided. However, with implementation of APM-BIO-3 (minimize vegetation impacts), APM-BIO-5 (temporary wetland access), APM-BIO-6 (Environmental Monitors during construction), APM-BIO-8 (WEAP), and APM-BIO-10 (restriction to established roadways and access routes), impacts to these wetlands would be minimized. Because of the very small anticipated permanent loss of jurisdictional wetlands (0.007 acres), this loss is not considered a substantial adverse effect on federally protected wetlands.

As previously noted, Cold Creek and its associated riparian habitat, banks, and streambed would be avoided by the proposed project; therefore, no impacts to Cold Creek are expected to occur. Should proposed project circumstances change such that avoidance of the creek becomes infeasible, PacifiCorp would consult with the CDFW and, if required, obtain a Streambed Alteration Agreement pursuant to APM-BIO-4 in compliance with Section 1602 of the California Fish and Game Code. Impacts on federally protected wetlands under the proposed project would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant. The project site and surrounding area is not known to be, and has never been documented as, a migratory movement corridor for wildlife or to function as an important habitat linkage between large open space areas, particularly given the relatively high level of human activity in the area (e.g., the presence of paved roads and associated traffic, rural residential homes, and recreational uses). Due to the relatively small footprint (disturbance area) of the structures, the large spans between structures, and the open landscape in which the project area is currently located, the project as proposed would not interfere substantially with the movement of any wildlife species after all structures have been installed.

During construction, temporary construction-related noise may have the potential to disrupt local movement patterns and activities for some diurnal resident wildlife species; nocturnal species are not expected to be affected. However, such disruption would be temporary, and movement activities and patterns by resident species would be expected to return to baseline levels once construction is completed.

With implementation of APM-BIO-1 (preconstruction surveys), APM-BIO-3 (avoid/ minimize natural vegetation impacts), APM-BIO-6 (Environmental Monitor during construction activities and consultation with CDFW regarding avoidance measures), APM-BIO-7 (avoid impacts to active nests, should any occur), and APM-BIO-8 (WEAP), loss of natural vegetation is expected to be minimized and potential impacts to nesting bird and bat species will be avoided.

Therefore, the proposed project is not expected to interfere substantially with the movement of any native migratory fish or wildlife species, with established resident or migratory wildlife corridors, or impede the use of native wildlife nursery (nest) sites. Impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. The Conservation Element of the Siskiyou County General Plan includes general objectives relating to biological resources. These objectives include (1) to preserve, protect and manage the Forest Lands as both wild habitat and a productive economic resource and (2) to preserve and maintain streams, lakes and forest open space as a means of providing natural habitat for species of wildlife. The proposed project would comply with these general objectives by (1) using the existing ROW for the majority of the project, (2) completely avoiding construction on forest lands and near lakes, and (3) implementing measures to minimize/avoid impacts on wetlands, riparian zones, and streams.

The Open Space and Conservation Element of the City of Mount Shasta General Plan include the following Objectives and Programs for the Conservation of Natural Resources: (1) conserve lands that support important fisheries, wildlife and botanical habitat, and wetlands; (2) protect riparian habitat along streams in the Planning Area; and (3) conserve wetland areas. The proposed project would comply with these objectives by (1) using the existing ROW for the majority of the project; (2) implementing measures that avoid impacts on native wildlife species, particularly special-status species, and that avoid/minimize the loss of natural vegetation; (3) avoiding construction on/within Cold Creek; and (4) implementing measures that avoid/minimize impacts on wetland areas (a total of 0.007-acre impact on wetlands).

The City maintains a City Tree Ordinance with the stated purpose being the control, management, conservation and planting of City trees to enhance the appearance of the City, and protection of related economic and environmental resources. The Tree Ordinance is only applicable to trees in the public ROW and in commercial and industrial zones. Nevertheless, the project includes measures that minimize/avoid the loss of trees within the project ROW.

Given that the project design and associated measures avoid/minimize impacts to natural resources in and adjacent to the project area, **no impact** relating to conflict with local policies or ordinances would result from approval and implementation of the proposed project.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The proposed project is not located within the boundaries of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

A portion of the transmission line upgrade, beginning midway between Pole 12/48 and Pole 13/48 and continuing north to Hatchery Lane, consists of natural and created wetlands and non-wetland natural areas that were previously set aside as wetland mitigation (Theiss and Associates 1990). In 2000, this property was declared the Morgan–Merrill Wildlife Preserve (County of Siskiyou 2000) as part of that mitigation plan. The purpose of the wildlife preserve is to ensure that the protected area would be retained in its natural wetland and open space condition in perpetuity.

As previously discussed, eight poles within the Morgan–Merrill Wildlife Preserve will be replaced. PacifiCorp design standards require a ROW that is 50 feet wide for a 115 kV transmission line. The existing ROW for the 69 kV transmission line varies from 50 feet to 75 feet wide; therefore, the new 115 kV line into the proposed new substation would not require new easements for the pole upgrade portion of the project. In addition, implementation of APM-BIO-3 (minimize vegetation impacts), APM-BIO-5 (temporary wetland access), APM-BIO-6 (Environmental Monitors during construction), APM-BIO-8 (worker environmental awareness program), and APM-BIO-10 (restriction to established roadways and access routes) will minimize/avoid impacts to wetland areas. Finally, the total amount of permanent impact to wetlands within the wildlife preserve would be less than 0.005 acres. Therefore, the proposed project would not be considered a substantial adverse effect on the Morgan–Merrill Wildlife Preserve and would not conflict with the overall focus of the area as a preserve.

Consequently, **no impact** would occur from implementation of the proposed project relating to conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.4.5 References Cited

16 U.S.C. 703–712. Migratory Bird Treaty Act, as amended.

ACOE (U.S. Army Corps of Engineers). 1987. *Corps of Engineers Wetland Delineation Manual*. Online ed. Environmental Laboratory, Wetlands Research Program Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. January 1987. Accessed September 1, 2010. http://www.fedcenter.gov/Bookmarks/index.cfm?id=6403&pge_id=1606.

ACOE. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*. Version 2.0. Edited by J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-3. Vicksburg, Mississippi: U.S. Army Engineers Research and Development Center.

APLIC (Avian Power Line Interaction Committee). 1994. *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994*. Washington, DC: Edison Electric Institute.

APLIC. 2006. *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006*. Pier Final Project Report CEC-500-2006-022. Washington, DC, and Sacramento, California: Edison Electric Institute, APLIC, and the California Energy Commission. http://www.aplic.org/mission.php.

California Water Code, Sections 13000–16104. Porter-Cologne Water Quality Control Act.

CDFW (California Department of Fish and Wildlife). 2015. Element Occurrence Queries. California Natural Diversity Database. RareFind 3.1.1 (commercial subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Accessed March 2015. http://www.dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp.

City of Mount Shasta Planning Department. 2007. "Open Space/Conservation Element." *City of Mt. Shasta General Plan*.

County of Siskiyou. 2000. Amended Declaration of Restrictions, Document Number 2000051605300. Yreka, California: Siskyou County Recorder's Office. Recorded May 16, 2000.

Dahl, T.E., J. Dick, J. Swords, and B.O. Wilen. 2015. *Data Collection Requirements and Procedures for Mapping Wetland, Deepwater and Related Habitats of the United States* (Version 2). Madison, Wisconsin: Division of Habitat and Resource Conservation, National Standards and Support Team.

Enplan. 2008. *Final Cleanup and Restoration Plan, Merrill Parcel Mt. Shasta, California, Siskiyou County Assessor's Parcels 036-190-220 and 036-210-050*. Prepared for A. Merrill, City of Mount Shasta, California.

Google and USGS (U.S. Department of Agriculture, U.S. Geological Survey). 2015. Google Earth (v 7.1.2.2041): City of Mt. Shasta, California, United States. 41.304730°–122.321879° Eye altitude 1,316 feet. October 7, 2013; USGS 1998. Accessed September 21, 2015. https://www.google.com/earth/.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Nongame-Heritage Program, California Department of Fish and Game. October 1986.

Holland, R.F. 1998. *Changes in Great Valley Vernal Pool Distribution from 1989 to 1997*. Sacramento, California: California Department of Fish and Game, Natural Heritage Division. June 1998.

PacifiCorp. 2015. *Lassen Substation Proponent's Environmental Assessment*. Prepared by Power Engineers. October 2015.

Siskiyou County Planning Department. 1973. "Conservation Element." *General Plan for Siskiyou County, California*.

Theiss and Associates. 1990. *Wetlands Mitigation Plan*. Prepared for Morgan-Merrill Developers, Mt. Shasta, California, by K.C. Theiss, McKinleyville, California. August 1990.

Zedler, P.H. 2003. "Vernal Pools and the Concept of "Isolated Wetlands."" *Wetlands* 23(3): 597–607.

INTENTIONALLY LEFT BLANK

5.5 Cultural Resources

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

5.5.1 Environmental Setting

Summary of Inventory Efforts

The literature review and records search for the Lassen Substation Project (project) was conducted at the Northeast Information Center of the California Historical Resources Information System in 2011 and 2015. Native American Heritage Commission (NAHC) Sacred Lands File searches were completed in 2011 and 2014, and were followed-up by letters sent to NAHC-listed Native American representatives requesting additional information. Northeast Information Center records identified 44 recorded cultural resources located within 0.5 miles of the project site, none of which intersected project components.

Archaeological and built environment inventory efforts resulted in identifying two sites within the project study area. These historical-era resources, consisting of a single-family home constructed in 1960 (504 South Old Stage Road) and a section of metal pipe (JM-ISO), were both recommended as not eligible for listing in the California Register of Historical Resources (CRHR) and the National Register of Historic Places (NRHP). Documentation and methods met appropriate standards. Technical studies have sufficiently demonstrated that the project would not directly impact any significant archaeological or built-environment resources (historical resources), and the project as currently designed would not result in significant impacts to cultural resources.

504 South Old Stage Road

This structure was evaluated by a qualified architectural historian as not eligible for listing in the Siskiyou County Register, not eligible for listing in the CRHR under Criteria 1–4, and not eligible for listing in the NRHP under Criteria A–D.

JM-ISO

This isolated resource consists of an early 20th century riveted metal water pipe segment. This resource meets the definition of an archaeological isolate, and requires no additional consideration beyond the recordation completed as part of the technical study.

The pedestrian survey conducted for the project was intensive-level and met Office of Historic Preservation and Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44720–44726) and the California Office of Historic Preservation Planning Bulletin Number 4(a). Current conditions of the project study area were observed and documented. Resource documentation met appropriate standards for non-significant built-environment resources through preparation of a technical report and Department of Parks and Recreation (DPR) 523 A and B series forms. Both the technical report and these DPR forms appropriately addressed the significance of the resources.

Cultural Context

Prehistoric Period

This section describes human occupation in a chronological order in the project region. The project area is situated within a portion of the Shasta Valley. Due to the dearth of available information for this area, and the complexity of shifting tribal use areas in the Late Prehistoric Period, the chronology for this area is largely based on studies for the surrounding region.

Paleoindian (Pre-8000 BP)

There is little direct evidence for Pleistocene or Post-Pleistocene period occupation of this area. In general, the Paleoindian assemblage includes large proportions of lithic points and tools associated with hunting and processing large game. The assemblage includes a relatively small proportion of groundstone tools (Wallace 1978).

Early Archaic (8000–5000 BP)

The earliest period of occupation in the northern Sacramento Valley region is represented by the Early Archaic. This began with a general increase in temperature during the Holocene related to

the Altithermal. This resulted in a recession of lake and wetland areas, and a general expansion of shrubby and drought-resistant vegetation communities. Increased temperatures and reduced water availability resulted in tribal communities migrating to take advantage of more abundant usable plants, game, and fish. Projectile points tended to be large and wide-stemmed, and most were probably used with atlatls and spears. Groundstone tools first used in any frequency during this period indicate an increased reliance on seeds for subsistence (BLM 1997; Wallace 1978).

Middle Archaic (5000–2500 BP)

During the Middle Archaic period, settlement patterns remained relatively stable, but tool kits began to become more elaborate and included small unifacial foliate and bifacial stemmed projectile points and darts (BLM 1997; Theodoratus 1981).

Late Archaic/Transitional Period (2500–1500 BP)

In general, the Late Archaic in this area was marked by increased use of acorns for food, as indicated by the increased prevalence of mortars and pestles, and an increased use of major drainages and valleys. Medium-sized side-notched and corner-notched projectile points became part of the assemblage (Theodoratus 1981).

Shasta Complex (1500–150 BP)

Based on current evidence of proto-historic patterns, it is suggested that cultures were entrenched in local traditions by at least 1000 BP and possibly as early as A.D. 500 (Elsasser 1978; King 1978; Sundahl 1998). Very little information relating to cultural or social structure of the Okwanuchu is available. Clem Meighan developed the Shasta Complex through excavations at the Shasta Dam and along the lower McCloud River. This period represented the introduction of bow and arrow technology. This assemblage is generally attributed to the Shastan-cultural group, and included Gunther Series and Desert Side-notched points, hopper basket mortars and pestles, sandstone arrow-shaft straighteners/abraders, shell and bone artifacts, and pinenut beads (Sundahl 1998). This period marked a transition toward greater exploitation of acorns, but also remained heavily invested in salmon fishing and hunting. Two or more tribal groups may have occupied portions of this territory during this period. As such, there has been some discussion if the Shasta Complex is associated with the Wintu, Yana, or Okwanuchu (Shastan tribe) (BLM 1997).

Ethnographic Period

The history of the Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants,

missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering colonial and economic aims, and were combined with observations of the landscape.

Tribes in this region did not become the focus of formal or in-depth ethnographic study until the late 19th century by researchers including Robert B. Dixon, C. Hart Merriam, Stephan Powers, and Alfred Kroeber (Golla 2011). The work of these individuals was not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The principal intent of these researchers was to record the precontact, culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization, colonialism, and, later, the Euro-American influx driven by the promise of gold and land. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation.

Based on ethnographic information, it is believed that at least 88 different languages were spoken from Baja California Sur to the southern Oregon border at the time of Spanish contact. The distribution of recorded Native American languages has been dispersed as a geographic mosaic across California through six primary language families (Golla 2007). As the project area is located immediately west of Mount Shasta, the Native American inhabitants of the region would have spoken an Okwanuchu variation of the Shastan language group, which is part of the Hokan language phylum. Golla has suggested that the time depth of Hokan is approximately 8,000 years (Golla 2007). Being the oldest documented linguistic group in present California, Hokan-speaking populations have been divided by a series of subsequent population movements over the millennia. This has resulted in a number discrete Hokan-speaking tribal areas throughout California and Baja, Mexico. The Shastan-speaking tribes are geographically adjacent to three other tribal cultural-linguistic areas where the languages are rooted in Hokan (including the Chimariko, Karuk, Yana, Achumawi, and Atsugewi) (Golla 2007).

The project area is located within the geographic area traditionally inhabited by the Okwanuchu tribe, a subgroup of the Shastan cultural-linguistic group (Golla 2011; Kroeber 1925; Moratto 2004). The Shastan-speaking cultural-linguistic area includes the Shasta, Konomihu, Okwanuchu, and New River Shasta tribes (Heizer 1978; Kroeber 1925). The boundaries of the Shastan linguistic area have been provided by Heizer as follows:

> The Shasta occupied land from around Jacksonville, Oregon, in a swath of land that roughly followed the southern upper Rogue River watershed southeast towards Beswick, California, encompassing parts of the upper Klamath River watershed, including Jenny Creek. This territory then widened westward toward

> Seiad Valley along the Klamath River watershed, then the limit headed south to the Salmon Mountains and to Callahan, California. The territorial limit then progressed eastward to Mt. Shasta and back north to Beswick. The Okwanuchu occupied portions of the upper Sacramento and McCloud watersheds south of Mt. Shasta and including the southeastern corner of the Shasta territory described above. The New River Shasta and Konomihu lived in an area surrounding Cecilville, 40 miles to the southwest of the Shasta area described above, and surrounding the north, east, and south forks of the Salmon River, as well as the upper New River watershed (Heizer 1978).

The language and culture of the tribes surrounding the project area have been subject to very limited previous research. The language of the Okwanuchu is based on a list of approximately 75 words documented by Merriam in 1925 (Golla 2011). The Okwanuchu traditionally occupied the mountain region dominated by coniferous forest. Okwanuchu territory extended from south of present-day Weed along/across the upper Sacramento and middle McCloud Rivers to approximately Bully Hill. This territory is partially substantiated by the term of the neighboring Achumawi and Atsugewi, which was *ikasawdewi*, or *yeti*, referring to Mount Shasta (Kroeber 1925: 284). Archaeological evidence suggests that portions of the Okwanuchu, notably those along the middle McCloud River, were subsumed by an expansion of the Wintun cultural area between 1000–500 years BP, then by a more recent expansion by the Achumawi (Sundahl 1998).

Historic Period

The first Euro-Americans to enter the region appear to have been a company of Hudson Bay trappers and traders led by Peter Skene Ogden during the winter of 1826–1827 (BLM 1997). Continuing throughout the following two decades, trappers associated with the Hudson Bay Company were quite active within Shasta tribal territory. Alexander McLeod and his party of trappers are reported to have traveled through Shasta Valley in 1828–1830, and they established camps on the McCloud and Klamath Rivers (BLM 1997). Slightly later, Colonel John C. Fremont was direct by the U.S. government to explore the area. Mount Shasta was a landmark on the Siskiyou Trail, which began as an ancient trade route between what is now California's Central Valley and the Pacific Northwest (BLM 1997). By 1841, scientists and cartographers with the United States Exploring Expedition travelled through the area via the Siskiyou Trail.

The influx of Euro-American miners during the initiation of the gold rush (discovered along local rivers in the 1850s) resulted in the displacement of Native American communities throughout the region. Mining had a number of detrimental effects to the environment, including the lower availability of salmon (BLM 1997). This resulted in the shifting of tribal populations away from their traditional use areas. New roads and trails were established, including the Siskiyou Trail and

California to Oregon Trail through Shasta Valley. The Old Stage Road was initially one of the early, well-used trails. Lindsey Applegate, who traveled along this route in 1849, noted that it was a difficult passage (Dice 2015). Seven years later, Ross McCloud improved the trail, which later became an active wagon road (SCSC 2002). Additional access was enabled shortly after by the completion of the Southern Pacific Railroad and McCloud River Railroad through this area (SCSC 2002). This resulted in further growth of local Euro-American populations to support mining, logging, ranching, and other industries.

Paleontological Context

Mount Shasta has erupted approximately every 600 years since the Early Holocene (last 8,000 years) (McClung 2005). The most recent of these events occurred in 1786, during which pyroclastic material and mudflow moved down-slope by route of Ash Creek and Mud Creek. These events resulted in the depositions of Holocene-era deposits with little potential to contain focalized paleontological resources. This area was subject to volcanic activity approximately 600,000 years ago. A landslide flowed northwestward into Shasta Valley down along the northern face of Mount Shasta as recently as 360,000 years ago (Hirt 2004).

Native American Correspondence

The NAHC was contacted in October 2011 and November 2014 with requests to search its Sacred Lands File. Both searches failed to indicate the presence of Native American resources within or surrounding the project area. The NAHC provided a contact list of NAHC-listed tribal representatives who have been identified as possibly having additional information relating to Native American resources in the vicinity of the project area. Letters were sent to NAHC-listed tribal representatives in October 2011 and December 2014. Follow-up calls were also made. No responses were received regarding these outreach attempts. The following individuals were contacted as part of these outreach efforts in 2011, without response:

- Harold Bennett, Chairperson, Quartz Valley Indian Community
- Yvette Lewis, Cultural Resources Coordinator, Quartz Valley Indian Community
- Rebekah Sluss, Environmental Coordinator, Quartz Valley Indian Community
- Athena Calico, Vice Chairperson, Shasta Indian Nation
- Mary Carpelan, Cultural and Archaeological Resources, Shasta Nation
- Roy Hall, Jr., Chairperson, Shasta Nation

The following NAHC-listed representatives were contacted in 2014, without response:

- Aaron Peters, Chairperson, Quartz Valley Indian Community
- Evette Lewis, Cultural Resources Coordinator, Quartz Valley Indian Community
- Rebekah Sluss, Environmental Coordinator, Quartz Valley Indian Community
- Mary Carpelan, Cultural and Archaeological Resources, Shasta Nation
- Roy V. Hall Jr., Chairperson, Shasta Nation
- Sami Jo Difuntorum, Cultural Resources, Shasta Indian Nation and Administrator, Butte Valley Indian Community

5.5.2 Regulatory Setting

The following section provides federal and state cultural resources regulatory information. Although only California Environmental Quality Act (CEQA) and local regulatory conditions apply to the project, federal laws have been included for reference should federal consultation with the State Historic Preservation Office be required.

Federal

National Register of Historic Places

The NRHP is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service under the U.S. Department of the Interior, the NRHP was authorized under the National Historic Preservation Act, as amended. Its listings encompass all National Historic Landmarks and historic areas administered by the National Park Service.

NRHP guidelines for the evaluation of historic significance were developed to be flexible and to recognize the accomplishments of all who have made significant contributions to the nation's history and heritage. Its criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the NRHP. For a property to be listed in or determined eligible for listing, it must be demonstrated to possess integrity and to meet at least one of the following criteria:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity is defined in the NRHP guidance, How to Apply the National Register Criteria, as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1995). NRHP guidance further states that properties be completed at least 50 years ago to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration G) to be considered for listing.

A historic property is defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the NRHP criteria" (36 Code of Federal Regulations (CFR) Section 800.16(i)(1)).

Effects on historic properties under Section 106 of the National Historic Preservation Act are defined in the assessment of adverse effects in 36 CFR 800.5(a)(1):

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Adverse effects on historic properties are clearly defined and include the following:

i) Physical destruction of or damage to all or part of the property;

ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR Part 68) and applicable guidelines;

iii) Removal of the property from its historic location;

iv) Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;

v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance (36 CFR 800.5(2)).

To comply with Section 106, the criteria of adverse effects are applied to historic properties if any exist in a project's area of potential effects, pursuant to 36 CFR 800.5(a)(1). If no historic properties are identified in the area of potential effects, a finding of "no historic properties affected" will be made for the proposed project. If there are historic properties in the area of potential effects, application of the criteria of adverse effect would result in project-related findings of either "no adverse effect" or "adverse effect." A finding of no adverse effect may be appropriate when the undertaking's effects do not meet the thresholds for the criteria of adverse effect (36 CFR 800.5(a)(1)), in certain cases when the undertaking is modified to avoid or lessen effects, or if conditions were imposed to ensure review of rehabilitation plans for conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (codified in 36 CFR, Part 68).

If adverse effects findings were expected to result from the proposed project, mitigation would be required, as feasible, and resolution of those adverse effects by consultation may occur to avoid, minimize, or mitigate adverse effects on historic properties pursuant to 36 CFR, Part 800.6(a).

California

California Register of Historical Resources

In California, the term "historical resource" includes "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code Section 5020.1(j)). In 1992, the California legislature established the CRHR "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code Section 5024.1(a)). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP.

According to California Public Resources Code Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluation of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines (14 CCR 15000 et seq.) are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- California Public Resources Code Section 21083.2(g) defines "unique archaeological resource."
- California Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.5(a) defines "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource"; it also defines the circumstances when a project would materially impair the significance of a historical resource.
- California Public Resources Code Section 21074(a) defines "tribal cultural resources."
- California Public Resources Code Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- California Public Resources Code Sections 21083.2(b)–(c), and CEQA Guidelines Section 15126.4, provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures. Preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site.

Under CEQA, a project may have a significant impact on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code Section 21084.1; 14 CCR 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code Section 21084.1; 14 CCR 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code Section 21084.1; 14 CCR 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant impact under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource

would be materially impaired" (14 CCR 15064.5(b)(1); California Public Resources Code Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project would do any of the following:

(1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

(2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA (14 CCR 15064.5(b)(2)).

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project would cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance would be materially impaired.

If it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (California Public Resources Code Section 21083.2(a)–21083.2(c)).

California Public Resources Code Section 21083.2(g), defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (California Public Resources Code Section 21083.2(a); 14 CCR 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as a tribal cultural resource (California Public Resources Code Sections 21074(c), 21083.2(h)), further consideration of significance is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains, and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in California Public Resources Code Section 5097.98.

California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the County coroner has examined the remains (Health and Safety Code Section 7050.5b). California Public Resources Code Section 5097.98, also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe that the remains are those of a Native American, the coroner must contact the California NAHC within 24 hours (Health and Safety Code Section 7050.5c). The NAHC will notify the most likely descendant. With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by the NAHC. The most likely descendant may recommend the means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

5.5.3 Applicant Proposed Measures

No applicant proposed measures were identified for the proposed project. No additional mitigation, including archaeological monitoring, would be necessary. In the event that yet-to-be identified cultural or paleontological resources are encountered, work would halt in the vicinity of the find. Prior to any additional impacts, the lead agency and a qualified specialist would be

contacted, and, as discussed above, the processes outlined by CEQA for significance evaluation of resources would be implemented. Should human remains be identified, work would be halted in the vicinity and procedures outlined in California Public Resources Code Section 5097.98 would be implemented.

5.5.4 Environmental Impacts and Mitigation

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

Less Than Significant Impact. A non-eligible structure was identified at 504 South Old Stage Road This structure was evaluated by a qualified architectural historian as not eligible for listing in the Siskiyou County Register, not eligible for listing in the CRHR under Criteria 1–4, and not eligible for listing in the NRHP under Criteria A–D. Documentation met the standards for non-significant built-environment resources through preparation of a technical report and DPR 523 A and B series forms. The technical report and the DPR forms were thorough and appropriately addressed the significance of the building; therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

Less Than Significant Impact. One archaeological resource was identified within the direct project footprint through Phase I cultural resources inventory efforts. This resource meets the definition of an archaeological isolate, and requires no additional consideration beyond the recordation completed as part of the prepared technical study. Impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

No Impact. The region has been subject to reoccurring natural disturbances and burial by Mount Shasta, which has erupted approximately every 600 years since at least the last 8,000 years. Geological evidence suggests that fossilized paleontological

resources are unlikely to be present, persist, or be encountered during construction; therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

*d) **Would the project disturb any human remains, including those interred outside of formal cemeteries?***

No Impact. Cultural resources archival research, intensive-level pedestrian survey, and correspondence with the NAHC and NAHC-listed Native American tribal representatives did not identify the presence, or receive information related to, human remains within the project area. Should human remains be discovered, project personnel would implement California Health and Safety Code Section 7050.5 and PRC Section 5097.98; therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.5.5 References Cited

BLM (Bureau of Land Management). 1997. Archaeological Explorations in Shasta Valley, California. Prepared by B. Hamusek, E. Ritter, and J. Burcell.

Dice, M. 2015. PacifiCorp Lassen Substation Project Cultural Resource Survey, Siskiyou County, California.

Elsasser, A.B. 1978. Development of Regional Prehistoric Cultures. In California, edited by R.F. Heizer, pp. 37–57. *Handbook of North American Indians,* Vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution: Washington, D.C.

Golla,V. 2007. Linguistic Prehistory. In *California Prehistory: Colonization, Culture, and Complexity,* edited by T.L. Jones and K.A. Klar, 71–82. Altamira Press: New York, New York.

Golla, V. 2011. California Indian Languages. University of California Press: Berkeley.

Heizer, R.F. 1978. "California." In *Handbook of North American Indians,* Volume 8, edited by W.C. Sturtevant. Washington, DC: Smithsonian Institution.

Hirt, W.H. 2004. *An Overview of the Geology of Mount Shasta*. College of the Siskiyous, Division of Natural and Applied Sciences. Weed, California.

King, C. 1978. "Protohistoric and Historic Archeology." In *California*, edited by R.F. Heizer, pp. 58–68. *Handbook of North American Indians*, Vol. 8, edited by W.C. Sturtevant. Washington, DC: Smithsonian Institution.

Kroeber, A.L., 1925. *Handbook of Indians of California*. Bureau of American Ethnology Bulletin No. 78. Smithsonian Institute: Washington, DC. Reprinted in 1976. New York: Dover Publications.

McClung, S. 2005. "Lahar Hazard Mapping of Mount Shasta, California: A GIS-based Delineation of Potential Inundation Zones in Mud and Whitney Creek Basins." Master's thesis; Oregon State University. June 9, 2005.

Moratto, M. 2004. *California Archaeology*. Salinas, California: Coyote Press.

NPS (National Park Service). 1995. "National Register Bulletin: How to Apply the National Register Criteria for Evaluation." NRB No. 15, online edition. U.S. Department of the Interior, NPS. https://www.nps.gov/nr/publications/bulletins/nrb15/.

SCSC (Siskiyou County Sesquicentennial Committee). 2002. www.siskiyouhisotry.org.

Sundahl, E.M. 1998. "Prehistoric Patterns on the McCloud River." *Journal of the Society for California Archaeology* 11:94–101.

Theodoratus Cultural Research Inc. 1981. Native American Cultural Overview, Shasta Trinity National Forest. Submitted to USDA Forest Service, Shasta-Trinity National Forest, Redding.

Wallace, W.J. 1978. Post-Pleistocene Archeology, 9000 to 2000 B.C. In California, edited by R.F. Heizer, pp. 25–36. *Handbook of North American Indians*, Vol. 8, W.C. Sturtevant, general editor. Smithsonian Institution: Washington, D.C.

5.6 Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
GEOLOGY AND SOILS – Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

5.6.1 Environmental Setting

Topography

The proposed the Lassen Substation Project (project) is located in the Strawberry Valley, which is at the southwest base of Mount Shasta and surrounded by Black Butte to the north, Rainbow Ridge to the west, and Lake Siskiyou and the Sacramento River Canyon to the south. The proposed project alignment is on flat to nearly flat terrain at an elevation that ranges from almost 3,700 feet above mean sea level (amsl) at the northern edge of the distribution line component (near Ski Village Drive) to 3,400 feet amsl at the southern end of the alignment (at West Ream

Avenue) (Google Earth 2016). The overall trend of topography is to decrease in a southerly direction along the north-south axis of Strawberry Valley, with an average slope gradient of 4%—generally 2% or less in the southern half of the alignment and 10% or less in the northern half of the alignment (Google Earth 2016). The proposed substation site is at an elevation of approximately 3,415 feet amsl, and the ground surface slopes slightly downward at less than 2.5% to the west (PSI 2011).

Geology and Soils

The proposed project site is located within an alluvial floodplain near the southern end of Shasta Valley that consists of several converging tributaries, including Cold Creek (PSI 2011). The geology underlying the project site consists of Quaternary-aged alluvium composed of clay, silt, sand, and gravel derived from the surrounding volcanic peaks (CGS 2010a; PSI 2011). Table 5.6-1 shows the soil units underlying the proposed project alignment, including pertinent soil characteristics (PacifiCorp 2016a). The Diyou and Odas soil units are poorly drained and have high runoff ratings, and this area is reported to have high groundwater (PacifiCorp 2015).

Borings advanced as part of the geotechnical investigation for the proposed substation site (mapped as Ponto-Neer complex) show the subsurface consists of a thin layer of sandy silt underlain by medium dense to very dense, poorly graded sandy soils containing cobbles and boulders. Free groundwater was encountered at shallow depths, with saturated soil conditions occurring at a depth of 1 to 2.5 feet below the ground surface (PSI 2011).

Table 5.6-1
Soil Units and Characteristics

Soil Unit	Slope Gradient	Expansion Index	Erosion Hazard	Suitability for Roads	Drainage Class	Hydrologic Group	Acres in Project Footprint
Deetz gravely loamy sand	0%–5%	None to low	Slight	Well suited	Somewhat excessively drained	A	3.3 (12%)
Deetz gravely loamy sand	5%–15%	None to low	Moderate	Moderately suited	Somewhat excessively drained	A	3.2 (12%)
Diyou Loam, Peat Substratum	0%–2%	Low to moderate	Slight	Moderately suited	Somewhat poorly drained	C	10.9 (39%)
Odas Sandy Loam	0%–2%	Low to moderate	Slight	Well suited	Poorly drained	D	1.2 (4%)
Ponto-Neer Complex	2%–15%	None to low	Slight	Moderately suited	Well drained	B	9.1 (33%)

Source: PacifiCorp 2016b.
Hydrologic Group Ratings
A Soils having a high infiltration rate when thoroughly wet. These consist mainly of deep, well-drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

B Soils having a moderate infiltration rate when wet. These consist chiefly of moderately deep or deep, moderately well-drained or well-drained soils that have moderately fine texture to moderately coarse texture. These soils have a slow rate of water transmission.

C Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

D Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very low rate of water transmission.

Faults and Seismicity

There are no Alquist–Priolo Earthquake Fault Zones or other known faults within or adjacent to the project site (CGS 2010b, 2016a). The nearest Alquist–Priolo Earthquake Fault Zone is more than 50 miles away in southeast Shasta County (CGS 2016a). According to the 2010 Fault Activity Map of California, there are several pre-Quaternary faults (older than 1.6 million years old) approximately 3 miles east of the project site, and two unnamed early Quaternary faults (between 700,000 and 1.6 million years old) on Mount Shasta 4 or more miles east and northeast of the project site (CGS 2010b). One is a north/south-trending fault running through the top of Mount Shasta, the other is an east/west-trending fault that runs from the top of Mount Shasta to a point north of Black Butte. The two early-Quaternary faults to the east and northeast of the project site are considered "potentially active" by the California Geological Survey because of the active volcanic status of Mount Shasta. Due to their considerable age and lack of evidence of activity in the Holocene period (i.e., last 10,000 years), these faults are not considered to be probable sources of future large-magnitude earthquakes.

Historically, there have been only two recorded earthquakes with a Richter magnitude of 4.0 or greater occurring in the immediate Mount Shasta area (City of Mount Shasta 2005). Review of earthquake records from 1800 to 1999 shows that no earthquakes magnitude 5.0 or larger have occurred in the project vicinity (PacifiCorp 2015).

Ground Shaking

Ground shaking, a general term referring to all aspects of motion of the earth's surface resulting from an earthquake, is typically the major cause of damage in seismic events. As discussed above, there are no probable sources of large earthquakes in proximity to the project area, so the seismicity potential of the area is attributable to distant rather than nearby sources (e.g., active faults in eastern Siskiyou County, the coastal California region, and the Cascadia Subduction Zone).

The primary tool that seismologists use to evaluate ground-shaking hazard and to characterize statewide earthquake risk is a probabilistic seismic hazard assessment. The probabilistic seismic hazard assessment for California takes into consideration the range of possible earthquake sources and estimates their magnitudes to generate a probability map for ground shaking. A

commonly used probabilistic seismic hazard assessment metric consists of the peak ground acceleration (PGA)[1] that has a 10% probability of being exceeded in 50 years (i.e., a 1 in 475 chance). The PGA for the project area with a 10% chance being exceeded in a 50-year period is 0.206 (CGS 2016b). For context, this value is relatively low compared to more seismically active regions of California, but would produce a level of shaking sufficient to be widely felt, to move or topple unanchored objects, and to cause slight to moderate damage in ordinary structures (including broken chimneys). A PGA of 0.206 would be expected to result in negligible structural damage in buildings of good construction and designed to modern standards.

Liquefaction

Liquefaction causes soil to lose strength and "liquefy," triggering structural distress or failure due to the dynamic settlement of the ground or a loss of strength in the soil underneath structures. Soil liquefaction can be caused by strong vibratory motion due to earthquakes. Research and historical data indicate that loose granular soils and non-plastic silts that are saturated by relatively shallow groundwater (generally less than 50 feet) are susceptible to liquefaction. For liquefaction to actually occur, the area must be subject to ground shaking of sufficient magnitude to trigger the effect.

Based on initial soil testing data for the proposed substation site, PSI found that the soil qualities on site are not conducive to liquefaction, but acknowledged that additional investigation and testing is warranted to confirm the liquefaction potential (PSI 2011). The proposed transmission alignment is also underlain by soils with a shallow groundwater table and, thus, may be subject to liquefaction risks.

Landslides

Slope failures include many phenomena that involve the downslope displacement and movement of material, triggered either by gravity or seismic (earthquake) forces. Exposed rock slopes may experience rockfalls, rockslides, or rock avalanches, and soil slopes may experience soil slumps, rapid debris flows, and deep-seated rotational slides. Slope stability can depend on a number of complex variables, including geology, slope structure, and amount of groundwater, and external processes such as climate, topography, slope geometry, and human activity. The factors that contribute to slope movements include those that decrease the resistance in the slope materials and those that increase stresses on the slope. Slope failure can occur on slopes of 15% or less, but

[1] The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity, which is approximately 980 centimeters per second squared.

the probability is greater on steeper slopes that exhibit old landslide features such as scarps, slanted vegetation, and transverse ridges.

Due to the flat or nearly flat topography along the footprint of the project site, landslides are not expected to be a significant hazard. The steepest part of the proposed project alignment occurs in the vicinity of Pole 19/47, where access would be required for a pulling/tensioning site and slopes are up to 10% (Google Earth 2016).

Volcanism

Mount Shasta, located approximately 10 miles northeast of the proposed Lassen Substation, is considered a dormant volcano that will erupt again. On average, the volcano has erupted once per 600 years during the last 4,500 years (City of Mount Shasta 2005). Based on radiocarbon dating, the last eruption occurred approximately 200 years ago (Miller 1980 as cited in PacifiCorp 2015). It is impossible to predict the date of next eruption, but if history is any indication, it could possibly occur in the next several hundred years. If Mount Shasta were to erupt, lava flows, pyroclastic flows, and mud flows could adversely affect the project site, possibly to include destruction of the Lassen Substation.

Subsidence

There are no known significant subsidence hazards in the project area (City of Mount Shasta 2005). Geologic or hydrologic conditions associated with subsidence are not known to occur in the area. However, some localized subsidence could result from peat oxidation in wetlands (City of Mount Shasta 2005).

5.6.2 Regulatory Setting

Federal

There are no federal regulations regarding geology and soils that directly apply to the proposed project.

State

Alquist–Priolo Earthquake Fault Zoning Act

The Alquist–Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the state geologist established regulatory zones, called "earthquake fault zones," around the surface traces of active faults, and publishes maps showing these zones. Earthquake fault zones are designated

by the California Geological Survey and are delineated along traces of faults where mapping demonstrates surface fault rupture has occurred within the past 11,000 years. Construction within these zones cannot be permitted until a geologic investigation has been conducted to prove that a building planned for human occupancy will not be constructed across an active fault. These types of site evaluations address the precise location and recency of rupture along traces of the faults, and are typically based on observations made in trenches excavated across fault traces.

The project site is not within an Alquist–Priolo Earthquake Fault Zone and does not involve a structure for human occupancy; therefore, it is not subject to the requirements of this act.

California Public Utilities Commission General Order 95

The applicant is required to comply with California Public Utilities Commission (CPUC) General Order 95, which institutes requirements for overhead line design, construction, and maintenance (CPUC 2012). Section IV of the order covers mechanical strength requirements for each class of line, either alone or involved in crossings, conflicts, or joint use of poles. The order specifies safety factors for communication and supply line construction that are the minimum allowable ratios of strengths of materials to the maximum working stresses. General Order 95 specifies that any entity planning to add facilities that would increase vertical, transverse, or longitudinal loading on a structure must perform a loading calculation to ensure that the addition of the facilities will not reduce the safety factors to below the values specified. The order also specifies strength requirements for construction materials, and minimum wood pole setting depths for various site conditions.

Industry Building Code and Standards

In addition to the requirements of CPUC General Order 95, foundations and structures for electrical substations and transmission facilities must be constructed in accordance with applicable industry building codes and standards. For example, PacifiCorp standards require substations to be designed and equipped according to qualification requirements described in the Institute of Electrical and Electronics Engineers (IEEE) Standard 693-2005, Recommended Practice for Seismic Design of Substations (PacifiCorp 2015). IEEE Standard 693-2005 exists to ensure that substations do not experience damage or loss of function during and after seismic events. Other applicable IEEE standards include IEEE 691-2001 (Transmission Structure Foundation Design and Testing) and IEEE 977-2010 (Guide to Installation of Foundations for Transmission Line Structures).

Local

Siskiyou County General Plan

The Seismic Safety and Safety Element of the Siskiyou County General Plan provides general background information on faulting and seismic risks in the region, but does not provide any goals or policies applicable to the location or construction of transmission line facilities (County of Siskiyou 1975).

City of Mount Shasta General Plan

The main goal of the Safety Element of the City of Mount Shasta General Plan is to ensure that life and property are adequately protected from seismic hazards. The implementation policies in the General Plan pertain to allowable building densities and development on steep slopes; there are no policies pertinent to the location or construction of transmission line facilities (City of Mount Shasta 2005).

5.6.3 Applicant Proposed Measures

The proposed project would integrate the following applicant proposed measure (APM) into the design and implementation of the project:

APM-GEO-1 The project will be designed and constructed in accordance with recommendations included in the project-specific geotechnical investigation: site grading, excavation and utility trenches, foundations, mitigation of soil corrosivity on concrete, seismic design criteria, and unpaved site access road.

5.6.4 Environmental Impacts and Mitigation

a) Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less Than Significant Impact. As discussed in Section 5.6.1, Environmental Setting, the proposed project is not located within an Alquist–Priolo Earthquake Fault Zone or crossed by any other known earthquake fault (PacifiCorp 2015). Therefore, the risk of earthquake fault rupture at the proposed substations or

anywhere along the alignment is negligible. Impacts with respect to this criterion would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

ii) Strong seismic ground shaking?

Less Than Significant Impact. The proposed project would not increase existing levels of public exposure to fault rupture, seismic ground shaking, or seismic-related ground failure such as liquefaction because it does not propose structures for human occupancy; because the existing substation would be rebuilt to modern design and construction standards; and because the transmission and distribution components would be collocated with existing infrastructure.

The potential effects of seismic ground shaking would be limited to the proposed project components, which, if improperly designed or constructed, could suffer damage. However, the proposed substation would be designed in accordance with the recommendations provided in the Preliminary Geotechnical Engineering Report prepared by PSI (2011). The preliminary report includes design and construction specifications and recommendations related to site preparation and earthwork, excavations and engineered fills, drainage and erosion control, foundations, and seismic design parameters. Furthermore, the proposed project must comply with strength requirements and safety factors for overhead line design, construction, and maintenance found in CPUC General Order 95, and would be designed and constructed in accordance with appropriate IEEE, American Society for Civil Engineers, and American Concrete Institute standards. Among other requirements, CPUC General Order 95 requires that lines or parts thereof be replaced or reinforced when safety factors have been reduced below certain specified minimums. Therefore, the proposed project would either maintain or (more likely) increase the stability of the overhead utility system compared to existing conditions. In accordance with APM-GEO-1, follow-up investigations would be completed, as warranted, to further refine the recommendations found in the Preliminary Geotechnical Engineering Report, and would be implemented in the construction of substation, transmission, and distribution line components. Underground components of the proposed project, if damaged, would not expose people or aboveground structures to additional geologic or seismic risks.

Although the proposed project could be subject to seismic ground shaking, it would not appreciably increase public exposure to such risks, and would be designed and constructed in accordance with applicable industry standards, geotechnical recommendations, and APM-GEO-1. In the unlikely event that an earthquake produces significant ground motions in the Mount Shasta area, PacifiCorp would send crews to inspect the lines and repair any damage detected in accordance with standard practice and procedures. For these reasons, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact. As discussed in Section 5.6.1, Environmental Setting, soils in the project area could be susceptible to liquefaction, should ground shaking be sufficient in magnitude to trigger the effect. Furthermore, PSI judged the potential for lateral spread at the site to be high (PSI 2011). Given the low probability of major ground shaking, liquefaction and lateral spreading impacts in the project area are unlikely, even if the character of underlying soils and the high groundwater make them susceptible to such effects. Project design would include excavation of soft, loose, wet soils and replacement with imported structural fill materials, such as well-graded sand and gravel materials that meet the geotechnical grading specifications provided by PSI (2011). Replacement of native soils with compacted, well-graded sand and gravel materials would avoid and/or substantially reduce the liquefaction potential of the project site. In accordance with APM-GEO-1, additional investigation and testing would be conducted to further define the liquefaction and lateral spread potential of site soils.

The analysis in the preceding criterion is equally applicable to earthquake-induced liquefaction. Because the project would be designed and constructed in accordance with applicable industry standards, geotechnical recommendations, and APM-GEO-1, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

iv) Landslides?

Less Than Significant Impact. The project site is located on slopes of generally less than 5%. Localized areas along the alignment have slopes greater than 10%, but no access road construction or pole replacement would occur in these areas. Project-induced effects on landslide potential would generally be limited to access road construction or maintenance (i.e., removal of soils that buttress or add stability to a hillside) in areas where slopes exceed 30%. Therefore, the risk of landslide (rain and earthquake induced) at the proposed substation or anywhere along the alignment is negligible. In the unlikely event of a volcanic eruption on Mount Shasta, portions of the project site could be affected by mudflow runout. However, the likelihood of this occurring is very low. For the reasons above, impacts with respect to this criterion would be **less than significant**.

Significance After Mitigation: No mitigation is necessary because impacts would be **less than significant**.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. Some soil erosion occurs naturally in the environment. In addition, the preliminary stage of construction, especially initial site grubbing, grading, and soil stockpiling, leaves loose soil exposed to the erosive forces of rainfall and high winds. Generally, excessive soil erosion can cause sedimentation problems in storm drain systems; rapid stormwater runoff can initiate or increase the size of shallow channels and/or gullies and potentially undermine engineered soils beneath foundations and paved surfaces. As indicated in Table 5.6-1, nearly all (88%) of the soils that underlie the project site are rated as having a slight erosion hazard, primarily due to the low slopes present within the project site. The remainder of the project site is underlain with soils rated as having a moderate erosion hazard.

The project is not expected to cause significant issues related to soil erosion for the reasons described in Section 5.9, Hydrology and Water Quality. In addition to the project site being generally located on level ground, the project would result in minimal changes with respect to stormwater flows, runoff, and erosion because a stormwater pollution prevention plan would be implemented during project construction to control potential erosion of temporarily disturbed areas. A stormwater pollution prevention plan is required because project construction would disturb more than 1 acre of land. APM-WQ-1 through APM-WQ-3 (see Section 5.9) are measures to avoid excessive land disturbance, to ensure that temporarily disturbed areas are restored to pre-construction conditions and stabilized, and to implement erosion control best management practices

(BMPs), including perimeter controls (e.g., straw wattles, hay bales, or silt fences), containment measures (e.g., covering stockpiles), and other BMPs to ensure that erosion and loss of topsoil are minimized.

Due to the limited nature of ground disturbance and the implementation of standard erosion BMPs during construction, the proposed project would not result in substantial soil erosion or loss of topsoil. No additional impacts would occur during operations and maintenance. Therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is necessary because impacts would be **less than significant**.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant Impact. As discussed in Section 5.6.4(a), the proposed project would not change the likelihood, magnitude, or extent of existing geologic hazards to people or structures. Project components would be constructed in accordance with the CPUC General Order 95, and utility companies would continue to respond to earthquakes and other emergencies using established standard operating procedures. There is a small chance that a large volcanic eruption on Mount Shasta could cover the project vicinity with a thick blanket of ash, or, an in extreme case, subject the region to lava or pyroclastic flows. However, the project would not affect the likelihood or severity of such impacts, nor would it increase public exposure risks. For these reasons, the impact of the proposed project on the exposure of people or structures to unstable soil units would be **less than significant**.

Significance After Mitigation: No mitigation is necessary because impacts would be **less than significant**.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Less Than Significant Impact. Expansive soils contain significant amounts of clay particles that have the ability to give up water (shrink) or take on water (swell). They are generally found in areas that were historically a floodplain or lake area, but they can also occur in hillside areas. When these soils swell, the change in volume can exert significant pressure on loads that are upon them, such as buildings or underground utilities, and can result in structural distress and/or damage. If dried out, the soil will contract, often

leaving fissures or cracks. Excessive drying and wetting of the soil can progressively deteriorate structures by leading to differential settlement beneath buildings and other structures. Table 5.6-1 provides an estimate of the shrink/swell potential of soils within the project site, which generally ranges from none to moderate. Expansive soils, if present along transmission and distribution line routes, are unlikely to pose a substantial geotechnical problem because poles would be buried using augured holes. Expansive soils are more typically a problem for underground linear appurtenances or flat, rigid foundations where greater surface areas are in contact with expansive soils.

Therefore, expansive soils concerns are limited to the substation and underground components of the project. However, such concerns are geotechnical concerns only and would not create substantial risks to life and property, since no habitable structures are proposed. In accordance with APM-GEO-1, and per the recommendations of the preliminary geotechnical report by PSI (2011), underground components and foundations would be founded on or backfilled with engineered fills of suitable quality (i.e., non-expansive, and sufficiently compacted, in accordance with standard industry practice). Any of the replacement poles or underground project components that show signs of being affected by expansive soils (e.g., leaning poles, cracked concrete) would be identified and repaired as needed during periodic inspection and maintenance of project components. In no case would the effects of expansive soil create a substantial risk to life and property. Therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is necessary because impacts would be **less than significant**.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The project would not require use of septic tanks; therefore, this significance criterion is not applicable. The substation site would not be staffed, and would only be visited monthly or as needed for occasional maintenance and/or repair work. When necessary to support on-site maintenance or repairs, PacifiCorp would install portable toilets serviced by an outside contractor. There would be no septic tank or other wastewater disposal system on site; therefore, the project would have **no impact** with respect to soil suitability for such uses.

Significance After Mitigation: No mitigation is necessary because **no impact** would occur as a result of the proposed project.

5.6.5 References Cited

CGS (California Geological Survey). 2010a. *Geologic Map of California.* Compilation and Interpretation by Charles W. Jennings; Updated version by Carlos Gutierrez, William Bryant, George Saucedo, and Chris Wills. CGS Geologic Data Map No. 2. Accessed August 8, 2016. http://maps.conservation.ca.gov/cgs/gmc/.

CGS. 2010b. *Fault Activity Map of California.* Compilation and Interpretation by Charles W. Jennings and William A. Bryant. CGS Geologic Data Map No. 2. Accessed August 8, 2016. http://maps.conservation.ca.gov/cgs/fam/.

CGS. 2016a. "CGS Information Warehouse: Regulatory Maps." Accessed August 8, 2016. http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html.

CGS. 2016b. "Ground Motion Interpolator (2008)." Probabilistic Seismic Hazard Assessment for Longitude= -122.3219 and Latitude= 41.3047. Accessed August 8, 2016. http://www.quake.ca.gov/gmaps/PSHA/psha_interpolator.html.

City of Mount Shasta. 2005. *City of Mount Shasta General Plan*. Safety Element. Updated 2005.

County of Siskiyou. 1975. *Siskiyou County General Plan*. Seismic Safety and Safety. Updated 2005.

CPUC (California Public Utilities Commission). 2012. General Order 95. Overhead Electric Line Construction.

Google Earth. 2016. Elevation Profile and Slope Information Tool, Mt. Shasta, California. Accessed August 4, 2016.

PacifiCorp. 2015. *Proponent's Environmental Assessment for the Application of PacifiCorp (U 901 E) for a Permit to Construct the Lassen Substation Project*. Prepared by Power Engineers Inc. October 2015.

PacifiCorp. 2016a. "Re: CA A.15-11-005. CPUC Data Request 1.0 – Lassen Sub PEA Completeness Review." Memorandum from C. Allen (PacifiCorp) to M. Rosauer (CPUC) and I. Fisher (Dudek). January 19, 2016.

PacifiCorp. 2016b. "Re: CA A.15-11-005. CPUC Data Request 1.0 – Lassen Sub PEA Completeness Review." Memorandum from C. Allen (PacifiCorp) to M. Rosauer (CPUC) and I. Fisher (Dudek). February 8, 2016.

PSI (Professional Services Industries Inc.). 2011. *Preliminary Geotechnical Engineering Report, Proposed Lassen Substation, Mount Shasta, California*. March 11, 2011.

INTENTIONALLY LEFT BLANK

5.7 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

5.7.1 Environmental Setting

The Greenhouse Effect

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). A greenhouse gas (GHG) is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Without it, the temperature of the Earth would be about 0°F (−18°C) instead of its present 57°F (14°C). If the atmospheric concentrations of GHGs rise, the average temperature of the lower atmosphere will gradually increase. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect.

Greenhouse Gases

GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapor (H_2O), hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF_6, which are associated with certain

industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.[1]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 include the combustion of coal, oil, natural gas, and wood.

Methane. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and the use of N_2O as a propellant (such as in rockets, racecars, aerosol sprays).

Fluorinated Gases. Fluorinated gases are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals that are used as alternatives to O_3-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as byproducts of industrial processes and are used in manufacturing.
- **Hydrochlorofluorocarbons:** HCFCs are compounds containing hydrogen, fluorine, chlorine, and carbon atoms. HCFCs are synthetic chemicals that are used as alternatives to O_3 depleting substances (chlorofluorocarbons).
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, along with HFCs, to O_3 depleting substances. The two main sources of PFCs are aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.

[1] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change's Second Assessment Report and Fourth Assessment Report (IPCC 1995, 2007), the California Air Resources Board's Glossary of Terms Used in GHG Inventories (CARB 2015), and the U.S. Environmental Protection Agency's Glossary of Climate Change Terms (EPA 2016a).

- **Sulfur Hexafluoride:** SF_6 is a colorless gas that is soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 Intergovernmental Panel on Climate Change's Synthesis Report (IPCC 2014) indicated that warming of the climate system is unequivocal, and many of the changes observed since the 1950s are unprecedented. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a 0.2°C rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights. Shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year. Sea levels have risen, and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010a).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada region (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1°F to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more

than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra Nevada snowpack, which accounts for approximately half of the surface water storage in California, by 30% to as much as 90% is predicted over the next 100 years (CAT 2010a).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late 21st century in central, and most notably, Southern California. By the late century, all projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

Wildfire risk in California will increase as a result of climate change. Earlier snowmelt, higher temperatures, and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. However, human activities will continue to be the biggest factor in ignition risk. It is estimated that the long-term increase in fire occurrence associated with a higher emissions scenario is substantial, with increases in the number of large fires statewide ranging from 58% to 128% above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57% to 169%, depending on the location (CCCC 2012).

Reduction in the suitability of agricultural lands for traditional crop types may occur. While effects may occur, adaptation could allow farmers and ranchers to minimize potential negative effects on agricultural outcomes by adjusting timing of plantings or harvesting and changing crop types.

Public health-related effects of increased temperatures and prolonged temperature extremes, including heat stroke, heat exhaustion, and exacerbation of existing medical conditions, could be particular problems for the elderly, infants, and those who lack access to air conditioning or cooled spaces (CNRA 2009).

Contributions to GHG Emissions

United States

Per the U.S. Environmental Protection Agency's (EPA's) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014 (2016b), total U.S. GHG emissions were approximately 6,870.5 million metric tons (MMT) carbon dioxide equivalent (CO_2E) in 2014. The primary

GHG emitted by human activities in the United States was CO_2, which represented approximately 80.9% of total GHG emissions (5,556.0 MMT CO_2E). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.7% of CO_2 emissions in 2014 (5,208.2 MMT CO_2E). Total U.S. GHG emissions have increased by 7.4% from 1990 to 2014, and emissions increased from 2013 to 2014 by 1.0% (70.5 MMT CO_2E). Since 1990, U.S. GHG emissions have increased at an average annual rate of 0.3%; however, overall, net emissions in 2014 were 8.6% below 2005 levels (EPA 2016b).

State of California

According to California's 2000–2014 GHG emissions inventory (2016 edition), California emitted 441.5 MMT CO_2E in 2014, including emissions resulting from out-of-state electrical generation (CARB 2016). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high global-warming potential substances, and recycling and waste. The California GHG emission source categories and their relative contributions in 2014 are presented in Table 5.7-1.

Table 5.7-1
GHG Sources in California

Source Category	Annual GHG Emissions (MMT CO_2E)	Percent of Total[a]
Transportation	159.53	36%
Industrial uses	93.32	21%
Electricity generation[b]	88.24	20%
Residential and commercial uses	38.34	9%
Agriculture	36.11	8%
High global-warming potential substances	17.15	4%
Recycling and waste	8.85	2%
Total	**441.54**	**100%**

Source: CARB 2016.
Notes: Emissions reflect the 2014 California GHG inventory.
MMT CO_2E = million metric tons of carbon dioxide equivalent per year
[a] Percentage of total has been rounded, and total may not sum due to rounding.
[b] Includes emissions associated with imported electricity, which account for 36.51 MMT CO_2E annually.

During the 2000 to 2014 period, per capita GHG emissions in California have continued to drop from a peak in 2001 of 13.9 metric tons (MT) per person to 11.4 MT per person in 2014, representing an 18% decrease. In addition, total GHG emissions in 2014 were 2.8 MMT CO_2E less than 2013 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California is on track to meet the 2020 target of 431 MMT CO_2E (CARB 2016).

5.7.2 Regulatory Setting

Federal

In addition to regulations governing criteria pollutants, both the EPA and the State of California have adopted regulations governing emissions of GHG. On April 17, 2009, the EPA issued its proposed endangerment finding for GHG emissions. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHG under Section 202(a) of the Clean Air Act, as described in the following paragraphs.

Massachusetts vs. EPA

On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the federal Clean Air Act. On December 7, 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act

On December 19, 2007, President George W. Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the act would do the following, which would aid in the reduction of national GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.

2. Set a target of 35 miles per gallon (mpg) for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
3. Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

EPA and NHTSA Joint Final Rule for Vehicle Standards

The EPA, in conjunction with the NHTSA, has adopted regulations to reduce GHG emissions and increase the Corporate Average Fuel Economy (CAFE) standards for new passenger cars and light-duty trucks (EPA and NHTSA 2010). Under the first round of regulations promulgated in 2010, new passenger cars, light-duty trucks, and medium-duty passenger vehicles must meet an estimated combined average emissions level of 250 grams of CO_2 per mile in model year 2016, equivalent to 35.5 mpg if the automotive industry were to meet this CO_2 level through fuel economy improvements alone. The CAFE standards for passenger cars and light trucks will be phased in between 2012 and 2016, with the final standards equivalent to 37.8 mpg for passenger cars and 28.8 mpg for light-duty trucks, resulting in an estimated combined average of 34.1 mpg.

In 2011, the EPA and NHTSA approved the first-ever program to reduce GHG emissions and increase fuel efficiency for medium- and heavy-duty vehicles (EPA and NHTSA 2011). Effective November 14, 2011, the CO_2 emissions and fuel efficiency standards of this regulation apply to model year 2014–2018 combination tractors (i.e., semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles including transit and school buses. This regulation covers vehicles with a gross vehicle weight rating of 8,500 pounds or greater; medium-duty passenger vehicles are covered by the previous regulation for passenger cars and light-duty trucks. In addition, the EPA has adopted standards to control HFC leakage from air-conditioning systems in combination tractors and heavy-duty pickup trucks and vans as well as CH_4 and N_2O standards for heavy-duty engines, pickup trucks, and vans. In August 2012, the EPA and NHTSA approved a second round of GHG and CAFE standards for model years 2017 and beyond (EPA and NHTSA 2012). These standards will reduce motor vehicle GHG emissions to 163 grams of CO_2 per mile, which is equivalent to 54.5 mpg if this level were achieved solely through improvements in fuel efficiency, for cars and light-duty trucks by model year 2025. A portion of these improvements, however, will likely be made through improvements in air-conditioning leakage control and through use of alternative refrigerants, which would not contribute to fuel economy. The first phase of the CAFE standards, for model year 2017–2021, is

projected to require, on an average industry-fleet-wide basis, a range from 40.3 to 41.0 mpg in model year 2021. The second phase of the CAFE program, for model years 2022–2025, includes standards (which are not final due to the statutory requirement that NHTSA set average fuel economy standards not more than five model years at a time) projected to require, on an average industry-fleet-wide basis, a range from 48.7 to 49.7 mpg in model year 2025. The regulations also include targeted incentives to encourage early adoption and introduction into the marketplace of advanced technologies to dramatically improve vehicle performance, including the following:

- Incentives for electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles
- Incentives for hybrid technologies for large pickups and for other technologies that achieve high fuel economy levels on large pickups
- Incentives for natural gas vehicles
- Credits for technologies with potential to achieve real-world GHG reductions and fuel economy improvements that are not captured by the standard test procedures

State

Assembly Bill 1493

In a response to the transportation sector accounting for more than half of California's CO_2 emissions, Assembly Bill (AB) 1493 (Pavley) was enacted on July 22, 2002. AB 1493 required the California Air Resources Board (CARB) to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%.

Before these regulations could go into effect, the EPA had to grant California a waiver under the federal Clean Air Act, which ordinarily preempts state regulation of motor vehicle emission standards. The waiver was granted by Lisa Jackson, the EPA Administrator, on June 30, 2009. On March 29, 2010, the CARB Executive Officer approved revisions to the motor vehicle GHG standards to harmonize the state program with the national program for 2012–2016 model years (see "EPA and NHTSA Joint Final Rule for Vehicle Standards," discussed earlier). The revised regulations became effective on April 1, 2010.

Executive Order S-3-05

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The executive order established the following goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80% below 1990 levels by 2050. The California Environmental Protection Agency secretary is required to coordinate efforts of various agencies to collectively and efficiently reduce GHGs. The Climate Action Team (CAT) is responsible for implementing global warming emissions reduction programs. Representatives from several state agencies compose the CAT. Under the executive order, the California Environmental Protection Agency secretary is directed to report every 2 years on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The CAT fulfilled its initial report requirements through the 2006 Climate Action Team Report to Governor Schwarzenegger and the Legislature (CAT 2006).

The 2009 Climate Action Team Biennial Report (CAT 2010a), published in April 2010, expands on the policy outlined in the 2006 assessment. The 2009 report provides new information and scientific findings regarding the development of new climate and sea level projections using new information and tools that have recently become available and evaluates climate change within the context of broader social changes, such as land use changes and demographics. The 2009 report also identifies the need for additional research in several different aspects that affect climate change in order to support effective climate change strategies. The aspects of climate change determined to require future research include vehicle and fuel technologies, land use and smart growth, electricity and natural gas, energy efficiency, renewable energy and reduced carbon energy sources, low GHG technologies for other sectors, carbon sequestration, terrestrial sequestration, geologic sequestration, economic impacts and considerations, social science, and environmental justice.

Subsequently, the 2010 Climate Action Team Report to Governor Schwarzenegger and the California Legislature (CAT 2010b) reviewed past climate action milestones, including voluntary reporting programs, GHG standards for passenger vehicles, the Low Carbon Fuel Standard, a statewide renewable energy standard, and the cap-and-trade program. Additionally, the 2010 report includes a cataloguing of recent research and ongoing projects; mitigation and adaptation strategies identified by sector (e.g., agriculture, biodiversity, electricity, and natural gas); actions that can be taken at the regional, national, and international levels to mitigate the adverse effects of climate change; and today's outlook on future conditions. The 2010 report also focuses on case studies involving collaborative efforts among multiple agencies on research projects related to climate change and policy development.

Assembly Bill 32

In furtherance of the goals established in Executive Order S-3-05, the legislature enacted AB 32 (Núñez and Pavley), the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006. The GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

The first action under AB 32 resulted in the adoption of a report listing early action GHG emission reduction measures on June 21, 2007. The early actions include three specific GHG control rules. On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32. The three original early-action regulations meeting the narrow legal definition of "discrete early action GHG reduction measures" are as follows:

1. A low-carbon fuel standard to reduce the "carbon intensity" of California fuels
2. Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of "do-it-yourself" automotive refrigerants
3. Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies

The additional six early-action regulations, which were also considered "discrete early action GHG reduction measures," consist of the following:

1. Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology
2. Reduction of auxiliary engine emissions of docked ships by requiring port electrification
3. Reduction of PFCs from the semiconductor industry
4. Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products)

5. Requirements that all tune-up, smog check, and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency
6. Restriction on the use of SF_6 from non-electricity sectors if viable alternatives are available

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMT CO_2E. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for large facilities that account for 94% of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit CO_2 in excess of specified thresholds.

On December 11, 2008, CARB approved the Climate Change Proposed Scoping Plan: A Framework for Change (Scoping Plan; CARB 2008) to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and CAT early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program.

The key elements of the Scoping Plan include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
- Achieving a statewide renewables energy mix of 33%
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

Senate Bill X1 2

On April 12, 2011, Governor Brown signed Senate Bill (SB) X1 2 in the First Extraordinary Session, which would expand the Renewables Portfolio Standard by establishing a goal of 20% of the total electricity sold to retail customers in California per year, by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current and that meets other specified requirements with respect to its location. In addition to the retail sellers covered by SB 107, SB X1 2 adds local publicly owned electric utilities to the Renewables Portfolio Standard. By January 1, 2012, the California Public Utilities Commission is required to establish the quantity of electricity products from eligible renewable energy resources to be procured by retail sellers in order to achieve targets of 20% by December 31, 2013; 25% by December 31, 2016; and 33% by December 31, 2020. The statute also requires that the governing boards for local publicly owned electric utilities establish the same targets and assigns to the governing boards the responsibility for ensuring compliance with these targets. The California Public Utilities Commission will be responsible for enforcement of the Renewables Portfolio Standard for retail sellers, while the California Energy Commission and CARB will enforce the requirements for local publicly owned electric utilities.

Local

The Siskiyou County Air Pollution Control District has not established official thresholds of significance for GHG emissions; however, for the purposes of this analysis, a screening threshold of 900 MT CO_2E per year based on the approach outlined in the California Air Pollution Control Officers Association (CAPCOA) report CEQA & Climate Change (CAPCOA 2008) was used for the purpose of evaluating GHG emissions under CEQA. Using this approach, any project exceeding 900 MT CO_2E per year would have potentially significant impacts. Consistent with other jurisdictions currently using this threshold throughout the state,[2] emissions associated with both construction and operation are to be disclosed, and construction emissions are amortized over the "project life" (ranging between 20 years and 50 years) and

[2] The South Coast Air Quality Management District recommends that construction emissions be amortized over a 30-year period. The County of San Diego within the San Diego Air Pollution Control District recommends amortization of construction emissions over a 20-year period. The City of San Diego recommends a 30-year amortization rate. The San Luis Obispo County Air Pollution Control District (SLOCAPCD) recommends a 50-year amortization period for residential projects and 25-year year amortization period for commercial (non-residential projects) based on the anticipated project life.

then included with the operational emissions. To be conservative, construction emissions are amortized over a 20-year period.

5.7.3 Applicant Proposed Measures

The following applicant proposed measure (APM) will be incorporated into the project design to minimize GHG emissions during project construction:

APM-AQ-1 Construction Pollutant Reduction Measures:

Particulate matter emissions shall be controlled by implementing standard construction dust control measures including, but not limited to, the following:

- Minimize soil disturbance.
- Regularly water disturbed areas, including on-site vehicle/equipment travel routes and soil stockpiles. Watering should be sufficient to prevent airborne dust from leaving the site.
- Curtail earthmoving activities on windy days.
- Ensure that the engines of all construction equipment are properly tuned.
- Limit the maximum speed to 15 miles per hour on unpaved surfaces.
- Replant vegetation in disturbed areas as quickly as possible.
- Implement other effective particulate matter control measures, as needed.

Greenhouse gas emissions generated during project construction shall be minimized by implementing the following measures:

- Use California Air Resources Board-certified construction equipment, where available.
- Use alternative fuel types for construction equipment where feasible.
- Use local building materials.
- Limit construction vehicle idling time.

5.7.4 Environmental Impacts and Mitigation

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction Emissions

Less Than Significant Impact. Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles. The project would include construction of the new Lassen Substation, transmission line upgrades, distribution line upgrades and subterranean cable installation work, and demolition of the existing Mount Shasta Substation following energization of the proposed Lassen Substation. For the purposes of emissions estimates, it was assumed that construction activities would commence in October 2016 and be completed in November 2017, requiring approximately 41 weeks of total construction time. Section 4.6, Construction Activities, of the Project Description provides details regarding the anticipated construction scenario, including equipment fleet, and Section 4.7 identifies the construction schedule, both of which were used to estimate annual GHG emissions.

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to estimate emissions generated during construction based on the construction scenario described in Chapter 4, Project Description.

Table 5.7-2 presents total construction emissions for the project in 2016 and 2017 from on-site and off-site emission sources.

Table 5.7-2
Estimated Construction GHG Emissions

CO_2	CH_4	N_2O	CO_2E
Metric Tons per Year			
1,862	0.46	0.00	1,872
		Amortized Construction Emissions	**94**

Source: PacifiCorp 2015.
Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2E = carbon dioxide equivalent.

As shown in Table 5.7-2, the estimated total yearly GHG emissions would be approximately 1,872 MT CO_2E over the construction period. Construction emissions amortized over a 20-year project life would be approximately 94 MT CO_2E per year.

GHG emissions generated during construction of the project would be short term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. Because there is no separate GHG threshold for construction, the evaluation of significance is provided in the operational emissions analysis in the following discussion.

Operational Emissions

Less Than Significant Impact. Operational activities would be similar to present activities: maintenance and repair crews would visit on monthly or as-needed basis. Transmission line inspection would occur on an annual or half-yearly basis, or as needed should repair issues or outages arise, as described in Section 4.8, Operation and Maintenance. As such, emissions associated with maintenance activities would be minimal and would not result in a net increase above existing conditions. Additionally, it can be reasonably assumed that operation and maintenance vehicles will be more fuel-efficient, would include improved technology, and would conform to requirements implemented by CARB that include lower-emitting vehicles than those currently used for the existing facility.

Regarding breaker technology, as described in Section 4.2, Project Objectives, one of the primary objectives of the project would be replacement of "aging and non-standard equipment, and the removal of SF_6 distribution breakers." SF_6 is a highly reactive GHG that is subject to regulation as part of GHG emission reduction targets (17 CCR 95350 et seq.), and the applicant no longer uses SF_6 based breakers in their distribution systems. Therefore, the removal of the existing SF_6 based breakers would reduce any potential SF_6 leakage and associated GHG emissions during operation of the proposed project.

In summary, the project would only generate GHG emissions during short-term construction activities, which would be approximately 94 MT CO_2E per year when amortized over a conservative 20-year project life. Combined construction and operational emissions would be below the CAPCOA-based 900 MT CO_2E screening threshold, and no impacts associated with SF_6 related GHG emissions would occur. Therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

No Impact. Neither the Siskiyou County Air Pollution Control District nor Siskiyou County have currently adopted a region-specific plan for reducing GHG emissions. The project would consist of replacing the existing Mount Shasta Substation with the new Lassen Substation, including associated improvements; therefore, the project would not include a population-inducing component that would substantially increase daily or annual vehicle trips, and implementation of the project would not introduce a new substantial source of GHG emissions that were not previously anticipated under current plans, including the Siskiyou County General Plan. As such, because the project would not be a source of substantial GHG emissions and the project would not conflict with existing land uses or result in growth-inducing uses, the project would not conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing GHG emissions.

Additionally, for the purposes of this analysis, a screening threshold of 900 MT CO_2E per year based on the approach outlined in the CAPCOA report CEQA & Climate Change (CAPCOA 2008) was used for the purpose of evaluating GHG emissions under CEQA. Construction and operation of the proposed project would result in approximately 94 MT CO_2E per year when conservatively amortized over a 20-year project life, consistent with various agencies throughout the state. Therefore, emissions would not exceed the 900 MT CO_2E screening threshold. The proposed project would not conflict with or obstruct implementation of an applicable GHG reduction plan, and **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.7.5 References Cited

CAPCOA (California Air Pollution Control Officers Association). 2008. *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. January 2008.

CARB (California Air Resources Board). 2008. *Climate Change Scoping Plan: A Framework for Change*. December 12, 2008. http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf.

CARB. 2015. "Glossary of Air Pollution Terms." CARB website. Accessed May 28, 2015. http://www.arb.ca.gov/html/gloss.htm.

CARB. 2016. "California Greenhouse Gas Inventory – 2016 Edition." June 17, 2016. Accessed August 2016. http://www.arb.ca.gov/cc/inventory/data/data.htm.

CAT (California Climate Action Team). 2006. *Climate Action Team Report to Governor Schwarzenegger and the Legislature*. California Environmental Protection Agency, CAT. March 2006. http://www.climatechange.ca.gov/climate_action_team/reports/2006report/2006-04-03_FINAL_CAT_REPORT.PDF.

CAT. 2010a. *Climate Action Team Biennial Report*. California Environmental Protection Agency, CAT. April 2010. http://www.energy.ca.gov/2010publications/CAT-1000-2010-004/CAT-1000-2010-004.PDF.

CAT. 2010b. *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. California Environmental Protection Agency, CAT. December 2010. http://www.energy.ca.gov/2010publications/CAT-1000-2010-005/CAT-1000-2010-005.PDF.

CCCC (California Climate Change Center). 2006. Our Changing Climate: Assessing the Risks to California. CEC-500-2006-077. July 2006. http://www.energy.ca.gov/2006publications/CEC-500-2006-077/CEC-500-2006-077.PDF.

CCCC. 2012. Our Changing Climate 2012: Vulnerability & Adaptation to the Increasing Risks from Climate Change in California. July 2012. http://www.energy.ca.gov/2012publications/ CEC-500-2012-007/CEC-500-2012-007.pdf was it 2006?

CNRA (California Natural Resources Agency). 2009. *2009 California Climate Adaptation Strategy*. A Report to the Governor of the State of California in Response to Executive Order S-13-2008.

EPA (U.S. Environmental Protection Agency). 2016a. "Glossary of Climate Change Terms." August 9, 2016. Accessed August 2016. https://www3.epa.gov/climatechange/glossary.html.

EPA. 2016b. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2014*. EPA 430-R-16-002. Washington, DC: EPA. April 15, 2016. Accessed August 2016. https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Main-Text.pdf.

EPA and NHTSA (U.S. Environmental Protection Agency and National Highway Traffic Safety Administration. 2010. *Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; Final Rule*. EPA–HQ–OAR–2009–0472. NHTSA-2009-0059. http://www.nhtsa.gov/Laws+&+Regulations/CAFE+-+Fuel+Economy/Model+Years+2012-2016:+Final+Rule.

EPA and NHTSA. 2011. *Medium- and Heavy-Duty Fuel Efficiency Improvement Program – Final Environmental Impact Statement.* June 2011. www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FEIS-MedHD.pdf.

EPA and NHTSA. 2012. *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards*. EPA–HQ–OAR–2010–0799, NHTSA-2010-0131.

IPCC (Intergovernmental Panel on Climate Change). 1995. IPCC Second Assessment: Climate Change 1995. http://www.ipcc.ch/pdf/climate-changes-1995/ipcc-2nd-assessment/2nd-assessment-en.pdf.

IPCC. 2007. "Summary for Policymakers." In *Climate Change 2007: The Physical Science Basis*, edited by S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor, and H.L. Miller, 1–18. A report of Working Group I of the IPCC. New York, New York: Cambridge University Press. Accessed December 29, 2009. http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf.

IPCC. 2014. "Climate Change 2014: Synthesis Report." Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. http://www.ipcc.ch/pdf/assessmentreport/ar5/syr/ SYR_AR5_FINAL_full_wcover.pdf.

5.8 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☒	☐	☐

5.8.1 Environmental Setting

This section provides setting information specific to hazards and hazardous materials in the project vicinity. It describes the environmental conditions within the proposed project site as they relate to the potential presence of hazardous materials (storage, use, transport, and/or release), aviation safety, emergency response, and fire hazards.

Hazardous Materials Definition

The term "hazardous materials" refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including waste, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases). The term "hazardous material" is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (California Health and Safety Code, Chapter 6.95, Section 25501(o)).

In some cases, past industrial or commercial activities on a site may have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. Hazardous materials may also be present in building materials and released during building demolition activities. If improperly handled, hazardous materials and wastes can cause public health hazards when released to the soil, groundwater, or air. The four basic exposure pathways through which an individual can be exposed to a chemical agent include inhalation, ingestion, bodily contact, and injection. Exposure can come as a result of an accidental release during transportation, storage, or handling of hazardous materials. Disturbance of subsurface soil during construction can also lead to exposure of workers or the public from stockpiling, handling, or transportation of soils contaminated by hazardous materials from previous spills or leaks.

Potential Presence of Hazardous Materials in Soil and Groundwater

The proposed project would be located within an existing PacifiCorp utility easement, located partially within the rights-of-way of public roads and partially within open space and private land. Land uses surrounding the proposed project consist primarily of open space and rural residences; along with residential, commercial, and limited/light industrial land uses in the City of Mount Shasta (City).

Enplan (2015) conducted a Phase I environmental site assessment (ESA) on the proposed Lassen Substation site as well as the overhead and underground distribution line locations. This included review of three previous Phase I ESAs conducted on the on the proposed Lassen Substation site—two in 2011 and one in 2014. These previous Phase I ESAs were limited to the proposed Lassen Substation site, consisting of 504 and 506 Old Stage Road, or Assessor's Parcel Numbers 036-220-170 and 036-220-280. The 2015 Phase I ESA completed by Enplan (2015) includes a review and summary of those previous Phase I ESAs, along with an updated assessment to include the transmission and distribution line components of the proposed project. Phase I ESAs

are conducted in conformance with guidelines presented in American Society for Testing Materials (ASTM) Standard E 1527-13, Standard Practice for Environmental Site Assessments. Information used to conduct the assessment includes but is not limited to on-site reconnaissance, owner/operator/representative interviews, correspondence with the local environmental health department(s), review of historical imagery and topographic maps, and extensive regulatory agency database searches.

Ultimately, the assessment concluded that there is no obvious evidence of recognized environmental conditions[1] (RECs), historical RECs, or controlled RECs in connection with the Lassen Substation site, transmission line, or distribution line (Enplan 2015; PacifiCorp 2016). The regulatory agency database review—which consisted of 106 federal, state, local, tribal, and proprietary records databases—found no evidence the proposed project is on an identified hazardous materials use, storage, disposal, or release site (Enplan 2015; PacifiCorp 2016). Sixteen sites revealed in the record search were found to be in close proximity to (but not on or overlapping with) the proposed project site. None of the sites were determined to represent a REC based on (1) the absence of an identified spill or release of hazardous materials (i.e., present in regulatory databases for their use/storage/transport of hazardous materials only), (2) the case having received regulatory agency closure, and/or (3) the minimal volume and/or controlled nature of the spill or release (Enplan 2015; PacifiCorp 2016).

Beyond the immediate vicinity of the proposed project site, 111 additional hazardous materials use, storage, disposal, or release sites were identified within the ASTM minimum search radius (Enplan 2015; PacifiCorp 2016).[2] All but three either had no reported spill or release, or had received regulatory agency closure. Enplan reviewed the three "open" sites, listed as not having received regulatory closure, and upon further review of the State Water Resources Control Board (SWRCB) GeoTracker website found that none were listed as open cases. All three of these sites were between 0.25 and 0.5 miles away from the proposed project (Enplan 2015; PacifiCorp 2016).

In addition to the Phase I ESA conducted by Enplan in 2015, the GeoTracker database and the California Department of Toxic Substances Control (DTSC) EnviroStor database were reviewed to confirm regulatory database findings and to verify that no new cleanup sites in close proximity to the proposed project were added since the Phase I ESAs were conducted (SWRCB 1992, 1994; TRC 2016; Geocon 2016; SWRCB 2016). EnviroStor and GeoTracker are state databases

[1] "Recognized Environmental Condition" is defined in ASTM International E1527-13 as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment."

[2] Minimum search distances prescribed in the ASTM standard are based on the specific database being reviewed, and range from the subject property only to all lands within a 1-mile radius of the subject property.

that track the status and compliance activities of sites undergoing cleanup or remediation under the jurisdiction of the DTSC and SWRCB, respectively. The SWRCB generally oversees site assessment and cleanup activities for land uses and activities with potential for adverse effects on the state's water quality and drinking water supplies (including groundwater), whereas the DTSC oversees cleanup cases that have resulted in soils contamination that may pose a threat to human health or the environment. These databases are presented as geographic web map viewers, and the location of cleanup sites are stored in a point database that can be queried using GIS. Based on this review, there are no new open cleanup cases in the vicinity of the proposed project site.

In addition, the largest cleanup site case in the City—which consists of an approximately 65-acre site between South Mount Shasta Boulevard to the east and the Union Pacific Railroad tracks to the west in the southern portion of the City—was reviewed to determine whether its impacts could extend beyond its boundaries into the proposed project footprint. The cleanup site was a historical mill and box factory, which had historically conducted activities resulting in the release of hydrocarbons, polychlorinated biphenyls (PCBs), and dioxins/furans associated with wood log treatments, a former refuse burner, aboveground storage tanks (ASTs)/underground storage tanks (USTs), and other factors. The site is referenced as the "The Landing," with its northern portion referred to as the "Old Mill" and the southern portion the "New Mill" (TRC 2016; Geocon 2016). Review of the site investigation reports and cleanup work plans for this site indicates that impacts are primarily to surface soil, shallow soil, and surface water (TRC 2016; Geocon 2016). Given the media impacted and the distance of the site from the proposed project site (0.37 miles to the east of the southern end of the transmission line alignment), the site's issues are not expected to intersect with the proposed project.

Existing Substation and Transmission Facilities

No spills, leaks, or hazardous materials releases are known to have occurred within the existing PacifiCorp facilities, including the existing substation and the transmission alignment. However, the building materials themselves may have hazardous waste characteristics, and will require characterization so that the appropriate method of disposal (and/or reuse) can be determined in accordance with applicable federal and state regulations.

Wood Treatment Products

The project would remove up to 36 existing wooden poles. The wooden poles could be treated with chemicals such as pentachlorophenol, creosote, and chromated copper arsenate. Typically, these chemicals are applied to wooden utility poles during manufacturing to protect wood from rotting due to insects and microbial agents. These chemicals, for certain uses and quantities, can be considered to be hazardous materials, which require specific handling procedures and disposal

prescribed by federal and state regulations. Additionally, the base of some of the treated wooden poles may be wrapped with copper naphthenate paper, also known as CuNap wrap.[3] This paper has been accepted as a wood preservative for several decades and has been employed in non-pressure treatments of wood and other products. Copper naphthenate is a common preservative and its use has increased recently in response to environmental concerns associated with other wood treatment products.

Existing Substation

The existing substation, in addition to containing the wood treatment products described above, has transformer banks with mineral oil and contains older structures and power equipment that could have lead-based paint (LBP), PCBs, and/or elevated levels of mercury or asbestos. The existing substation site has not been surveyed for the presence of hazardous materials such as asbestos, LBP, PCBs, and mercury (PacifiCorp 2016).

Proposed Substation Site

Previous ESA reports for the proposed Lassen Substation site indicate that the proposed Lassen Substation site consisted of undeveloped land from at least 1897 to 1959. A residence was built at 504 South Old Stage Road in 1960. A mobile home was placed on the northern portion of 506 South Old Stage Road by 1972. No evidence was encountered to indicate that the proposed Lassen Substation site was ever used for agricultural purposes such as row crops or orchards (Enplan 2015). A propane AST and a heating oil AST were observed in 2011; however, they were removed by 2014. Aside from a propane AST located at 504 South Old Stage Road and a residential heating oil AST located at 506 South Old Stage Road, no regulated quantities of hazardous materials, including 55-gallon drums of chemicals, ASTs, or USTs, were observed to be used, stored, or disposed of on the proposed Lassen Substation site (Enplan 2015).

Airports

There are no public use airports or private airstrips in the immediate vicinity of the project site (County of Siskiyou 2016a; PacifiCorp 2015). The nearest commercial service airports are located in the City of Medford, Oregon, and the City of Redding, California. The nearest public airport to the project alignment is the Dunsmuir Municipal–Mott Airport, which serves only light aircraft and is approximately 4 miles southeast of the proposed project site. Google Earth was searched for evidence of any private airstrips and none were located in the project vicinity (i.e., within a 5-mile radius).

[3] CuNap wrap is a self-contained delivery system for copper napthenate, an internationally recognized wood preservative that fights the damaging effects of moisture, decay, and insect attack.

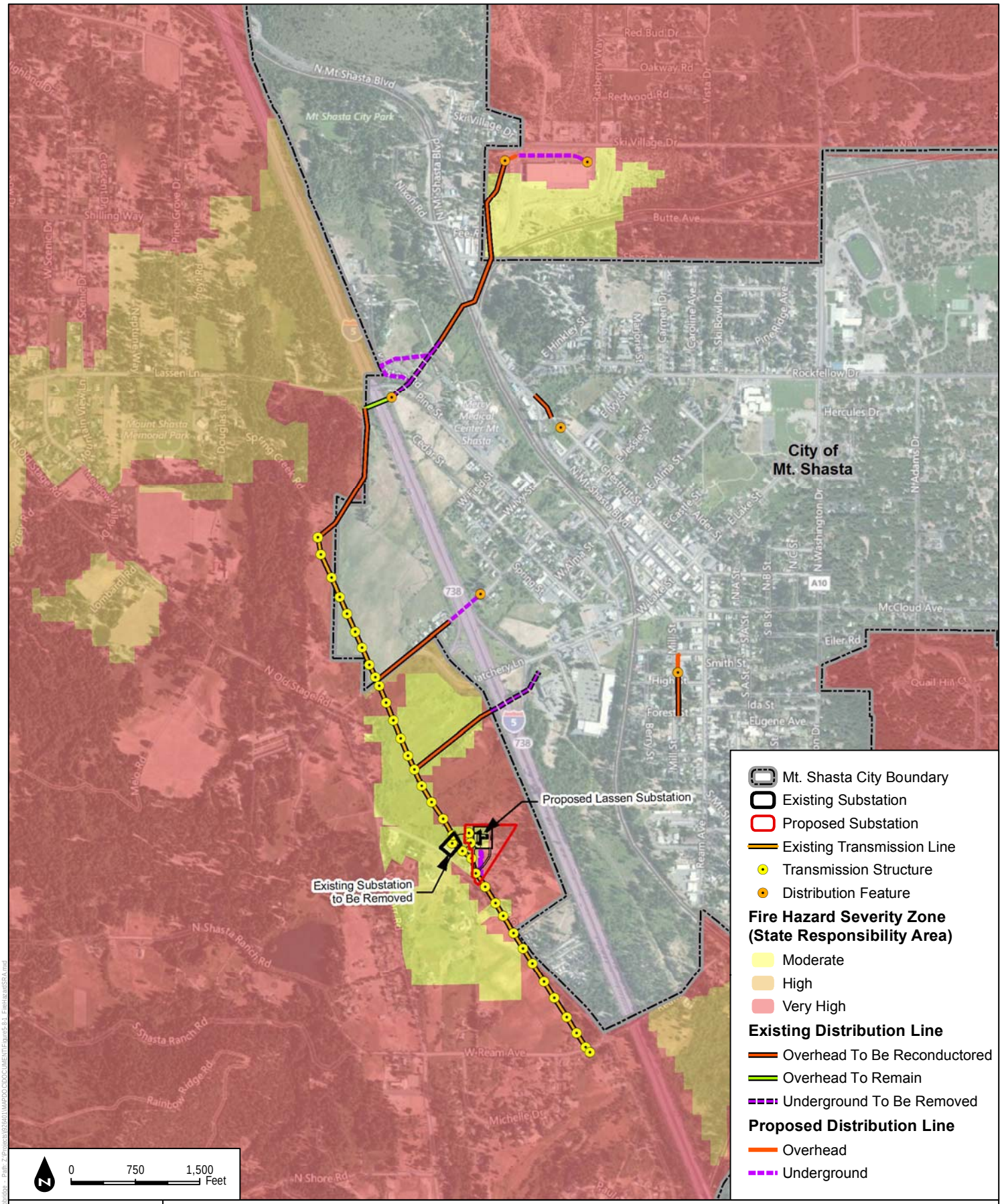
Emergency Response

Siskiyou County (County) has not adopted an emergency evacuation plan or response plan. However, the County is currently in the planning process for the Siskiyou County Multi-Jurisdictional Hazard Mitigation Plan (HMP). The HMP will be a collaborative planning effort between Siskiyou County and local jurisdictions (including the City of Mount Shasta) and special districts within the County. The HMP will identify all natural hazards in Siskiyou County and will outline the history, future vulnerability, and future damage potential for each hazard. The HMP's goal is to identify mitigation projects that will reduce the vulnerability and damage potential of each hazard. The HMP will address earthquake, flood, wildfire, landslide/other earth movement, drought, sever weather/storm, dam failure, and volcano/lahar/ash-fall hazards (County of Siskiyou 2016b).

Fire Hazard

The proposed project site occurs within areas classified as Moderate, Very High, and Non-Very High Fire Hazard Severity Zones. The California Department of Forestry and Fire Protection (CAL FIRE) uses Fire Hazard Severity Zones (FHSZs) to classify anticipated fire-related hazards for the entire state and includes classifications for State Responsibility Areas, Local Responsibility Areas, and Federal Responsibility Areas. Fire hazard measures physical fire behavior based on vegetation type (fuel), topography, and weather conditions and considers fire spread rate, fire heat production, and production of embers that facilitate fire growth. Fire hazard severity represents the potential of an area to burn and the severity with which it may burn.

Based on CAL FIRE's FHSZ mapping data, the proposed project is situated in areas classified as Moderate, Very High, and Non-Very High FHSZs. Within the City of Mount Shasta, the proposed project occurs primarily within Non-Very High FHSZs, with a small portion of existing overhead distribution line near North Mount Shasta Boulevard and Road No. 2M05 and an existing underground distribution line near Interstate 5 (I-5) and West Lake Street occurring in Very High FHSZs (CAL FIRE 2009). Within unincorporated Siskiyou County, the proposed project occurs primarily within Very High FHSZs, with portions of the proposed project to the west and north of the City of Mount Shasta occurring within Moderate FHSZs (CAL FIRE 2007) (Figures 5.8-1 and 5.8-2).



DUDEK

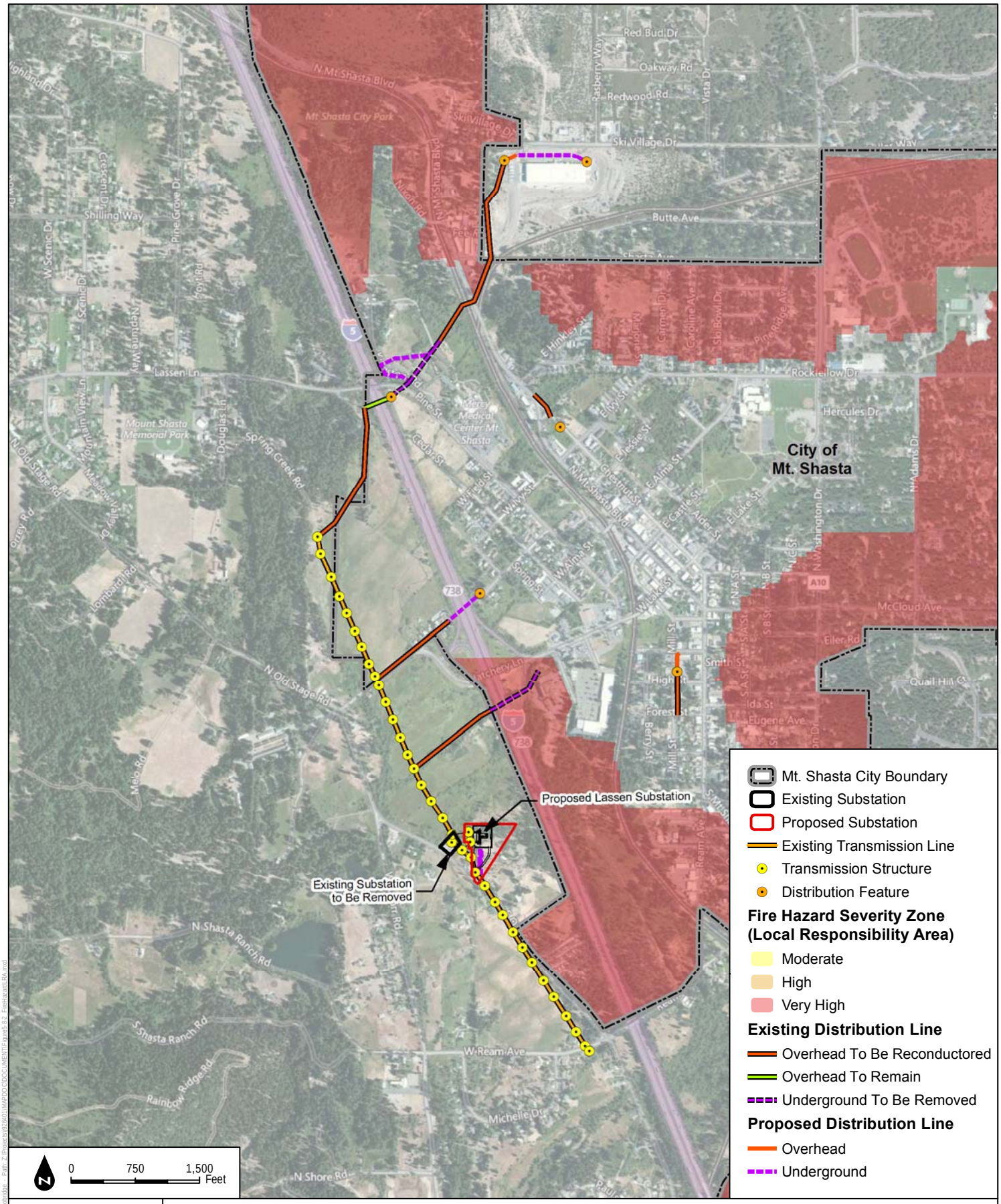
SOURCE: Bing Maps (2016); PacifiCorp (2015); CAL FIRE (2009)

FIGURE 5.8-1

Project Area Fire Hazard Severity Zones - State Responsibility Areas

Lassen Substation Project

INTENTIONALLY LEFT BLANK



DUDEK

SOURCE: Bing Maps (2016); PacifiCorp (2015); CAL FIRE (2007)

FIGURE 5.8-2

Project Area Fire Hazard Severity Zones - Local Responsibility Areas

Lassen Substation Project

INTENTIONALLY LEFT BLANK

More recent efforts undertaken by the California Public Utilities Commission (CPUC), in coordination with CAL FIRE, attempt to map environmental conditions associated with an elevated potential for utility-associated fires. On May 26, 2016, the CPUC adopted Fire Map 1 (Rulemaking 15-05-006), which identifies areas of the state where an elevated hazard for the ignition and rapid spread of power-line fires exists due to strong winds, abundant dry vegetation, and other environmental conditions (CPUC 2016). Fire Map 1 will be the foundation for development of Fire Map 2, which will delineate the boundaries of a new High Fire-Threat District, where utility infrastructure and operations will be subject to stricter fire-safety regulations (CPUC 2016). Fire Map 2 has not yet been completed.

5.8.2 Regulatory Setting

Federal

The U.S. Environmental Protection Agency (EPA) is the principal federal regulatory agency responsible for the safe use and handling of hazardous materials. The key federal regulations pertaining to hazardous wastes are described below. Other applicable federal regulations are contained primarily in Titles 29, 40, and 49 of the Code of Federal Regulations.

Occupational Safety and Health Administration

The federal Occupational Safety and Health Administration (OSHA) enforces regulations covering the handling of hazardous materials in the workplace. The regulations established in Title 29 of the Code of Federal Regulations are designed to protect workers from hazards associated with encountering hazardous materials at the work site. The regulations require certain training, operating procedures, and protective equipment to be used at work sites where workers could encounter hazardous materials.

Toxic Substances Control Act

The Toxic Substances Control Act of 1976 (15 U.S.C. 2601 et seq.) authorizes the EPA to track industrial chemicals produced within or imported into the United States. Under this act, the EPA screens and tests industrial chemicals that pose a potential health hazard to humans or the environment. This act grants the EPA the authority to control and ban newly developed industrial chemicals and other chemicals that pose a risk in order to protect public and environmental health.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 address handling, disposal, and spill contingency measures for hazardous substances. The National Oil and Hazardous Substances

Pollution Contingency Plan (40 CFR, Part 300) specifies the requirements for spill response activities. These laws and regulations apply to the proposed project installation activities conducted within the subject area. Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as federal RCRA requirements and is approved by the EPA. The EPA approved California's RCRA program, referred to as the Hazardous Waste Control Law, in 1992.

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission voltage power lines. These clearances vary depending on voltage. In most cases, the minimum clearances required in state regulations are greater than the federal requirement. In California for example, the state has adopted General Order 95 rather than the North American Electric Reliability Corporation Standards as the electric safety standard for the state. Consequently, the Federal Energy Regulatory Commission and North American Electric Reliability Corporation standards are not discussed further.

National Fire Protection Association Codes, Standards, Practices, and Guides

National Fire Protection Association codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. National Fire Protection Association standards are recommended guidelines and nationally accepted good practices in fire protection but are not law or "codes" unless adopted as such or referenced as such by the California Fire Code or the Local Fire Agency.

International Fire Code

Created by the International Code Council, the International Fire Code addresses a wide array of conditions hazardous to life and property including fire, explosions, and hazardous materials handling or usage (although not a federal regulation, but rather the product of the International Code Council). The International Fire Code places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the International Fire Code uses a hazards classification system to determine the appropriate measures to be incorporated in order to protect life and property (often these measures include construction standards and specialized equipment). The International Fire Code uses a permit system (based on hazard classification) to ensure that required measures are instituted.

Institute of Electrical and Electronics Engineers Standard 516-2003

The Institute of Electrical and Electronics Engineers is a leading authority in setting standards for the electric power industry. Standard 516-2003, Guide for Maintenance Methods on Energized Power Lines, establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

State

California hazardous materials and wastes regulations are equal to or more stringent than federal regulations. The federal EPA has granted the state primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous materials are handled, stored, and disposed of properly to reduce risks to human health and the environment. Several key state laws pertaining to hazardous materials and wastes are discussed in the following paragraphs.

California Code of Regulations

The Title 22, Sections 66261.20–24, of the California Code of Regulations contains technical descriptions of characteristics that would classify waste material, including soil, as hazardous waste. When excavated, soils with concentrations of contaminants higher than certain acceptable levels must be handled and disposed of as hazardous waste.

Hazardous Materials Release Response Plans and Inventory Act

The Hazardous Materials Release Response Plans and Inventory Act of 1985, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes business facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered to be hazardous waste; however, health concerns pertaining to the release of hazardous materials are similar to those relating to the release of hazardous waste. Businesses that store hazardous materials on site must prepare a business plan and submit it to local health and fire departments. The business plan must include details of the facility and business conducted at the site, an inventory of hazardous materials that are handled and stored on site, an emergency response plan, and a safety and emergency response training program for new employees, with an annual refresher course.

Aviation Hazards

Federal Aviation Administration (FAA) Regulations Part 77 (14 CFR 77) establish height restrictions for development within approach and take-off patterns to allow aircraft maneuvering room and to ensure that neither the operating capability of the airport nor the usable runway is adversely affected by obstructions in the surrounding airspace. The FAA has an established height restriction of 150 feet for objects within 5,000 feet of the end of each runway. In addition, the FAA has notification requirements for construction within the vicinity of airports that require that the FAA be notified of any construction or alteration greater in height than the distance from the closest runway divided by 100, out to a distance of 20,000 feet. For any such projects, the FAA requires that Notice of Proposed Construction or Alteration (Form 7460) be submitted.

The FAA will determine whether the proposed project will create a hazard to navigable airspace and issue either a Determination of No Hazard or a Notice of Presumed Hazard. California Public Utilities Code Section 21659 prohibits hazards near airports (as defined by 14 CFR 77) unless a permit allowing the construction is issued by the California Department of Transportation (Caltrans) Division of Aeronautics.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

In January 1996, the California EPA adopted regulations that implemented a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: (1) hazardous waste generators and hazardous waste on-site treatment, (2) USTs, (3) ASTs, (4) hazardous materials release response plans and inventories, (5) risk management and prevention programs, and (6) Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level and the agency responsible for implementation of the Unified Program is called the Certified Unified Program Agency.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the State Hazardous Waste Management Program, which is similar to, but more stringent than, the federal RCRA program. The act defines "hazardous wastes" as waste products with properties that make them dangerous or potentially harmful to human health or the environment. Hazardous wastes can be the byproducts of manufacturing processes or simply discarded commercial products, such as cleaning fluids or pesticides. The act is implemented by regulations set forth in Title 26 of the California Code of Regulations, which describes the following required parameters for the proper management of hazardous waste:

- Identification and classification

- Generation and transport
- Design and permitting of recycling, treatment, storage, and disposal facilities
- Treatment standards
- Operation of facilities and staff training
- Closure of facilities and liability requirements

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of them. Under the Hazardous Waste Control Act and Title 26, a generator of hazardous waste must complete a manifest that accompanies the waste from the generator to the transporter to the ultimate disposal location. Copies of the manifest must be filed with the DTSC.

California Occupational Safety and Health Administration Standards

Worker exposure to contaminated soils, vapors that could be inhaled, or groundwater containing hazardous constituents is subject to the monitoring and personal safety equipment requirements established in Title 8 of the California OSHA regulations. The primary intent of the Title 8 requirements is to protect workers, but compliance with some of these regulations also reduces potential hazards to non-construction workers and project vicinity occupants through required controls related to site monitoring, reporting, and other activities.

Utility Notification Requirements

Title 8, Section 1541 of the California Code of Regulations requires excavators to determine the approximate locations of subsurface installations such as sewer, telephone, fuel, electric, and water lines (or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. California Government Code Section 4216 et seq. requires owners and operators of underground utilities to become members of and participate in a regional notification center. According to Section 4216.1, operators of subsurface installations who are members of, participate in, and share in the costs of a regional notification center are in compliance with this section of the code. Underground Services Alert of Southern California (known as DigAlert) receives planned excavation reports from public and private excavators and transmits those reports to all participating members of DigAlert that may have underground facilities near the proposed excavation sites.

California Environmental Protection Agency

The California EPA implements and enforces a statewide hazardous materials program established by Senate Bill 1082 (1993) to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs for hazardous materials:

- Hazardous materials release response plans and inventories (business plans)
- California Accidental Release Prevention Program
- Underground Storage Tank Program
- Aboveground Petroleum Storage Act requirements for spill prevention, control, and countermeasure plans
- Hazardous Waste Generator and On-Site Hazardous Waste Treatment Programs
- California Uniform Fire Code: hazardous materials management plans and hazardous material inventory statements

California Fire Code

The California Fire Code is contained within Title 24, Part 9, of the California Code of Regulations. Based on the International Fire Code, the California Fire Code is created by the California Buildings Standards Commission and regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. Similar to the International Fire Code, the California Fire Code and the California Building Code use a hazards classification system to determine the appropriate measures to incorporate to protect life and property.

California Code of Regulations

Title 8, Sections 2700–2989, of the California Code of Regulations, High-Voltage Electrical Safety Orders, establish essential requirements and minimum standards for the installation, operation, and maintenance of electrical installations and equipment to provide practical safety.

Title 14, Sections 1250–1258, of the California Code of Regulations, Fire Prevention Standards for Electric Utilities, provides specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and it specifies when and where standards apply. Section 1254 of Title 14 presents guidelines for minimum clearance requirements around utility poles.

California Health and Safety Code

State fire regulations are established in Section 13000 of the California Health and Safety Code. The section establishes building standards, fire protection device equipment standards, high-rise building and childcare facility standards, interagency support protocols, and emergency procedures. Also, Section 13027 states that the state fire marshal shall notify industrial establishments and property owners having equipment for fire protective purposes of the changes necessary to bring their equipment into conformity with, and shall render them such assistance as may be available in converting their equipment to meet, standard requirements.

2010 Strategic Fire Plan for California

The 2010 Strategic Fire Plan for California is the statewide plan for adaptive management of wildfire as a cooperative effort between the State Board of Forestry and Fire Protection and CAL FIRE. The central goals that are critical to reducing and preventing the impacts of fire revolve around both suppression and fire prevention efforts. The key goals include the following:

1. Improved availability and use of information on hazard and risk assessment;
2. Land use planning, including general plans, new development, and existing developments;
3. Shared vision among communities and the multiple fire protection jurisdictions, including county-based plans and community-based plans such as Community Wildfire Protection Plans;
4. Establishing fire resistance in assets at risk, such as homes and neighborhoods;
5. Shared vision among multiple fire protection jurisdictions and agencies;
6. Levels of fire suppression and related services; and
7. Post-fire recovery (CAL FIRE 2010).

Although the Strategic Fire Plan puts emphasis on pre-fire adaptive management of risk, including measures such as fuel breaks, defensible space, and other fuel reduction strategies, it does not contain any specific requirements or regulations; rather, it acts as an assessment of current fire management practices and standards and makes recommendations on how best to improve the practices and standards in place (CAL FIRE 2010).

California Department of Forestry and Fire Protection

CAL FIRE is tasked with reducing wildfire-related impacts and enhancing California's resources. CAL FIRE responds to all types of emergencies, including wildland fires and

residential/commercial structure fires. In addition, CAL FIRE is responsible for the protection of approximately 31 million acres of private land within the state and, at the local level, is responsible for inspecting defensible space around private residences. CAL FIRE is responsible for enforcing State of California fire safety codes included in the California Code of Regulations and California Public Resources Code. Title 14, Section 1254, of the California Code of Regulations identifies minimum clearance requirements required around utility poles.

CAL FIRE also inspects utility facilities and makes recommendations regarding improvements in facility design and infrastructure. Joint inspections of facilities by CAL FIRE and the utility owner are recommended by CAL FIRE so that each entity may assess the current state of the facility and the successfully implement fire prevention techniques and policies. Violations of state fire codes discovered during inspections are required to be brought into compliance with the established codes. If a CAL FIRE investigation reveals that a wildfire occurred as a result of a violation of a law or negligence, the responsible party could face criminal and/or misdemeanor charges (CAL FIRE 2016). In cases where a violation of a law or negligence has occurred, CAL FIRE has established the Civil Cost Recovery Program, which requires parties responsible for causing wildfires to pay for wildfire-related damages.

More detailed descriptions of the applicable codes and regulations and images of exempt and non-exempt power line structures may be found in the CAL FIRE Power Line Fire Prevention Field Guide (CAL FIRE 2008).

These regulations are discussed in further detail as follows:

- **Public Resources Code 4292** states a that a minimum firebreak of 10 feet in all directions from the outer circumference of such pole or tower be established around any pole which supports a switch, transformer, lightning arrester, line junction, or end or corner pole. All vegetation shall be cleared within the firebreak.
- **Public Resources Code 4293** establishes the minimum vegetation clearance distances (between vegetation and energized conductors) required for overhead transmission line construction. Minimum clearances are discussed as follows:
    - A minimum radial clearance of 4 feet shall be established for any conductor of a line operating at 2,400 or more volts but less than 72,000 volts.
    - A minimum radial clearance of 6 feet shall be established for any conductor of a line operating at 72,000 or more volts but less than 110,000 volts.
    - A minimum radial clearance of 10 feet shall be established for any conductor of a line operating at 110,000 or more volts but less than 300,000 volts.

- A minimum radial clearance of 15 feet shall be established for any conductor of a line operating at 300,000 or more volts.

Specific requirements applicable to the construction and operation of the proposed project include those from California Public Resources Code, Division 4, Chapter 6:

- **Section 4427** – Operation of fire-causing equipment
- **Section 4428** – Use of hydrocarbon-powered engines near forest, brush, or grass-covered lands without maintaining firefighting tools
- **Section 4431** – Gasoline-powered saws, etc.; firefighting tools
- **Section 4442** – Spark arrestors of fire prevention measures, requirements, exemptions

Fire Hazard Severity Zones

CAL FIRE mapped FHSZs in California based on fuel loading, slope, fire weather, and other relevant factors as directed by California Public Resources Code Sections 4201–4204 and California Government Code Sections 51175–51189. FHSZs are ranked from Moderate to Very High and are categorized for fire protection within a Federal Responsibility Area, State Responsibility Area, or Local Responsibility Area under the jurisdiction of a federal agency, CAL FIRE, or local agency, respectively.

California Public Utilities Commission General Orders

The California Public Utilities Commission general orders cover all aspects of design, construction, operation, and maintenance of electrical facilities in California.

General Order 95 was initially adopted in 1941 and was most recently revised in 2014 by CPUC Decision No. 14-02-015. General Order 95 governs the design, construction, and maintenance of overhead electrical lines. Rule 31.1 generally states that design, construction, and maintenance of overhead electrical lines should be done in accordance with accepted good practices for the given location conditions known at the time by the persons responsible for the design, construction, and maintenance of the overhead electrical lines and equipment. Rule 31 outlines requirements for design, construction, maintenance, and inspection of electrical supply systems.

General Order 128. Rules for Underground Electric Line Construction, includes required clearances, grounding techniques, maintenance, and inspection for underground electric lines.

General Order 131-D, Rules for Planning and Construction of Electric Generation, Line, and Substation Facilities in California, provides CPUC construction application and noticing requirements.

California Code of Regulations – Electrical Utilities

The California Code of Regulations is a catalog of state laws and regulations adopted by state agencies, including the following:

- California Code of Regulations Title 8, Section 2700 et seq., High Voltage Electrical Safety Orders, establishes essential requirements and minimum standards for installation, operation, and maintenance of electrical equipment to provide practical safety and freedom from danger.
- California Code of Regulations Title 14, Sections 1250–1258, Fire Prevention Standards for Electric Utilities, provides specific exemptions from electric pole and tower firebreak and electric conductor clearance standards, and specifies when and where standards apply.

Local

CPUC General Order 131-D explains that local land use regulations would not apply to the project. However, for information purposes, the following goals and policies included in the general plans for Siskiyou County and the City of Mount Shasta would otherwise be relevant to the project.

Siskiyou County General Plan

The Land Use and Circulation Element of the Siskiyou County General Plan identifies high wildfire hazard areas (Map 10) based on vegetation coverage and slope gradient. Although the General Plan does not include policy limitations for development in wildfire hazard areas, it does include a high constraint tone (60% screen) to ensure careful treatment and project design to minimize risk associated with wildland fires:

Policy 30. All development proposed within a wildfire hazard area shall be designed to provide safe ingress, egress, and have an adequate water supply for fire suppression purposes in accordance with the degree of wildfire hazard (County of Siskiyou 1980, Land Use Policies, p. 28).

There are no policies in the Siskiyou County General Plan related to hazardous materials.

City of Mount Shasta General Plan

The Safety Element of the City of Mount Shasta General Plan addresses fire hazards in Section D, Fire Hazards. Relevant goals, policies, and implementation measures are as follows:

Goal SF-4: Protect property and life from fire hazards.

Policy SF-4.1: Update City codes to provide for fire protection.

Implementation Measures:

SF-4.1(a): Amend the City's building and land development codes to incorporate fire prevention and wildfire protection measures.

SF-4.1(b): Utilize the expertise and experience of the area firefighting personnel to recommend a workable program that can be used to gain public cooperation in protecting property and lives against fire hazards.

SF-4.1(c): Require street and address signs to be clearly and legibly displayed for all streets and structures in the City.

SF-4.1(d): Amend the land development code to require adequate fire suppression water supplies for all new development, other than the construction of a single-family home on an existing single family parcel.

SF-4.1(e): Require residents to maintain defensible space around their homes and businesses consistent with state standards.

SF-4.1(f): The City shall review the recommendations of the *Mt. Shasta Area Community Wildfire Protection Plan* and, when found to be appropriate and otherwise consistent with City policy, support and/or implement its recommendations.

SF-4.1(g): In evaluating proposed measures for public safety concerning fire hazards, the City will consider, and will encourage the County to consider, the recommendations and standards set forth in the Fire Hazard Zoning Field Guide (City of Mount Shasta 2005, Safety Element, pp. 6-13, 6-14).

The Safety Element of the City of Mount Shasta General Plan addresses hazardous materials in Section E (Hazardous Materials). Relevant goals, policies, and implementation measures are as follows:

Goal SF-5: Protect people and the environment from hazardous materials exposure.

Policy SF-5.1: Assure that the use, storage, and transportation of hazardous materials complies with Federal and State regulations.

Implementation Measures:

SF-5.1(a): Working with the State Department of Health and the County Health Department, enforce the applicable provisions of State law related to hazardous material storage.

SF-5.1(b): Ensure that the Fire Department maintains the appropriate "Right-to-Know" records related to storage, use, and disposal of hazardous materials (City of Mount Shasta 2005, Safety Element, p. 6-16).

The Safety Element of the City of Mount Shasta General Plan addresses emergency response and evacuation issues in Section G, Evacuation and Related Infrastructure. Relevant goals, policies, and implementation measures are as follows:

Goal SF-7: Identify and maintain emergency evacuation routes.

Policy SF-7.1: Working with the County, identify routes to evacuate area residents for different types of emergencies.

Implementation Measure:

SF-7.1(a): Work with the County to establish emergency evacuation routes in the event of different categories of emergencies: severe rain or snow storm, flood, fire, volcanic or seismic (City of Mount Shasta 2005, Safety Element, pp. 6-20, 6-21).

5.8.3 Applicant Proposed Measures

The proposed project will integrate the following applicant proposed measures (APM) into the design and implementation of the proposed project to reduce impacts relating to hazards and hazardous materials.

APM-HAZ-1 Health and Safety Plan. A health and safety plan shall be prepared and made available once a contractor is procured for the construction of the proposed project. The plan should include, and not be limited to, information on the appropriate personal protective equipment to be used during construction. All transport of hazardous materials would be in compliance with applicable laws, rules, and regulations, including the acquisition of required shipping papers, package marking, labeling, transport vehicle placarding, training, and registrations.

APM-HAZ-2 Hazardous Substance Control and Emergency Response Plan. PacifiCorp shall prepare and implement a hazardous substance control and emergency response plan as needed. The procedures identify methods and techniques to minimize the exposure of the public and site workers to potentially hazardous materials during all phases of project construction through operation. The plan would include, but not be limited to, worker training appropriate to the site worker's role in hazardous substance control and emergency response. The procedures also require implementing appropriate control methods and approved containment and spill-control practices for construction and materials stored on site. If it is necessary to store chemicals on site, they would be managed in accordance with all applicable regulations. Material safety data sheets would be maintained and kept available on site, as applicable.

All hazardous materials and hazardous wastes would be handled, stored, and disposed of in accordance with all applicable regulations, by personnel qualified to handle hazardous materials. The hazardous substance control and emergency response procedures include, but are not limited to, the following:

- Proper disposal of potentially contaminated soils.
- Establishing site-specific buffers for construction vehicles and equipment located near sensitive resources.
- Emergency response and reporting procedures to address hazardous material spills.
- Stopping work at that location and contacting the County Fire Department Hazardous Materials Unit immediately if visual contamination or chemical odors are detected. Work will be resumed at this location after any necessary consultation and approval by the Hazardous Materials Unit.

PacifiCorp will complete its Emergency Action Plan Form as part of project tailboard meetings. The purpose of the form is to gather emergency contact numbers, first aid location, work site location, and tailboard information.

APM-HAZ-3 Spill Prevention, Control, and Countermeasure (SPCC) Plan. An SPCC plan shall be prepared and certified by a professional engineer; a complete copy would be maintained on site. The SPCC plan would include engineered and operational methods for preventing, containing, and controlling potential releases and provisions for a quick and safe cleanup.

5.8.4 Environmental Impacts and Mitigation

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

Less Than Significant Impact. Project construction would require the transportation and use of fuels, lubricants, and solvents for construction vehicles and equipment, including trucks, cranes, backhoes, and air compressors. This equipment requires the use of hazardous materials such as gasoline, diesel, oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease and other fluids. Small quantities (less than 25 gallons) of diesel and gasoline could be stored at the staging areas to fuel small engine generators for power tool usage.

Any hazardous materials needed for construction would be stored and used in accordance with the product specifications and applicable regulations. Product specifications are described in detail on material safety data sheets (MSDS), which accompany every batch of materials considered to be hazardous. Information in the MSDS includes instructions on proper use and application of the material, accidental release measures and handling and storage requirements. Applicable regulations specify storage and handling requirements such as proper container types and usage methods. Prior to construction, all construction workers would receive training according to the health and safety plan (APM-HAZ-1), hazardous substance control and emergency response plan (APM HAZ-2), the spill prevention, control, and countermeasure (SPCC) plan (APM-HAZ-3), and applicable components of the stormwater pollution prevention plan (SWPPP) (APM-WQ-1 (see Section 5.9, Hydrology and Water Quality). Among other things, APM-HAZ-3 and APM-WQ-1 would provide instructions for implementation of the project SWPPP, including site-specific best management practices (BMPs) required by the Regional Water Quality Board (RWQCB) through its review and approval of the SWPPP, the location of the MSDS, and notification procedures in the event of a spill, leak, or discovery of soil contamination. Examples of hazardous materials BMPs to protect surface and groundwater from possible sources of contamination include placing drip pans underneath parked vehicles, implementing tracking controls for vehicles entering and exiting the construction site, and protecting the ground surface with tarps in equipment and material storage areas. For further information regarding the SWPPP, please refer to Section 4.9.

Project construction would require excavation for underground features (distribution getaway vaults, duct banks, pole foundations, and horizontal directional drilling), as well as grading for site clearing, structure foundations, and temporary access roads. Encountering contaminated soil or groundwater during excavation and grading could result in exposure of construction workers, the public, and the environment to contaminants. As indicated in Section 5.8.1, Environmental Setting, the Phase I ESAs and regulatory agency database searches did not identify any hazardous materials sites within the project area. Although there is a relatively low potential for contaminated soil to be encountered during construction excavation and grading, in accordance with APM-HAZ-2, construction workers would be instructed on the procedures to follow in the event that unanticipated soil contamination is encountered. Suspect soil would need to be segregated, sampled, and disposed of in accordance with regulations. If chemicals are detected in the soil samples at concentrations above action levels,[4] PacifiCorp would decide whether to remove the contaminated soil or modify the design of the proposed project to the extent necessary to avoid disturbing the contaminated soil. APM-HAZ-1 further requires that a site-specific health and safety plan be prepared and implemented that addresses the potential to encounter hazardous materials in soil. With implementation of these measures, the potential impact to public health and the environment would be less than significant.

Prior to removal of existing poles, the existing transmission lines and distribution lines (where applicable) would be transferred to the new poles. All remaining transmission and distribution line poles that would not be reused by PacifiCorp would be removed and delivered to a suitable facility for recycling. Depending on their type, condition, and original chemical treatment, the wooden poles could be reused by PacifiCorp for other purposes. If they are found to be coated and per appropriate waste determination, disposed of in an appropriately permitted disposal facility (such as a Class I hazardous waste landfill or a lined portion of a RWQCB-certified municipal landfill).

Routine transport of hazardous materials to and from project site could indirectly result in an incremental increase in the potential for accidents. However, applicable regulations under Caltrans and the California Highway Patrol regulate the transportation of hazardous materials and wastes, including container types and packaging requirements as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. All transport of hazardous materials would be compliant with applicable laws, rules, and regulations, including the acquisition of required shipping papers, package

[4] "Action levels" refers to chemical-specific concentration thresholds in environmental media that, if exceeded, trigger some form of regulatory oversight.

marking, labeling, transport vehicle placarding, training, and registrations, as indicated in APM-HAZ-1. Therefore, impacts would be **less than significant**.

Demolition Activities/Decommissioning of the Existing Substation

Less Than Significant Impact with Mitigation Incorporated. Demolition of the existing Mount Shasta Substation and the two existing residences would result in the generation of various waste materials that can be recycled and salvaged. Waste items and materials would be collected by construction crews and separated into roll-off boxes at the staging areas. All waste materials that are not recycled would be characterized by PacifiCorp in order to ensure appropriate final disposal. Non-hazardous waste would be transported to local waste management facilities. When possible, waste materials from the construction of the proposed project would be delivered to the closest waste management facility, which is located within 1 mile of the proposed substation site.

The Mount Shasta Substation would be demolished and the two existing residences are likely to be demolished. PacifiCorp would be required to comply with federal and state regulations pertaining to the demolition of structures with LBP and/or asbestos-containing materials. Federal and state lead regulations (20 CFR 1926.62 and 8 CCR 1532.1) regulate the disturbance of lead-containing materials during construction, demolition, and maintenance-related activities. In the event asbestos-containing materials or LBP were found, procedural requirements would facilitate the proper and safe removal of hazardous materials. The existing substation has not been surveyed for hazardous materials such as LBP, asbestos-containing materials, PCBs, or mercury. Given the likelihood of such materials being present in the existing substation, and to ensure that structures and materials on site are adequately characterized prior to demolition and disposal, PacifiCorp shall implement Mitigation Measure (MM) HAZ-1. Implementation of MM-HAZ-1 would ensure that impacts would be **less than significant with mitigation incorporated**.

MM-HAZ-1 Prior to demolition of the Mount Shasta Substation and/or the on-site residences, a lead-based paint and asbestos survey shall be conducted by a California Occupational Safety and Health Administration-certified asbestos consultant and/or certified site surveillance technician and a California Department of Public Health-certified lead inspector/risk assessor or sampling technician. The existing Mount Shasta Substation shall also be surveyed for the presence of polychlorinated biphenyls (PCBs), mercury, and other contaminants of concern prior to site demolition activities. A report documenting material types, conditions, and general quantities will

be provided, along with photos of positive materials and diagrams. Demolition or renovation plans and contract specifications shall incorporate any abatement procedures for the removal of material containing PCBs, mercury, asbestos, or lead-based paint, including the appropriate soil management protocol and disposition. All abatement work shall be done in accordance with federal, state, and local regulations.

Operation and Maintenance

Less Than Significant Impact. During operation and maintenance of the project, vehicles and equipment used for routine inspections and emergency repair would require the use of fuel and lubricants inside vehicles and equipment. The proposed project site would be equipped with transformer banks that would contain mineral oil. Because the quantity of oil stored would exceed 1,320 gallons, an SPCC plan describing spill prevention measures would be required (APM-HAZ-3). This plan would be prepared and stamped by a Professional Engineer and a copy submitted to CPUC staff. Typical SPCC measures include secondary containment features such as curbs and berms designed to contain spills should they occur. These features would be part of PacifiCorp's final engineering design for the project. With compliance with hazardous materials laws and regulations, operation and maintenance impacts due to the routine transport, use, or disposal of hazardous materials would be **less than significant**.

Significance After Mitigation: With implementation of MM-HAZ-1, impacts would be **less than significant with mitigation incorporated**.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. As discussed in Section 5.8.4(a), project construction would require the limited use of hazardous materials, such as fuels, lubricants, and solvents. Storage and use of hazardous materials during construction could result the accidental release of small quantities of hazardous materials, typically associated with minor spills or leaks. Spills and leaks could degrade soil and groundwater quality and/or surface water quality in nearby creeks or downstream water bodies.

Although spills and leaks during construction could occur, implementation of construction water quality BMPs required by the RWQCB through its review and approval of the SWPPP would reduce the potential for accidental releases and ensure

quick response to any spills to minimize impacts to the environment. As discussed in Section 5.8.4(a), hazardous materials would be stored, handled, and used in accordance with applicable regulations. All equipment and materials storage would need to be routinely inspected for leaks, and records would need to be maintained to document compliance with requirements for storage and handling of hazardous materials. Construction worker training under APM-HAZ-1, APM-HAZ-2, APM-HAZ-3, and APM-WQ-1 would provide site personnel with instruction on the SWPPP, SPCC plan, health and safety precautions, site-specific BMPs, and notification procedures in the event of a release of hazardous materials or upon the discovery of soil contamination.

During construction activities for the proposed project, the potential for encountering and damaging subsurface utilities (e.g., a natural gas line) or structures (e.g., a UST) exists, which could result in a release of hazardous material. Such incidents are unlikely, and would be avoided by thoroughly screening for subsurface utility lines and structures prior to starting subsurface work. Screening activities would include use of DigAlert, visual observations, and the use of buried-line locating equipment. Such measures are required under Title 8, Section 1541 of the California Code of Regulations and are standard practice in the construction industry.

For the reasons stated above, impacts from implementation of the proposed project would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant. The only schools within 0.25 miles of the proposed project alignment are the Mount Shasta Elementary School, which is at 501 Cedar Street, and the "I AM School," which is at 118 Siskiyou Avenue (California Department of Education 2014). The Mount Shasta Elementary School is located approximately 500 feet east of the pulling/tensioning site on West Jessie Street. At this site, a temporary entry/exit pit, approximately 6 feet by 6 feet, would be dug to allow for the boring and placement of new 6-inch conduit under I-5. These activities would not involve acutely hazardous materials and would take a week or less to complete. The activities would require drilling

mud and/or bentonite, which are not hazardous materials. The horizontal directional drilling rig would require a diesel generator, but the emissions levels produced by such equipment would not exceed Siskiyou County Air Pollution Control District emissions thresholds, as indicated in Section 5.3, Air Quality (Table 5.3-6).

The "I AM School" is located approximately 0.2 miles south of the southern end of the existing overhead distribution line to be reconductored along Mill Street. Installation activities at this site would involve limited disturbance, using line trucks, guard structures (where necessary), and pilot lines to string and pull new lines through sheaves. These activities would not involve hazardous emissions or acutely hazardous materials, and would be completed in a matter of days. Reconductoring activities would not exceed Siskiyou County Air Pollution Control District emissions thresholds, as indicated in Section 5.3, Air Quality (Table 5.3-6). As indicated in Sections 5.4.8(a) and 5.4.8(b), PacifiCorp would take appropriate precautions as specified in APM-HAZ-1, APM-HAZ-2, and APM-WQ-1 to avoid spills or release of construction materials, and would take appropriate action to respond to any small-scale spills or leaks, should they occur.

Therefore, the impacts associated with such activities occurring within 0.25 miles of a school would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The following hazardous materials site lists (compiled pursuant to Section 65962.5 of the California Government Code, also known as the "Cortese List") were reviewed for sites located at or within 1 mile of the proposed project:

- Hazardous waste and substance sites from DTSC's EnviroStor database.
- List of leaking UST sites from the SWRCB GeoTracker database.

- List of solid waste disposal sites identified by SWRCB with waste constituents higher than hazardous waste levels outside the waste management unit.[5] Review of this list revealed no sites within 1 mile of the proposed project site.
- List of active cease and desist orders and cleanup and abatement orders from SWRCB. Review of this list revealed no sites within 1 mile of the proposed project site.
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the California Health and Safety Code, as identified by DTSC. This list only includes two sites in California, neither of which is near the proposed project site.

The Phase I ESA performed by Enplan in 2015 and the results of a spatial query of the EnviroStor and GeoTracker GIS databases were reviewed to determine whether the project is on a hazardous waste and substance site or a leaking UST site (the first two bullets above). As indicated in the Environmental Setting section, the project site is not located on any Cortese List (pursuant to Section 65962.5 of the California Government Code). Therefore, there would be no impact with respect to this criterion.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

No Impact. As indicated in the Environmental Setting section, no public use airport is located in the vicinity of the project site. The closest airport is the Dunsmuir Municipal–Mott Airport, located 4 miles southeast of the project site (PacifiCorp 2015; Google Earth 2016). Google Earth was searched for evidence of any private airstrips and none were located within a 5-mile radius of the project. Proposed poles would be up to 55 feet in height and would generally replace existing, somewhat shorter poles. However, this activity has no impact on an airport land use plan because it does not exceed the FAA threshold for notification of flight obstruction (i.e., 200 feet), and does not cross into the Dunsmuir Municipal–Mott Airport compatibility zone (PacifiCorp 2015). The project would not cause visual effects such as distracting glimmer or glare due to distance and

[5] A hazardous waste management unit is a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples of hazardous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system, and a container storage area.

the small scale of the facilities. Therefore, the project would have **no impact** with respect to aviation safety.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. The proposed project would have no impact for the reasons described in Section 5.8.4(e).

Significance After Mitigation: No mitigation is required because **no impact** would occur.

g) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. As indicated in the Environmental Setting section, there is no official multi-jurisdictional hazard mitigation plan in place for Siskiyou County and the City of Mount Shasta (PacifiCorp 2015; County of Siskiyou 2016b). Area police, fire, and other emergency services conduct emergency operations according to their communications protocols and hazard mitigation programs.

In places where project construction may require a temporary road closure, construction activities would be coordinated with the local jurisdiction so as not to cause closure of any emergency access route. Encroachment onto public roadways would require an encroachment permit, triggering this kind of consultation. Flaggers may briefly hold traffic back for construction equipment, but emergency vehicles would be provided access even in the event of temporary road closures. Because streets would remain open to emergency vehicles at all times, construction of the project would not impact emergency access and would minimally and temporarily impact emergency evacuation. Operation and maintenance of the transmission and distribution lines would occur in the same manner and locations as under current conditions. Therefore, impacts associated with this criterion would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

h) Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Less Than Significant Impact with Mitigation Incorporated. Operation and maintenance activities for the proposed project would resemble those currently administered by PacifiCorp and activities are not expected to increase in duration, intensity, or frequency. The project would continue to be maintained in accordance with CPUC General Order 95, which outlines maintenance and clearance requirements for safe operation or use of overhead lines, and General Order 165, which requires inspections of transmission facilities to ensure safe and high-quality electrical service. Therefore, impacts related to wildland fire hazards due to operation and maintenance activities would be less than significant.

The proposed project area is located within Very High FHSZs and heat or sparks from construction equipment and vehicles, as well as the use of flammable hazardous materials, have the potential to ignite adjacent vegetation and start a fire, especially during weather events that include low humidity and high wind speeds. Project construction would result in up to 90 workers (maximum total) occurring in the project area for the estimated 14-month construction period. The following construction activities/equipment would have the potential to generate heat or sparks that could result in wildfire ignition:

- Earthmoving and excavating equipment – heated exhausts or sparks may result in ignition
- Chainsaws and other small gas-powered equipment/tools – may result in vegetation ignition from overheating, spark, fuel leak, etc.
- Cranes, tractors, forklifts, trucks, and vehicles – heated exhaust in contact with vegetation may result in ignition
- Welders – open heat source may result in metallic sparks coming into contact with vegetation
- Wood chippers – flammable fuels and hydraulic fluid may overheat and spray onto vegetation with a hose failure
- Compost piles – large piles that are allowed to dry and are left on site for extended periods may result in combustion and potential for embers landing in adjacent vegetation

- Dynamite/blasting – if blasting is necessary, may cause vegetation ignition from open flame, excessive heat, or contact of heated material with dry vegetation (PacifiCorp 2015)

The potential risk of wildfire ignition and spread associated with construction of PacifiCorp's proposed project can be managed and pre-planned so that the potential for vegetation ignition is reduced. In addition, pre-planning and personnel fire awareness and suppression training not only results in lower probability of ignition, but also in higher probability of fire control and extinguishment in its incipient stages. Data indicate that 95% of all wildfire ignitions are controlled during initial attack (Smalley 2008).

PacifiCorp has proposed implementation of standard fire prevention protocols to reduce impacts related to wildland fire hazards due to construction activities, including clearing and grading of project work areas prior to equipment staging (PacifiCorp 2015) and preparation and implementation of a project-specific Lassen Substation Project Fire Plan (PacifiCorp 2016a). The plan would provide for fire protection and BMPs to prevent fires, including equipment use restrictions, training, firefighting equipment allocation, patrolling, and agency coordination (PacifiCorp 2016a). However, without development and implementation of PacifiCorp's Lassen Substation Project Fire Plan, construction-related impacts associated with wildland fires would be considered significant. Therefore, MM-HAZ-2 has been provided to require development and implementation of a Lassen Substation Project Fire Plan, to be developed in consultation with and approved by local fire agencies. With implementation of MM-HAZ-2, impacts related to wildland fire hazards due to construction activities would be less than significant.

MM-HAZ-2 Develop and Implement a Lassen Substation Project Fire Plan. PacifiCorp shall develop a Lassen Substation Project Fire Plan in consultation with Mount Shasta Fire Department, the Mount Shasta Fire Protection District, and the California Department of Forestry and Fire Protection. PacifiCorp shall monitor construction activities to ensure implementation and effectiveness of the plan. The final plan will be approved by the consulted agencies prior to the initiation of construction activities and shall be implemented during all construction activities by PacifiCorp. At minimum, the plan will include the following:

- Procedures for minimizing potential ignition, including, but not limited to, vegetation clearing, parking requirements/restrictions, idling restrictions, smoking restrictions, proper use of gas-powered equipment, use of spark arrestors, and hot work restrictions

- Proper use of construction equipment
- Work restrictions during Red Flag Warnings and High to Extreme Fire Danger days
- Fire coordinator and fire patrol roles and responsibilities
- Emergency fire suppression equipment/tools, including size and documentation of response time capabilities
- Worker training for fire prevention, initial attack firefighting, and fire reporting
- Emergency communication, response, and reporting procedures
- Coordination with local fire agencies to facilitate agency access through the project site
- Emergency contact information
- Worker education materials, tailgate meetings
- Compliance with applicable wildland fire management plans and policies established by state and local agencies
- Other information as provided by responsible and consulted agencies

Significance After Mitigation: With implementation of MM-HAZ-2, impacts would be **less than significant with mitigation incorporated**.

5.8.5 References Cited

ASTM International E1527-13. "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." *Book of Standards*, Volume 11.05. https://www.astm.org/Standards/E1527.htm.

CAL FIRE (California Department of Forestry and Fire Protection). 2007. Fire Hazard Severity Zones in SRA. Siskiyou County. http://frap.fire.ca.gov/webdata/maps/siskiyou/fhszs_map.47.pdf.

CAL FIRE. 2008. *CAL FIRE Power Line Fire Prevention Field Guide*. November 2008.

CAL FIRE. 2009. Very High Fire Hazard Severity Zones in LRA. Mount Shasta. http://www.fire.ca.gov/fire_prevention/fhsz_maps/FHSZ//siskiyou/Mt_Shasta.pdf.

CAL FIRE. 2010. *2010 Strategic Fire Plan for California*. http://cdfdata.fire.ca.gov/fire_er/fpp_planning_cafireplan.

CAL FIRE. 2016. "CAL FIRE Civil Cost Recovery Program." Fact Sheet. Accessed August 24, 2016. http://www.fire.ca.gov/communications/downloads/fact_sheets/CostRecovery.pdf.

California Department of Education. 2014. Earth Layer – California Schools. 2014. Accessed August 15, 2016. http://services.gis.ca.gov/arcgis/rest/services/Society.

California Health and Safety Code, Chapter 6.95, Hazardous Materials Release Response Plans and Inventory.

City of Mount Shasta 2005. *City of Mount Shasta General Plan*. Safety Element. 2005.

County of Siskiyou 2016a. "Transportation Division – Airports". Website accessed August 30, 2016 at http://www.co.siskiyou.ca.us/content/transportation-division-airports.

County of Siskiyou. 2016b. "OES – Hazard Mitigation Plan". Website. Accessed August 30, 2016. http://www.co.siskiyou.ca.us/content/oes-hazard-mitigation-plan.

County of Siskiyou. 1980. "Land Use and Circulation Element." In *Siskiyou County General Plan.* Adopted August 12, 1980.

CPUC (California Public Utilities Commission). 2016. *Decision 16-05-036. Order Instituting Rulemaking (15-05-006) to Develop and Adopt Fire-Threat Maps and Fire-Safety Regulations.* May 26, 2016.

Enplan. 2015. *Phase I Environmental Site Assessment, Lassen Substation Project, Siskiyou County, California*. Prepared for Power Engineers. July 20, 2015.

Geocon. 2016. *Final Targeted Site Investigation, The Landing – New Mill Section Mount Shasta Blvd. and Mountain View Dr., Mount Shasta, Siskiyou County, California*. Prepared for Brownfields and Environmental Restoration Program, DTSC. April 2016.

Google Earth. 2016. Satellite view of project area [online map].

PacifiCorp. 2015. *Proponent's Environmental Assessment for the Application of PacifiCorp (U 901 E) for a Permit to Construct the Lassen Substation Project*. Prepared by Power Engineers Inc. October 2015.

PacifiCorp. 2016. "Re: CA A.15-11-005. CPUC Data Request 1.0 – Lassen Sub PEA Completeness Review." Memorandum from C. Allen (PacifiCorp) to M. Rosauer (California Public Utilities Commission). February 8, 2016.

Smalley, J. 2008. "Wildfires and Climate Change: An American Perspective on a Global Issue." Fire Interdisciplinary Research on Ecosystem Services (Seminar). June 24, 2008. http://www.fires-seminars.org.uk/downloads/seminar2/smalley_public_keynote.pdf .

SWRCB (State Water Resources Control Board). 1992. GeoTracker Site Record for Erickson Trucking (Global ID T0609300156). GeoTracker online database. Accessed August 29, 2016. http://geotracker.waterboards.ca.gov.

SWRCB. 1994. GeoTracker Site Record for Mercy Medical Center. GeoTracker online database. Accessed August 29, 2016. http://geotracker.waterboards.ca.gov.

SWRCB. 2016. Cleanup Site Search for Mount Shasta. Geotracker Online Web Map Viewer. Accessed August 29, 2016. http://geotracker.waterboards.ca.gov.

TRC. 2016. *Removal Action Workplan, The Landing – Mount Shasta Commerce Park, South Mount Shasta Boulevard, Mount Shasta, California*. Prepared for Siskiyou County Economic Development Council. March 11, 2016.

5.9 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☒	☐	☐
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

5.9.1 Environmental Setting

Regional Hydrology / Watershed

The proposed Lassen Substation Project (project) site is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB), which administers a water quality control plan (Basin Plan) and other water quality programs for the Sacramento and San Joaquin River Basins. The CVRWQCB is bounded by the crests of the Sierra Nevada on the east, the Coast Range and Klamath Mountains on the west, and the Cascade Range on the north. The Sacramento River Basin covers 27,210 square miles and includes the entire area drained by the Sacramento River and all its tributaries. The proposed project site is located at the northern end of the basin and drains to Siskiyou Lake (which is formed by Box Canyon Dam) and the Sacramento River via Cold Creek (CVRWQCB 2015).

The U.S. Geological Survey Watershed Boundary Dataset delineates watersheds according to hydrologic units, which are nested within one another according to the scale of interest. The U.S. Geological Survey identifies hydrologic units by name and by hydrologic unit code, which gets longer as the watershed boundaries get more detailed. The project site is within the 28.7-square-mile Cascade Gulch–Mount Shasta sub-watershed (Hydrologic Unit Code 180200050103), which is part of the Wagon Creek–Sacramento River watershed, which is within the Sacramento Headwaters sub-basin (USGS 2016).

Site Topography and Drainage

The proposed project site is located in the Strawberry Valley, which is located at the southwest base of Mount Shasta and surrounded by Black Butte to the north, Rainbow Ridge to the west, and Lake Siskiyou and the Sacramento River Canyon to the south. The proposed project alignment is located on flat to nearly flat terrain at an elevation that ranges from almost 3,700 feet above mean sea level at the northern edge of the distribution line component (near Ski Village Drive) to 3,400 feet above mean sea level at the southern end of the alignment (at West Ream Avenue) (PacifiCorp 2015; Google Earth 2016). The overall trend of topography is that it decreases in a southerly direction along the north-south axis of Strawberry Valley, with an average slope gradient of 4%—generally 2% or less in the southern half of the alignment and 10% or less in the northern half of the alignment (Google Earth 2016).

As shown in Figure 5.9-1, Cold Creek is the only named stream in the immediate project vicinity. Cold Creek originates from Big Springs Creek, located east of the City of Mount Shasta, has a poorly defined course west through the City of Mount Shasta, and then reemerges as a distinct feature west of Old Stage Road. The northern portion of the transmission line alignment crosses Cold Creek between Poles 9/48 and 10/48. Cascade Gulch Creek is also a main creek to the northeast of the City of Mount Shasta city limits, and drains a large part of the southwest flanks of Mount Shasta. Generally, however, Strawberry Valley is a flat, low-lying spot in an otherwise mountainous terrain, and, thus, contains numerous wetland features, unnamed creeks, and drainage swales. The transmission line alignment between Poles 21/47 and 2/48 crosses an extensive area mapped as palustrine emergent wetland and palustrine scrub-shrub wetland. Refer to Section 5.4, Biological Resources, for additional information on the wetlands in the project area, including the results of the Jurisdictional Delineation Report prepared for the project.

The proposed substation site is at an elevation of approximately 3,415 feet above mean sea level, and the ground surface slopes slightly downward at less than 2.5% to the southwest (PSI 2011). There is no formal municipal storm drain system that serves the Lassen Substation site. Instead, storm runoff collects in low-lying spots, minor swales/ditches, and/or along the shoulder on the east side of South Old Stage Road. Drainage infrastructure is limited to corrugated metal pipe culverts underlying private driveways or crossing public roadways, where necessary to convey storm runoff without excessive ponding. Figure 5.9-1 shows the main streams and water features in the project vicinity.

Flood Hazards

Flood hazards in the project vicinity are localized (City of Mount Shasta 2005). The hazards are generally limited to riparian areas along streams, the shores of Lake Siskiyou, and along the Sacramento River below Box Canyon Dam. The flooding of streams is caused by seasonal flow fluctuations and peak storm events. Flooding that occurs in the project vicinity generally only affects the immediate vicinity of particular streams (City of Mount Shasta 2005). The Federal Emergency Management Agency (FEMA) has not mapped floodplains in the area, with the exception of the shore of Lake Siskiyou and a narrow fringe area along the Sacramento River (DWR 2016).

Surface Water Quality

There are no water bodies in the immediate area designated as “water quality-limited” for water quality impairments under the federal Clean Water Act (CWA), Section 303(d) (SWRCB 2012). Being “water quality-limited” means that a water body is “not reasonably expected to attain or maintain water quality standards” without additional regulation (SWRCB 2012). The law

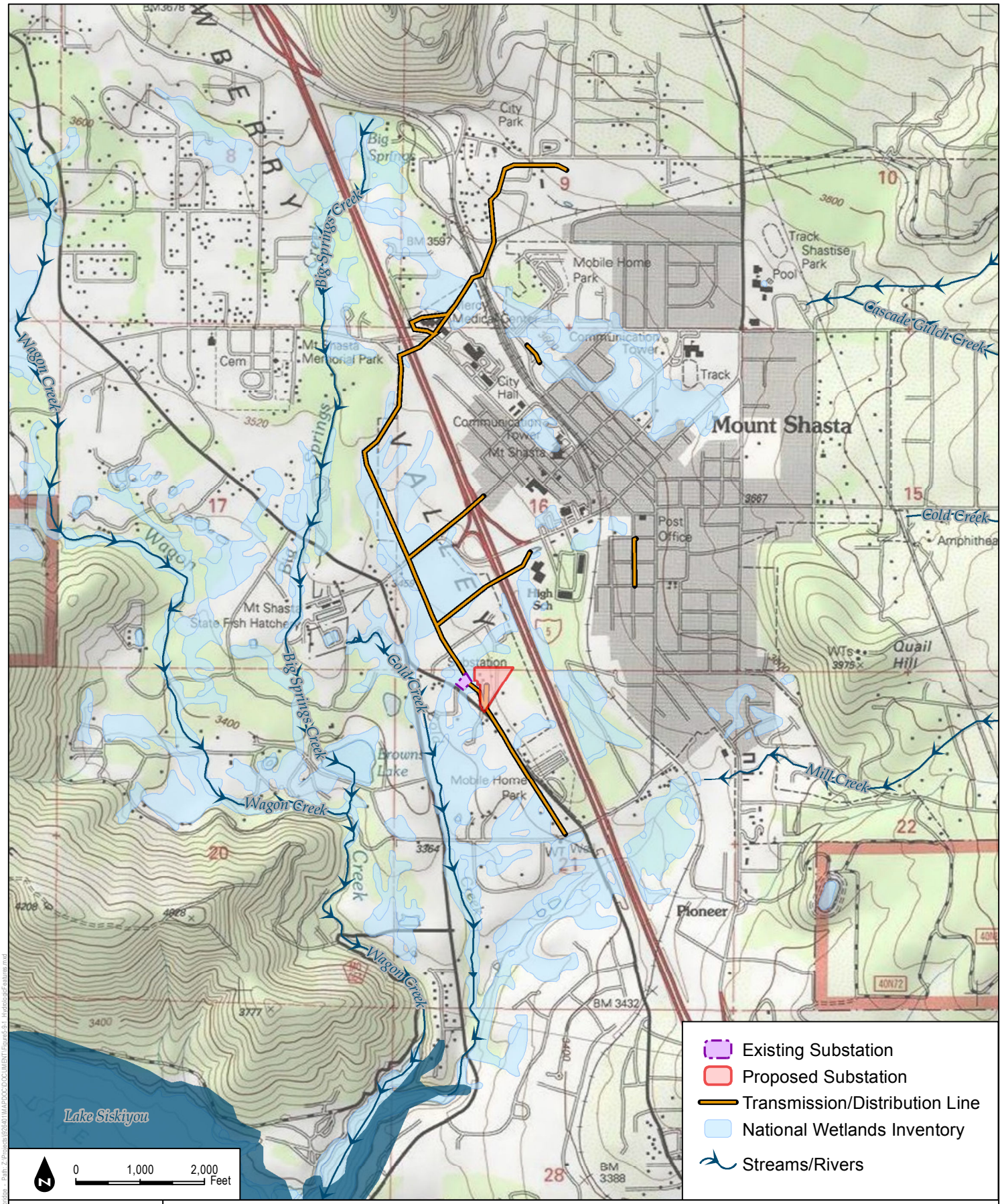
requires that the U.S. Environmental Protection Agency (EPA) develop total maximum daily loads (TMDLs) for each impaired water body in the nation (described further in Section 5.9.2). The TMDLs specify the maximum amount of a pollutant a water body can receive and still meet water quality standards. A TMDL may also include a plan for bringing an impaired water body back within standards. The most recently approved Section 303(d) List of Water Quality Limited Segments, as listed in the 2012 Integrated Report (SWRCB 2012), lists Shasta Lake as impaired with mercury, but no TMDL for mercury has been prepared or approved by the EPA.

Groundwater

The project site and the larger vicinity of Strawberry Valley are not identified as being one of California's 431 major groundwater basins and do not appear in groundwater basin maps or descriptions published by the California Department of Water Resources (DWR) (DWR 2003). Alluvial deposits in the region are likely to be thin and discontinuous, overlying older volcanic and/or granitic bedrock units that carry groundwater through fractures that may be connected or highly discontinuous, depending on the specific locale. Groundwater resources within the project vicinity originate with snowmelt and rainfall, especially on the upper slopes of Mount Shasta. The direction of groundwater movement through the area is generally downslope and southwesterly, turning southerly near the center of Strawberry Valley (City of Mount Shasta 2005). According to the City of Mount Shasta (2005), significant amounts of high-quality groundwater resources are found in the area. This is likely a result of plentiful recharge (i.e., rainfall, snowmelt, and Mount Shasta glaciers) combined with the sparsely populated nature of the area.

The City of Mount Shasta has a domestic water distribution system that is supplied by groundwater, including Cold Springs, located to the east of the city, and two groundwater wells within the city limits. The project site and outlying rural residential areas are not served by the City of Mount Shasta's water distribution system, but instead rely on private domestic wells for water supply. The occurrence and depth of groundwater in the area is not publically available or regularly tracked by DWR. When geologic borings were made for the project's geotechnical investigation, free groundwater was encountered at shallow depths, with saturated soil conditions occurring at a depth of 1 to 2.5 feet below the ground surface, and free groundwater occurring at a depth of 4 to 5 feet below the ground surface (PSI 2011). Based on this and the extensive occurrence of wetland vegetation and soils in the larger vicinity, the depth to groundwater in the vicinity is expected to fluctuate seasonally, but remain relatively shallow year-round.

The proposed substation site has an abandoned well, which was used by the former occupants as their source of water supply.



SOURCE: USGS 7.5-Minute Series City of Mount Shasta Quadrangle; USGS NHD; USFWS NWI

FIGURE 5.9-1

Hydrologic Features

DUDEK

Lassen Substation Project

INTENTIONALLY LEFT BLANK

5.9.2 Regulatory Setting

Federal

The Clean Water Act

The CWA (33 U.S.C. 1251 et seq.), as amended by the Water Quality Act of 1987, is the major federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important sections of the CWA are as follows:

- CWA Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Under Section 303(d), California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. California is required to establish TMDLs for each pollutant/stressor. A TMDL defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. The impairments applicable to the project's receiving waters are described in Section 5.9.1, Environmental Setting.
- CWA Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the CWA. The CVRWQCB would provide review and water quality certification services for the proposed project.
- CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs), which have several programs that implement individual and general permits related to construction activities, stormwater runoff quality, and various kinds of non-stormwater discharges.
- CWA Section 404 establishes a permit program for the discharge of dredged or fill material into waters of the United States. This permit program is jointly administered by the U.S. Army Corps of Engineers and EPA. A Section 404 permit is required for the discharge of dredged or fill material into waters of the United States. The Sacramento District of the U.S. Army Corps of Engineers would provide review and permitting services for the proposed project.

Numerous agencies have responsibility for administration and enforcement of the CWA. At the federal level this includes EPA, the U.S. Army Corps of Engineers, the Bureau of Reclamation, and the major federal land management agencies such as the U.S. Forest Service and the Bureau of Land Management. At the state level, with the exception of tribal lands, the California EPA and its sub-agencies, including the SWRCB, have been delegated primary responsibility for administering and enforcing the CWA in California.

Federal Antidegradation Policy

The federal antidegradation policy is designed to protect water quality and water resources. The policy directs states to adopt a statewide policy that includes the following primary provisions: (1) maintain and protect existing instream uses and the water quality necessary to protect those uses; (2) where existing water quality is better than necessary to support fishing and swimming conditions, maintain and protect that quality unless the state finds that allowing lower water quality is necessary for important local economic or social development; and (3) where high-quality waters constitute an outstanding national resource, such as waters of national and state parks, wildlife refuges, and waters of exceptional recreational or ecological significance, maintain and protect that water quality.

State

Porter–Cologne Water Quality Control Act

The Porter–Cologne Water Quality Control Act (Porter–Cologne Act; codified in the California Water Code, Section 13000 et seq.) is the primary water quality control law for California. Whereas the CWA applies to all waters of the United States, the Porter–Cologne Act applies to waters of the state, which includes isolated wetlands and groundwater, in addition to federal waters. The Porter–Cologne Act is implemented by the SWRCB and the nine RWQCBs. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the state[1] could cause pollution or nuisance, including impacts to public health and the environment.

The Porter–Cologne Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair a beneficial use of surface water or groundwater in the state. California Water Code Section 13260(a) requires that any person discharging waste or proposing to discharge waste, other than to a community sewer system, that could affect the quality of the waters of the state, file a Report of Waste Discharge

[1] "Waters of the state" are defined in the Porter–Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050(e)).

with the applicable RWQCB. For discharges directly to surface water (waters of the United States), an NPDES permit is required, which is issued under both state and federal law. For other types of discharges, such as waste discharges to land (e.g., spoils disposal and storage), erosion from soil disturbance, or discharges to waters of the state (such as groundwater and isolated wetlands), Waste Discharge Requirements are required and are issued exclusively under state law. Waste Discharge Requirements typically require many of the same best management practices (BMPs) and pollution control technologies as required by NPDES-derived permits.

Basin Planning

The California legislature has assigned the primary responsibility to administer and enforce statutes for the protection and enhancement of water quality, including the Porter–Cologne Act and portions of the CWA, to the SWRCB and its nine RWQCBs. The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies and plans for implementation of state and federal regulations. The nine RWQCBs throughout California adopt and implement Basin Plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The CVRWQCB is responsible for protection of the beneficial uses of waters draining to the Sacramento–San Joaquin Delta, including the project site.

The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley, designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan (California Water Code Sections 13240–13247) (CVRWQCB 2015). The most water-quality-sensitive beneficial uses applicable to the Sacramento–San Joaquin Delta are REC-1 (Water Contact Recreation), WARM (Warm Freshwater Habitat), COLD (Cold Freshwater Habitat), WILD (Wildlife Habitat), and migration and spawning (MIGR and SPWN). The beneficial uses of all tributaries to Lake Siskiyou (including Cold Creek) include AGR (irrigation and stock watering), REC-1 (body contact recreation), REC-2 (other non-contact recreation) COLD, and WILD.

The Basin Plan also includes water quality objectives that are protective of the identified beneficial uses; the beneficial uses and water quality objectives collectively make up the water quality standards for the region. Selected water quality objectives from the Basin Plan are as follows:

- **Turbidity:** This objective depends on the natural turbidity of the receiving water body but generally does not allow increases of more 2 Nephelometric Turbidity Units (NTUs) in clear waters (under 5 NTU), of more than 20% in typical waters (5–50 NTUs), or of more than 10% in turbid waters (greater than 50 NTUs).

- **pH:** Discharges should not result in pH level of creeks and lakes going under 6.5 or above 8.5.
- **Dissolved Oxygen**: Water designated as COLD shall not have dissolved oxygen reduced to below 7 mg/l [milligrams per liter]; those designated as WARM shall not have dissolved oxygen reduced to below 5 mg/l.
- **Temperature:** The temperature of receiving waters with a "COLD" or "WARM" beneficial use shall not be increased more than 5°F above the natural receiving water temperature.
- **Oil/grease, suspended material, and trash:** Water shall not contain these materials in concentrations that cause nuisance, result in visible sheen, or adversely affect beneficial uses (CVRWQCB 2015).

These objectives are applicable to the receiving water bodies in the project area, including Cold Creek and Lake Siskiyou.

The NPDES and Waste Discharge Requirement programs regulate construction, municipal and industrial stormwater, and non-stormwater discharges under the requirements of the CWA and the Porter–Cologne Water Quality Control Act. The construction stormwater program, the Phase II small municipal stormwater permit, and the statewide general permit for low-threat discharges are administered by the SWRCB, and the individual (point-source) discharger permits are administered by the CVRWQCB. The water-quality-related permits that would apply to the project are further described below. General Waste Discharge Requirements and/or NPDES permits contain effluent limitations that may be stricter than basin-wide water-quality objectives because they regulate specific categories of discharge and are designed to limit the cumulative effects of development over broad areas.

Construction General Permit (SWRCB Order 2009-0009-DWQ, as amended). For stormwater discharges associated with construction activity in California, the SWRCB adopted the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) to avoid and minimize water-quality impacts attributable to such activities. The Construction General Permit applies to all projects that disturb 1 acre or more of soil. Construction activities subject to this permit include clearing, grading, and disturbances to the ground, such as stockpiling and excavating. The Construction General Permit requires development and implementation of a stormwater pollution prevention plan (SWPPP), to include and specify water-quality BMPs designed to prevent pollutants from contacting stormwater and to keep all products of erosion from moving off site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit, and the SWPPP must be prepared and implemented by qualified individuals as

defined by the SWRCB. The project applicant must submit a Notice of Intent to the SWRCB to be covered by an NPDES permit and prepare the SWPPP prior to the beginning of construction.

General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (CVRWQCB Order R5-2013-0074, as amended). The CVRWQCB has adopted a general NPDES permit for short-term discharges of small volumes of wastewater from certain construction-related activities. Discharges may be covered by the permit provided they are either 4 months or less in duration or the average dry-weather discharge does not exceed 0.25 million gallons per day. Construction dewatering and miscellaneous dewatering/low-threat discharges are among the types of discharges that may be covered by the permit. To receive coverage under this general permit, the discharger must submit a Notice of Intent to the RWQCB and describe the activity with sufficient detail to demonstrate that the discharge would comply with the discharge prohibitions, effluent limitations, and receiving water limitations outlined in the order. In no case can the discharge impair beneficial uses, violate water-quality standards, or cause a possible nuisance condition.

As described previously, the site has shallow/perched groundwater. A general permit would be required in the event that dewatering discharges to adjacent drainage swales or ditches would be necessary during foundation excavations, utility trenching, or other site construction activities. If the discharge is made to land (e.g., piped to an temporary infiltration/percolation basin on site), the applicant would need to apply for coverage under the Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality (SWRCB Order No. 2003-0003-DWQ). The intent and procedures for coverage under this permit is similar to that described above.

State Nondegradation Policy

In 1968, as required under the federal antidegradation policy described previously, the SWRCB adopted a nondegradation policy aimed at maintaining high quality for waters in California. The nondegradation policy states that the disposal of wastes into state waters must be regulated to achieve the highest water quality consistent with the maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The policy is as follows:

a. Where the existing quality of water is better than required under existing water quality control plans, such quality would be maintained until it has been demonstrated that any change would be consistent with maximum benefit to the people of the state and would not unreasonably affect present and anticipated beneficial uses of such water.

Any activity that produces waste or increases the volume or concentration of waste and that discharges to existing high-quality waters is required to meet waste discharge requirements that ensure that pollution or nuisance would not occur, and the highest water quality consistent with the maximum benefit to the people of the state would be maintained.

California Water Code Section 13800

Pursuant to California Water Code Section 13800, the DWR developed standards for the destruction of wells. Well that are no longer useful must be destroyed to ensure that the groundwater supply is protected and preserved for further use, that pathways for contamination are removed, and to eliminate the well as a potential physical hazard. In destroying the well, subsurface conditions must be restored as much as possible to those conditions that existed before the well was constructed.

Local

California Public Utilities Commission General Order No. 131-D explains that local land use regulations would not apply to the project. However, for information purposes, the following goals and policies included in the general plans for the County of Siskiyou and the City of Mount Shasta would be relevant to the project.

County of Siskiyou

Aside from overarching conservation and environmental protection goals, the Siskiyou County General Plan has no policies or implementation plans related to hydrology and water quality that apply to construction, operation, or maintenance of electrical infrastructure.

City of Mount Shasta

The City of Mount Shasta General Plan Safety Element has goals and policies applicable to flooding:

Goal SF-1: Protect people and property from flooding.

Policy SF-1.1: Identify areas subject to inundation.

SF-1.1(a): Require that the limits of flooding resulting from a one hundred-year storm event be shown on all permit site plans where lands may be subject to inundation.

SF-1.1(b): When subdivisions or discretionary permits are sought for lands adjoining streams that have had a history of overtopping the banks,

require that an assessment be prepared by a qualified engineer or hydrologist to delineate areas likely to be subject to inundation from a one hundred-year storm event (City of Mount Shasta 2005).

The City of Mount Shasta General Plan Open Space and Conservation Element has goals and policies applicable to water resources and wetlands:

Goal OC-1: Conserve lands that support important fisheries, wildlife and botanical habitat, and wetlands.

Policy OC-1.1: Limit development on lands that provide important fisheries, wildlife and botanical habitat, and wetlands to agriculture and rural density residential.

Goal OC-2: Protect riparian habitat along streams in the Planning Area.

Policy OC-2.1: Require erosion control protection as a part of grading and development plans (City of Mount Shasta 2005).

5.9.3 Applicant Proposed Measures

The proposed project would integrate the following applicant proposed measures (APMs) into the design and implementation of the project:

APM-WQ-1 Stormwater Pollution Prevention Plan (SWPPP) or Erosion Control Plan Development and Implementation. An erosion and sediment control plan would be developed prior to construction and included as part of the required SWPPP. The goal of the SWPPP will be to remove sediment and wastes from runoff before the runoff is discharged from the project site. This would be accomplished by:

- Minimizing the acreage of disturbed and exposed soil during the construction phase and implementing stabilization measures where necessary.
- Removing sediment from runoff before it leaves the site.
- Complying with specific erosion and sediment control measures specified within the erosion and sediment control plan.

Methods may include preservation of existing vegetation or use of geomats, straw wattles, straw bale barriers, or silt fencing, which would be placed at construction boundaries. Gravel ramps may be installed at access points to public roadways to prevent or minimize the tracking of mud, dirt, sediment, or similar materials onto

the roadway. Selection of appropriate erosion control materials will be based on soil properties, steepness of the slope, and anticipated surface flow or runoff.

Diesel fuel, gasoline, oil, and other lubricants, as well as adhesives and sealants, would be utilized during the construction of the transmission line and substation. Bulk quantities may be stored in the designated construction yard/staging area. Vehicle fueling and maintenance activities would be restricted to staging areas or approved areas away from drainage channels and sensitive habitats. All construction vehicles would be monitored for leaks and receive regular off-site preventive maintenance to reduce the chance of leakage.

A copy of the SWPPP and of Receipt of the Letter of Intent, including the project's Waste Discharge ID Number, will be provided to the California Public Utilities Commission prior to construction to certify compliance with Order 2009-0009-DWQ Construction General Permit. The SWPPP will be updated during construction as required by the State Water Resources Control Board.

APM-WQ-2 **Restoration.** To reduce visual contrast and siltation in construction where ground disturbance is substantial, surface preparation and reseeding shall occur during the last phase of construction. The method of restoration would normally consist of loosening the soil surface, reseeding, installing cross drains for erosion control, placing water bars in the road, and filling ditches. These actions shall occur in areas of exposed soils large enough that, if they remain unremediated once construction is completed, they could exceed water quality objectives of receiving waters (e.g., for sediment, turbidity, temperature, and dissolved oxygen) set forth in the Water Quality Control Plan for the Sacramento and San Joaquin River Basins.

APM-WQ-3 **Pole Placement Minimization/Avoidance:** To minimize the amount of sensitive features disturbed in designated areas, poles would be placed so as to avoid sensitive features and/or to allow conductors to clearly span the features, within limits of standard pole design. If the sensitive features cannot be completely avoided, poles would be placed so as to minimize the disturbance.

5.9.4 Environmental Impacts and Mitigation

a) Would the project violate any water quality standards or waste discharge requirements?

Stormwater Discharges during Construction

Less Than Significant Impact. Construction activities associated with the proposed project could increase the turbidity or otherwise degrade the water quality of receiving stream channels or other surface waterways, such as unnamed drainage ditches and swales. Activities that disturb the ground near or within a stream channel (e.g., clearing and grading) could make soils and sediments more susceptible to erosion by altering their existing structure or state. Depending on the distance and ground slope, some portion of the eroded material could eventually be delivered to adjacent creeks and drainages during significant rain events. An increase in the runoff rate from a construction or staging area may result from temporarily decreasing ground surface resistance to overland flow (e.g., clearing of native vegetation or slope grading), decreasing the infiltration capacity of the soil by means of compaction (e.g., with heavy equipment), or increasing the velocity of runoff (e.g., concentrating flow into built features). In addition, if construction equipment or workers inadvertently release pollutants (e.g., hydraulic fluid or petroleum) on site, these compounds could be entrained by runoff and discharged into receiving channels, causing water-quality degradation. The extent of erosion or pollution that could occur at any given construction site would vary depending on soil type, vegetation/cover (or lack thereof), and weather conditions. Specific construction activities referenced under this potential impact include clearing and grading, excavating, and stockpiling soil or sediments.

Based on the project setting, significant problems related to increased sediment concentrations and turbidity levels in receiving stream channels as a result of the project appears unlikely. Soils in the project area have a low to moderate erosion hazard rating (see Table 4.6-1 in Section 4.6, Geology and Soils). Combined with the nearly flat topography and the disconnected and incremental nature of construction/installation activities, the transmission and distribution line components of the project have a low potential to generate significant erosion and/or sedimentation. Although the cumulative land disturbance associated with the staging and laydown areas, pulling/tensioning sites, access road improvements, and pole installation locations would be up to 7.8 acres, these disturbance areas would be small in any one place, geographically dispersed over a wide area, and be carried out in phases over a period of up to 41 weeks. Furthermore, none of the water bodies down-gradient of the project site, including Cold Creek and Lake Siskiyou, are on the CWA Section 303(d) list as impaired for sediment, which is the most likely pollutant that project construction activities would generate.

Although uncertainties exist regarding the precise response of various project-related construction areas to intense storms, the project's contribution toward total suspended sediment loads and turbidity in receiving waters is expected to be minor. Most elements of the project would involve only short-term (i.e., within a single season) construction activities, and, thus, the associated potential impacts would be short-lived. Actions associated with the project that would require appreciable soil-moving activities include site preparation and construction of the proposed Lassen Substation, grading/grubbing associated with installation of substation access roads or widening/improvement of transmission line access routes, and underground work associated with horizontal directional drilling (HDD) construction. In accordance with APM-WQ-3, new poles would be placed to avoid sensitive features such as creeks and wetlands to the greatest extent possible, and would limit disturbance where such features cannot be entirely avoided.

Potential water-quality impacts of construction activity would be addressed through a number of federal and state water quality provisions and by several APMs. Because the project would be larger than 1 acre, PacifiCorp would be required to submit a Notice of Intent to the CVRWQCB to obtain approval to carry out construction activities under the General Construction Permit, as indicated by APM-WQ-1. This permit would include a number of design, management, and monitoring requirements for the protection of water quality and the reduction of construction impacts related to stormwater (and some non-stormwater) discharges. The SWPPP would apply to the project as a whole and would include reference to the major construction areas, such as the proposed Lassen Substation, materials staging areas, work areas associated with underground HDD, and work areas associated with replacement of existing transmission poles. Erosion control methods may include preservation of existing vegetation or use of geomats, straw wattles, straw bale barriers, or silt fencing, which would be placed at construction boundaries. Gravel ramps may be installed at access points to public roadways to prevent or minimize tracking mud, dirt, sediment, or similar materials onto the roadway. Selection of appropriate erosion control materials would be based on soil properties, steepness of the slope, and anticipated surface flow or runoff.

Project construction would require the limited use of hazardous materials; all hazardous materials associated with construction activities would be stored, handled, and used in accordance with applicable regulations. The SWPPP would provide detail on locations where hazardous materials may be stored during construction, and the protective measures, notifications, and cleanup requirements for any accidental spills or other releases of hazardous materials that could occur. Furthermore, APM-HAZ-2 (hazardous substance control and emergency response plan; see Section 5.8, Hazards and Hazardous

Materials), although designed to protect human health, would also be protective of the environment and water quality because it contains measures to avoid, contain, and remediate any issues associated with handling/storage of hazardous materials, and encountering potentially contaminated soils.

Required compliance with applicable laws and regulations, as well as implementation of APM-WQ-1, APM-WQ-3, and APM-HAZ-2, would ensure that impacts related to project construction activities on stormwater quality would be **less than significant**.

Non-Stormwater Discharges during Construction

Less Than Significant Impact with Mitigation Incorporated. The HDD process has the potential for drilling fluid to reach the ground surface due to the pressure from the HDD operation. If drilling fluid reaches the ground surface, it would be contained with the use of sand bags or straw bales and would be pumped into a tank or back to the drill site. After the bore is complete, any excess material would be removed from the site and either reused by the drilling contractor as backfill or disposed of at an appropriate facility. Drilling fluids for HDD consist primarily of mud and bentonite clay. The portion of the alignment to be constructed using HDD would not cross creek water or water bodies (it would cross Interstate 5), which further minimizes the potential for drilling fluids to adversely affect water quality.

Due to the shallow groundwater in the area, construction activities associated with subsurface components at the proposed substation site and the HDD entry/exit pits are anticipated to require dewatering to ensure dry work areas. PSI (2011) provides several potential methods of dewatering the substation site during construction activities, which could include letting seepage accumulate in a trench or sump and pumping the water out for off-site discharge; pre-draining the site using a dewatering well; or cutting off the flow of groundwater using sheet pilings, diaphragm walls, grout, or other means. As indicated in Section 5.8, Hazards and Hazardous Materials, there is no evidence that groundwater in those locations would be contaminated or of poor quality. However, the quality of the groundwater underlying the proposed excavation sites is generally unknown. Although unlikely, there could be unreported or undetected pollutants present in the groundwater (e.g., malfunctioning off-site septic tank, unreported leaking underground storage tank). Because there is no APM associated with non-stormwater discharges, the proposed project could result in a potentially significant impact with regard to non-stormwater discharges, potentially violating water-quality standards and waste discharge requirements.

However, implementation of Mitigation Measure (MM) WQ-1 would ensure that impacts from non-stormwater discharges associated with construction activities would be **less than significant with mitigation incorporated**.

MM-WQ-1 **Proper Management of Dewatering Discharges:** Prior to excavation of foundations or horizontal directional drilling pits, or other activity requiring groundwater dewatering, PacifiCorp shall submit a Notice of Intent to the Central Valley Regional Water Quality Control Board (CVRWQCB) for the General Order for Dewatering and Other Low-Threat Discharges to Surface Waters (CVRWQCB Order R5-2013-0074, as amended). PacifiCorp shall describe the activity with sufficient detail to demonstrate the nature, location, and duration of the discharge. PacifiCorp shall send a sample of the groundwater to be discharged to a certified laboratory for analysis of priority pollutants, found in Attachment B of the General Order. If screening levels are exceeded, PacifiCorp shall implement appropriate treatment of the groundwater prior to discharge off site. Dewatering discharges shall comply with the discharge prohibitions, effluent limitations, and receiving water limitations outlined in CVRWQCB Order R5-2013-0074, and in no case shall the discharge impair beneficial uses, violate water quality standards, or cause a possible nuisance condition.

Operation and Maintenance

Less Than Significant Impact. Stormwater runoff during operation and maintenance would occur similarly to the existing conditions, since the transmission and distribution lines are above ground and located along the same alignments. The proposed Lassen Substation could slightly alter the location and quality of stormwater runoff, but would not do so in a manner that violates Basin Plan objectives or water quality standards. The substation would be designed with a drainage system, would be composed primarily of gravel, and would ensure that stormwater leaving the site does not do so at excessive speeds or volumes. As indicated in Section 5.8, Hazards and Hazardous Materials, a spill prevention, control, and countermeasure plan would be implemented to avoid or substantially minimize the impacts of accidental spills or release of fluids such as coolant or oil. For these reasons, operation and maintenance impacts of the project on water quality would be **less than significant**.

Significance After Mitigation: With implementation of MM-WQ-1, impacts would be **less than significant with mitigation incorporated**.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?

Construction

Less Than Significant Impact. Should groundwater dewatering be required to provide a dry work space in excavations, any impacts would be highly localized, temporary, and limited to the bottom depth of the excavation. Any groundwater removed for construction would likely recharge the shallow groundwater at the location where it is discharged and would be of the same or similar quality. Furthermore, private/domestic wells in the immediate area, if any, are screened at much deeper intervals (generally no shallower than 50 feet), which means water levels in those wells would not be affected by shallow dewatering activities. For these reasons, groundwater dewatering would have a less-than-significant impact with respect to groundwater depletion or the groundwater levels in nearby wells.

There is an existing groundwater well on the proposed substation site that would likely require removal. Should the groundwater well be removed, it would be done in accordance with DWR regulations governing well destruction, and would not be done without first obtaining a permit from DWR. The primary consideration in removing a well is to ensure it is backfilled with appropriate sealing material to avoid cross-contamination of water-bearing strata. Through procedures required to obtain a permit and properly destroy the well, impacts would be **less than significant**.

Operation and Maintenance

No Impact. Operation and maintenance activities would occur consistent with what is currently done by PacifiCorp on the existing Mount Shasta Substation and along the existing right-of-way. Inspection, maintenance, and repair activities would not require use of groundwater. Any water used for workers or for cleaning activities would be minor and be commercially sourced. Therefore, there would be **no impact**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Less Than Significant Impact. Minor alteration to existing drainage patterns could occur as part of construction. Stormwater drainage at the substation site would be designed to minimize erosion and increase sediment control, and minimize potential erosion or sedimentation impacts to adjacent wetlands. The enclosed substation surface would be covered with crushed rock (counted as semi-permeable material in Table 5.9-1) in areas where no paving or structures would be placed. As indicated in Table 5.9-1, approximately 2,220 square feet of the substation site would consist of impermeable paved surfaces associated with equipment foundations. These areas, for the most part, would be physically separated by graveled surfaces, and would constitute less than 5% of the proposed substation area. Compared to existing conditions, the proposed project would reduce the coverage of impervious surfaces by 7,800 square feet. Prior to substation construction, PacifiCorp would prepare final engineering drawings for grading and drainage, and submit these drawings to the County of Siskiyou to obtain a grading permit.

Table 5.9-1
Pre-Project versus Post-Project Impervious Surfaces

Location	Land Cover Category	Pre-Project Conditions	Post-Project Conditions
Existing Mount Shasta Substation	Impervious	2,140 sq ft (0.04 ac)	2,140 sq ft (0.04 ac)
	Semi-pervious	30,942 sq ft (0.70 ac)	30,942 sq ft (0.70 ac)
	Pervious	0	0
Proposed Lassen Substation Site	Impervious	10,019 sq ft (0.23 ac)	2,220 sq ft (0.04 ac)
	Semi-pervious	35,284 sq ft (0.81 ac)	51, 627 sq ft (1.19 ac)
	Pervious	172,498 sq ft (3.96 ac)	0

Source: PacifiCorp 2016.
Notes: sq ft = square feet; ac = acres.

Transmission and distribution line components would not alter drainage patterns in any significant or measurable way, as topography would be maintained and no impervious surfaces would be built. Where access would be required across streams, PacifiCorp would use temporary road platforms or geomats to minimize disturbance. All work areas would be clearly marked and construction vehicles and equipment would be prohibited from disturbing slopes and/or drainages outside the marked areas. APM-WQ-2 would ensure that temporary disturbances associated with work areas, pulling/tensioning sites, and access roads (where located in open space areas) would be restored to pre-construction conditions through soil decompaction and reseeding.

Removal of the existing Mount Shasta Substation would not alter existing drainage patterns because only aboveground components would be removed; the concrete foundation and gravel would remain.

For these reasons, and given the precautions discussed in Section 5.9.4(a), which include implementation of a SWPPP, construction and operation of the proposed project may slightly alter drainage patterns, but would not do so in a manner that would result in significant erosion or siltation. Therefore, impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less Than Significant Impact. For the same reasons discussed in Sections 5.9.4(a) and 5.9.4(c), the project's impacts on flooding from altered drainage patterns would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant Impact. The project would result in a minor, temporary increase of surface water runoff as a result of ground clearance for construction of the new Lassen Substation; however, the access road and the substation site would be located mostly in open space and in a rural residential area that does not have an engineered stormwater drainage system. Stormwater runoff for the proposed substation site would drain south into an existing vegetated ditch on the east side of Old Stage Road, and runoff from work areas around pole structures would be contained to the fields in which they are located. Implementation of APM-WQ-1 would minimize these potential impacts to **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

f) Would the project otherwise substantially degrade water quality?

No Impact. There are no reasons other than those already discussed in the preceding sections that the project would degrade water quality; **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The proposed project would not involve housing. Therefore, this criterion is not applicable to the project and **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

h) Would the project place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Less Than Significant Impact. The project site is not within a 100-year flood hazard area as mapped by FEMA or DWR. However, the site has not been extensively studied, and rather than determining the absence of flood hazards, FEMA maps indicate flood hazards to be undetermined. The transmission and distribution line components of the proposed project would be adjacent to Cold Creek and other unnamed drainages that could be subject to 100-year flood flows that could cause them to overtop their banks.

The distribution line components of the project would be above ground and would not affect or be affected by flooding. The transmission line component of the project would involve replacement of existing poles that are already within potentially flood-prone areas, and, thus, would not change the existing condition in this regard. The new wood poles would be 18 inches in diameter, which is insufficient to result in measurable changes in the volume, velocity, or extent of flood hazards due to the small cross-sectional area that they would occupy. The load requirements in California Public Utilities Commission General Order 95, including for wind, snow, and earthquakes, far exceed the load that a flood flow would impose on the transmission line poles. Therefore, these new would poles would neither affect nor be damaged by a 100-year flood flow.

The proposed substation site is not immediately adjacent to any named creeks and is outside of any mapped flood zones; thus, it is unlikely to be affected by a 100-year flood. The design of the Lassen Substation includes drainage infrastructure to route water

around and away from the graded pad. Below-grade components would be protected from water intrusion and the reinforced concrete foundation pads would be slightly elevated relative to the surrounding ground. It should be noted that damage or destruction of PacifiCorp facilities from pre-existing environmental hazards is not grounds for a significant impact determination under the California Environmental Quality Act (CEQA), because the project does not include structures for human occupancy or any public-use facilities.

Given these factors, project impacts related to impeding or redirecting flood flows would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

No Impact. There are no dams or levees upstream of the proposed project components. As indicated above, the nearest dam is Box Canyon Dam, which forms Lake Siskiyou. Because this dam is located downgradient of the proposed project site, there would be **no impact** with regard to levee or dam failure.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

j) Inundation by seiche, tsunami, or mudflow?

Less Than Significant Impact. The project site is not located near a large body of water that could be subject to seiche or tsunami waves. The project site is not located adjacent to steep slopes of hillsides and, thus, is not in an area that is at risk of a mudflow caused by heavy rains or an earthquake. A volcanic eruption on Mount Shasta, which is an extremely unlikely event, could subject the project area to mudflow, but the project does not include any action or activity that would increase the risk to off-site properties or the public from such an event. It should be noted that damage or destruction of PacifiCorp facilities from pre-existing environmental hazards is not grounds for a significant impact determination under CEQA, because the project does not include structures for human occupancy or any public-use facilities. Impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

5.9.5 References Cited

DWR (California Department of Water Resources). 2003. *California's Groundwater*. Bulletin 118. 2003.

DWR. 2016. "Floodplain Information." Best Available Maps Viewer. Accessed August 31, 2016. http://gis.bam.water.ca.gov/bam/.

City of Mount Shasta. 2005. "Safety Element"; "Open Space and Conservation Element." *City of Mount Shasta General Plan*.

CVRWQCB (Central Valley Regional Water Quality Control Board). 2015. *Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley.* Fourth edition. Revised June 2015, with approved amendments.

Google Earth. 2016. Elevation Profile and Slope Information Tool, Mt. Shasta, California. Accessed August 4, 2016.

PacifiCorp. 2015. *Proponent's Environmental Assessment for the Application of PacifiCorp (U 901 E) for a Permit to Construct the Lassen Substation Project*. Prepared by Power Engineers Inc. October 2015.

PacifiCorp. 2016. "Re: CA A.15-11-005. CPUC Data Request 1.0 – Lassen Sub PEA Completeness Review." Memorandum from C. Allen PacifiCorp) to M. Rosauer (CPUC) and I. Fisher (Dudek). January 19, 2016.

PSI (Professional Services Industries, Inc.). 2011. *Preliminary Geotechnical Engineering Report, Proposed Lassen Substation, Mount Shasta, California*. March 11, 2011.

SWRCB (State Water Resources Control Board). 2012. "Final 2012 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report)." Accessed August 31, 2016. http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

USGS (U.S. Geological Survey). 2016. *The National Map*. National Hydrography Dataset Viewer. Accessed August 31, 2016. http://viewer.nationalmap.gov/viewer/nhd.html?p=nhd.

5.10 Land Use and Planning

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

5.10.1 Environmental Setting

The proposed project is predominantly located within Siskiyou County (County), in central Northern California. All elements of the proposed project associated with the substation and the upgrade to the transmission lines occur within the County. Elements of the distribution line upgrade are split between Siskiyou County and the City of Mount Shasta.

Within the County, a wide range of local land uses exist. The economy of the Mount Shasta/Siskiyou County area depends most heavily on recreation, travel, agriculture, and timber, with woodlands and open space occupying the majority of the County acreage, as described in Table 5.10-1.

Table 5.10-1
Siskiyou County Land Use

Type of Use*	Percentage of Total
Agriculture (cropland and pasture)	12.1
Dry grassland	11.2
Barren and sage	19.3
Woodlands	55.3
Water bodies, marshland	0.8
Urban (settlement areas, including roadways and industry)	1.3

Source: County of Siskiyou 1980.
* Includes incorporated and unincorporated County, excluding land in public ownership.

Local

The project site is located approximately 0.2 mile west of the Interstate 5 corridor. The proposed substation site consists of two parcels (Assessor's Parcel Number (APN) 036-220-280 and APN 036-220-170) composing 4.5 acres in unincorporated Siskiyou County/City of Mount Shasta spheres of influence. The site is located in a rural residential area composed of residences and assorted outbuildings, undeveloped land, and the existing Mount Shasta Substation.

On APN 036-220-280, the existing property consists of a two-story wooden framed house and assorted outhouses and sheds. There is an on-site well and an on-site septic tank. APN 036-220-170 contains a single-story mobile home plus outhouses and sheds; the property also contains an on-site well but is connected to the public sewer system, although it was formerly connected to an on-site septic tank. The nearest rural residences to the proposed substation site are approximately 350 feet to the south and 450 feet to the southeast.

The existing 69-kilovolt transmission line is located on undeveloped land within unincorporated Siskiyou County and near the City of Mount Shasta. The distribution lines are located in unincorporated Siskiyou County and extend into the City of Mount Shasta. A mix of rural residences, pastures, wetlands, commercial businesses, and other various land uses generally characterizes land use in the project vicinity.

5.10.2 Regulatory Setting

Federal

No federal plans were identified as applicable to the proposed project.

State

California Public Utilities Commission

Pursuant to California Public Utilities Code 1001, the California Public Utilities Commission (CPUC) has sole and exclusive jurisdiction over the siting and design of the proposed project because it authorizes the construction, operation, and maintenance of investor-owned public utility facilities. Although such projects are typically exempt from local land use zoning regulations and discretionary permitting, California Public Utilities Code 1002(a) requires the CPUC to consider the following community factors: community values, recreational and park areas, historical and aesthetic values, and influence on the environment, which are reflected in local land use plans.

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

Local

Siskiyou County General Plan

The Siskiyou County General Plan consists of eleven elements: Land Use, Conservation, Circulation, Housing, Open Space, Safety, Noise, Energy, Geothermal, Scenic Highway, and Seismic. The General Plan Land Use Element was adopted in 1980 and the Land Use Policies were updated in 1997; the Energy Element was last adopted in 1993. The Housing Element was adopted in August 2014.

Land Use Element

As stated in PacifiCorp 2015:

> The General Plan Land Use Element does not contain mapping for specific land use designations. Rather than delineating future land use patterns on a single general plan land use map, the county uses a series of overlay maps to identify development constraint areas. In doing so, the county directs future development toward areas where critical natural resources will be avoided and, consequently, the least affected. Therefore, the location, distribution, and concentration of land uses in an area typically depend on the presence or absence of natural resources at that location. According to the Land Use Element of the Siskiyou County General Plan, the proposed project would be within the following mapped resource overlay areas: Wildlife Hazard, Woodland Productivity, Erosion Hazard, Prime Agricultural Soils, and Water Quality.

The following are the applicable policies established for development within those mapped resource areas (County of Siskiyou 1980):

Map 10. Wildfire Hazard

Policy 30. All development proposed within a wildfire hazard area shall be designed to provide safe ingress, egress, and have an adequate water supply for fire suppression purposes in accordance with the degree of wildfire hazard.

Map 11. Woodland Productivity

Policy 31. The minimum parcel size shall be one acre on 0–15% slope, and five acres on 16–29% slope.

Policy 32. Single family residential, light commercial, light industrial, open space, non-organizational in nature recreational uses, commercial/recreational uses, and public or quasi-public uses only may be permitted. The permitted uses will not create erosion or sedimentation problems.

Policy 33. All land uses and densities shall be designed so as not to destroy timber productivity on large parcels of high suitability woodland soil (Class I and II).

Map 2: Erosion Hazard

Policy 7. Specific mitigation measures will be provided that lessen soil erosion, including contour grading, channelization, revegetation of disturbed slopes and soils, and project timing (where feasible) to less the effect of seasonal factors (rainfall and wind).

Map 12: Prime Agricultural Soils

Policy 34. All Class I, II and III soils, that become Class III under irrigation, with the exception of Class III soils determined to be non-irrigable, are defined as prime agricultural land.

Policy 35. The minimum parcel size on prime agricultural land shall be 40 acres.

The permitted density will not create erosion or sedimentation problems.

Policy 35.1. Within the Tule lake Basin, a one-time land division can be considered containing an existing dwelling and 2.5 acres of land, provided the landowner has resided continuously within the residence since August 12, 1980, on property zoned Prime Agricultural (AG-1). This policy will allow the consideration of the division, subject to the rezoning on the proposed "homestead parcel" from Prime Agricultural to Rural Residential, 2.5 acre minimum parcel size

(R-R-B-21/2). The balance of the farm will be required to meet the 40 acre Prime Agricultural minimum parcel size requirement as defined in Policy 35. This policy does not apply to land subject to a Williamson Act Contract (General Plan Amendment).

Policy 35a. Exceptions to the agricultural density requirement can only be made when the division of land is necessary to allow private financing of a land use, excluding residential housing, which is strictly agricultural in nature and necessary for the operation of the farming unit. The parcel created for private financing purposes must only be as large as necessary to construct the agricultural use and still meet minimum health and safety requirements. Written documentation from the applicable financing agency or company that the land division is necessary for financing is required as proof until the proposed division of land is necessary (General Plan Amendment).

To conform to General Plan requirements, the property must be zoned PD, with the only allowable use the specific use for which the parcel is being created.

Policy 36. In commercial agricultural areas mapped as prime agricultural land but proven not to be prime agricultural land or land clearly committed to urbanization, but not within a city or service district sphere of influence, the minimum parcel size shall be 10 to 12 acres, depending on distance from major agricultural areas.

The permitted density will not create erosion or sedimentation problems.

A minimum parcel size of 20 acres is required in areas that are adjacent to or in close proximity to major commercial agricultural operations.

The intent of this policy is to allow a higher density on land that is not capable of being productive for agricultural, and at the same time regaining a residential density in the major agricultural areas of the county that is compatible with agricultural interests.

Policy 36.1. Except in Scott Valley, Prime Agricultural policies shall not apply to lands within one-quarter mile of an incorporated in the following circumstances:

a. The property is contiguous to lands developed as heavy commercial or heavy industrial.
b. The land is not within a sphere of influence or not presently eligible for such designation or annexation.
c. The land is proposed for immediate development as heavy commercial or heavy industrial.
d. The land will be zoned Planned Development to authorize the requested specific land use.

e. The landowner will enter into a Development Agreement with the County to ensure the prompt development as requested.

f. This policy shall not apply to lands under a Williamson Act Contract.

Policy 37. Only agricultural uses are permitted on prime agricultural land.

Policy 38. In commercial agricultural areas mapped as prime agricultural land but proven not to be prime agricultural land, single-family residential, light commercial, light industrial, open space, non-profit and non-organizational in nature recreational uses, commercial/recreational uses and public or quasi-public uses may be permitted.

The permitted uses will not create erosion or sedimentation problems.

Policy 39. Proof that mapped prime agricultural soils are in fact not prime can only be done by providing the following information:

a. Submission of a soils test prepared by a California Certified Soil Scientist.

b. Submission of well logs that specifically demonstrate there is not enough water available for irrigation purposes.

c. A letter from the applicable irrigation district stating that they will not and cannot provide water.

d. Any other factual, documented information that the area is not and has not been capable of supplying enough water for irrigation.

e. If an on-site field inspection by the Planning Department reveals that the land is not prime agricultural, the data itemized in *a, b, c,* and *d* above may not be required; i.e., obvious mapping errors.

f. Submission of past financial records or statements that the agricultural operation is not economically feasible are not in any way considered to be adequate proof that the land is not prime.

Policy 40. All development proposals within an irrigation district shall conform to all rules, regulations, and policies of the applicable irrigation district. The intent of this policy is not to permit district regulation of land use or density, it is intended to prohibit any interference of the district's functions, such as keeping checks and irrigation ditches free and clear of any disturbance.

Map 6: Water Quality

Policy 17. Known poor quality surface and groundwater sources shall be identified and reported to the Planning Department for future development reference.

Policy 18. Because of the incidence of heavy metals, including arsenic, and other known non-potable water sources throughout Siskiyou County, random sampling should be undertaken to monitor the acceptability of water supplies for development purposes.

Policy 19. The minimum parcel size shall be one acre on 0–15% slope, and 5 acres on 16–29% slope.

The permitted density will not create erosion or sedimentation problems.

Policy 20. Single-family residential, light industrial, light commercial, open space, non-profit and non-organizational in nature recreational uses, commercial/recreational uses, and public or quasi-public uses only may be permitted.

The permitted uses will not create erosion or sedimentation problems.

Other Policies Applicable to the Proposed Project

Policy 41.3(b). All light commercial, light industrial, multiple family residential, and commercial/recreational, public, and quasi-public uses must provide or have direct access to a public road capable of accommodating the traffic that could be generated from the proposed use.

Policy 41.3(e). All proposed uses of the land shall be clearly compatible with the surrounding and planned uses of the area.

Policy 41.3(f). All proposed uses of the land may only be allowed if they clearly will not be disruptive or destroy the intent of protecting each mapped resource.

Policy 41.4. Policy conflict with city or special district General Plan — in areas within a city's or special district's sphere of influence, the adopted General Plan of the applicable city or special district shall be considered in relation to the County's General Plan Policies, except in cases where the applicable city's General Plan clearly does away with the intent of any applicable resource map.

Policy 41.5. All development will be designed so that every proposed use and every individual parcel of land created is a buildable site, and will not create erosion, runoff, access, or fire hazard or any other resource or environmental related problems.

Policy 41.6. There shall be a demonstration to the satisfaction of the Siskiyou County Health Department and/or the California Regional Water Quality Control Board that sewage disposal from all proposed development will not contaminate ground water.

Policy 41.7. Evidence of water quality and quantity acceptable to the Siskiyou County Health Department must be submitted prior to development approval.

Policy 41.8. All proposed development shall be accompanied by evidence acceptable to the Siskiyou County Health Department as to the adequacy of on-site sewage disposal or the ability to connect into an existing city or existing Community Services District with adequate capacity to accommodate the proposed development. In these cases the minimum parcel sizes and uses of the land permitted for all development will be the maximum density and lands uses permitted that will meet minimum water quality and quantity requirements, and the requirements of the county's floodplain management ordinance.

Policy 41.9. Buildable, safe access must exist to all proposed uses of land. The access must also be adequate to accommodate the immediate and cumulative traffic impacts of the proposed development.

Policy 41.12. All significant historic and prehistoric places and features when identified shall be preserved and protected in accordance with accepted professional practices.

Policy 41.13. All rare and endangered plant species as identified and recognized by state and federal government shall be preserved and protected in accordance with accepted professional practices.

As long as a project does not violate these policies, it will be deemed consistent with the County's General Plan. Goals and policies relating to transmission lines were not identified in the Land Use Element.

Energy uses and opportunities are assessed in the Siskiyou County General Plan Energy Element. This element establishes countywide goals and policies relating to energy. Relevant goals and policies are listed below.

Energy Element

The Siskiyou County General Plan Energy Element states (County of Siskiyou 1993):

> [a]lthough many state and federal agencies maintain that their legal authorities preempt local permitting, most California counties continue to ask for and receive use permit applications from transmission facility developers.

The following Energy Element goal and policies would be applicable to the proposed project (County of Siskiyou 1993):

Goal – Energy Facilities: Thorough and expeditious evaluation of energy facility proposals; siting of such facilities in a timely, orderly, and environmentally-sound manner; and assurance of the compatible and environmentally-sound operation, maintenance, and eventual abandonment of such facilities.

Policy 31. Energy facilities shall only be approved if in compliance with all applicable provisions of the General Plan and Zoning Ordinance; and construction shall start only after all applicable federal, state, and local permits have been obtained and permit conditions satisfied.

Policy 32. In the absence of compelling or contravening considerations, energy facilities should not be sited in sensitive natural resource areas, including: unstable geologic or soil areas; floodplains; wetlands; habitat of fish or wildlife species of rare, threatened, endangered, or special concern status; known paleontological, archeological, ethnographic, or historical sites; or designated scenic areas. If siting in such areas is unavoidable, it shall be limited to the smallest possible portion of the energy facility in question, and shall be mitigated in accordance with CEQA.

Policy 33. Wherever possible, increased demand for energy transmission shall be accommodated with existing transmission facilities. Where new capacity is necessary, priority shall be given to upgrading or reconstruction of existing facilities, followed by new construction along existing facilities, followed by new construction along existing transmission or other utility corridors. Any new transmission facilities shall be sited so as to minimize interference with surrounding land-uses, and in ways that minimize their visual impacts.

Siskiyou County Zoning

Zoning districts are used to regulate how the land can be used in the County. The proposed project would traverse parcels with Multiple-Family Residential (RES-4), Neighborhood Commercial (C-U), Rural Residential Agricultural (R-R), Non-Prime Agricultural (AG-2), and Planned Development (P-D) zoning designations (PacifiCorp 2015) (Table 5.10-2).

Table 5.10-2
General Plan and Zoning Designations for the Proposed Project – Siskiyou County

Project Component	APN	General Plan Designation	Siskiyou County Zoning Designation
New substation	036-220-280	Prime Agricultural Soils, Wildfire Hazard, Woodland Productivity	R-R-B-5
New substation	036-220-170	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Water Quality, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-190-220	Wildfire Hazard, Woodland Productivity	RES-4, C-U
Transmission line upgrade	036-220-110	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-220-120	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-220-140	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-220-150	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-220-280	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-220-170	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-220-190	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-220-200	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-220-220	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-220-230	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-5
Transmission line upgrade	036-220-260	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	AG-2
Transmission line upgrade	036-220-370	Erosion Hazard, Wildfire Hazard, Prime Agricultural Soils, Woodland Productivity	R-R-B-1
Transmission line upgrade	036-460-121	Erosion Hazard, Wildfire Hazard, Woodland Productivity	P-D (R-R)

Source: PacifiCorp 2015.
Note: APN = Assessor's Parcel Number.

City of Mount Shasta General Plan

The project site is located within an area historically known as the Strawberry Valley. Distribution line upgrades and poletop transformers would be located within the City of Mount Shasta. The remaining components of the project would be located in the City of Mount Shasta's Sphere of Influence.

The City of Mount Shasta's General Plan was updated in 2007 and provides the community development plan through 2025. The general plan includes the following elements: Land Use, Circulation, Safety, Noise, Housing, and a combined Open Space/Conservation Element (City of Mount Shasta 2007). The City of Mount Shasta planning staff prepared a Draft Housing Element for the 2014–2019 planning period in August 2014 (City of Mount Shasta 2014).

The City of Mount Shasta's General Plan Land Use Map classifies the project site (transmission line upgrade component) as CC (Commercial Center) (PacifiCorp 2015). The CC land use designation is intended for a wide range of commercial, office, retail, service, and entertainment uses. The General Plan (Planning Map) designates the substation component and transmission line upgrade as Low-Density Residential and Rural Residential. Low-Density Residential development consists of single-family housing areas classified as located on larger parcels (PacifiCorp 2015). According to the General Plan, "An issue related to Low-Density Residential development is the case that most of this type of development outside the City utilizes septic tanks and individual wells" (City of Mount Shasta 2007). Land immediately east of the proposed project site is under the jurisdiction of the City of Mount Shasta and has been designated CC, EC (Employment Center), and RL (Resource Land) (PacifiCorp 2015).

Circulation Element

The Circulation Element contains goals and policies that address streets and highways, public transit, rail and air transportation, non-motorized transportation, and public utilities. The following goal and policy that would be applicable to the proposed project (City of Mount Shasta 2007):

Goal CI-9: Ensure adequate utilities to meet community needs.

Implementation Measures:

CI-9.1(b): Support efforts by utilities to upgrade and improve service to the Mount Shasta area.

City of Mount Shasta Zoning

Parts of the proposed transmission line upgrades would be within the jurisdiction of the City of Mount Shasta in areas zoned U (Unclassified). The Unclassified (U) zoning district is intended to provide opportunities for development proposals with conditional use permits, consistent with the applicable General Plan land use designation, in areas that have unique development constraints. The U zone is consistent with all land use classifications of the General Plan (PacifiCorp 2015).

5.10.3 Applicant Proposed Measures

No applicant proposed measures are proposed for land use for the proposed project.

5.10.4 Environmental Impacts and Mitigation

a) Would the project physically divide an established community?

No Impact. The proposed project would be located in a predominantly rural area and would be consistent with the existing community. The proposed project would upgrade and replace existing facilities in existing easements and existing roadways; therefore, it would not introduce substantial barriers that would alter or shift the existing community. Therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. Pursuant to Public Utilities Code 1001, as implemented in General Order 131-D, the CPUC has sole and exclusive jurisdiction over the siting and design of the proposed project. It authorizes the construction, operation, and maintenance of PacifiCorp transmission facilities in California. The proposed project is therefore exempt from local land use zoning regulations and discretionary permitting. Since local City of Mount Shasta and County jurisdictions retain no discretionary action over the project, their plans are not applicable to the proposed project. However, the CPUC is expected to consider local land use polices and zoning when permitting substations and transmission line facilities.

Absent the CPUC pre-emption, only substation construction would require a conditional use permit as defined by Chapter 10.6 of the Siskiyou County Municipal Code (PacifiCorp 2015). The County designates the location of the substation as Rural Residential District (R-R). The Siskiyou County General Plan identifies the substation location as being located within a Wildlife Hazard Area, Woodland Productivity Area, Erosion Hazard Area, Prime Agricultural Soils Area, and Water Quality Area (PacifiCorp 2015).

Wildlife Hazard Area – The project was designed with ingress and egress points that satisfy fire access requirements (see Figure 4-6 in Section 4). Fire hazards are discussed

in detail in Section 5.8, Hazards and Hazardous Materials, as is implementation of MM-HAZ-2 (Lassen Substation Project Fire Plan). Impacts related to wildland fire hazards due to construction activities would be less than significant and therefore consistent with Wildlife Hazard Area goals and policies.

Woodland Productivity and Prime Agricultural Soils Area – The proposed project site is currently the site of two abandoned single-family dwellings. Since the site is already occupied by a compatible non-woodland/non-agricultural use, construction of the substation would not divide, subdivide, or otherwise adversely affect woodland or agricultural resources, nor would it adversely affect adjacent or other local resources. Therefore, the proposed project is consistent with Woodland Productivity policies and goals and Prime Agricultural Soils Area policies and goals.

Erosion Hazard Area and Water Quality Area – As discussed in Section 5.9(c), the proposed project would not adversely affect existing drainage patterns in a manner that would result in substantial erosion. The project would therefore be consistent with erosion hazard policies. Similarly, for the reasons given in Section 5.9.4(a), the project would not adversely affect water quality during construction or operation. The project would therefore be consistent with applicable Erosion Hazard Area and Water Quality Area policies.

The proposed project is therefore consistent with Siskiyou County and City of Mount Shasta ordinances, and **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. The proposed project alignment would not be located on lands within the geographic boundaries of any habitat conservation plan or natural community conservation plan; therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.10.5 References Cited

City of Mount Shasta. 2007. *City of Mount Shasta General Plan*. Update adopted August 22, 2007.

City of Mount Shasta. 2014. City of Mt. Shasta 2014–2019 Housing Element, HCD Draft. May 2014. http://www.hcd.ca.gov/housing-policy-development/housing-resource-center/plan/he/housing-element-documents/mount_shasta_5th_draft051414.pdf.

County of Siskiyou. 1980. "Land Use and Circulation Element." Siskiyou County General Plan August 12, 1980. https://www.co.siskiyou.ca.us/sites/default/files/docs/GP_LandUse-CirculationElement.pdf.

County of Siskiyou. 1993. "Energy Element." *Siskiyou County General Plan*. March 1993. https://www.co.siskiyou.ca.us/sites/default/files/docs/GP_EnergyElement.pdf.

PacifiCorp. 2015. *Proponent's Environmental Assessment for the Application of PacifiCorp (U 901 E) for a Permit to Construct the Lassen Substation Project*. Prepared by Power Engineers Inc. October 2015.

5.11 Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
MINERAL RESOURCES – Would the project:				
a) 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?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

5.11.1 Environmental Setting

A mineral resource area refers to land on which known deposits of commercially viable mineral or aggregate deposits exist. Mineral resources include oil, natural gas, and metallic and non-metallic deposits.

The geology of the project area is described in Section 5.6, Geology and Soils, which indicates the project is underlain by alluvial deposits derived from volcanic rocks. The surrounding region is composed of mountains composed of volcanic and metamorphic rocks, as well as a series of distinct cinder cones. Prospects, past and present mines, and mineral commodity producers in the surrounding area have occurred for the following resources: gold, mercury, and uranium; sand and gravel; volcanic cinders; optical grade calcite; and clay, coal, stone, diatomite, limestone, obsidian, perlite, and pumice (PacifiCorp 2015; USGS 2016).

Oil, Gas, and Geothermal Resources

According to maps prepared by the California Division of Oil, Gas, and Geothermal Resources (DOGGR 2016), as well as a the Phase I environmental site assessment prepared for the project (Enplan 2015), no oil, natural gas, or geothermal resource areas are located in or adjacent to the project site.

Aggregate Resources

The areas underlying the project site are unlikely to be valuable from a mineral resource perspective, given the poorly sorted, fine-grained/clayey and boulder-rich character of the alluvium (PSI 2011).

The California Geological Survey (formerly the California Division of Mines and Geology) has classified mineral resources into mineral resource zones, in accordance with the California Surface Mining and Reclamation Act of 1975 (SMARA). Specific to aggregate resources, the California Geological Survey has divided California into Production-Consumption (P-C) Regions for the purpose of studying aggregate resource production and demand, classifying areas into MRZs, and identifying aggregate resource sectors. The California Geological Survey (2016) has not mapped or designated mineral resource zones within Siskiyou County. This does not necessarily mean that none occur, but that the occurrence, value, and/or demand for the resources are not high enough to have warranted active state management/classification in the region.

The closest mine to the project area, as reported in the U.S. Geological Survey Mineral Resources Online Spatial Database, is the Mount Shasta Pit, which is a gravel pit located about 2 miles north of the transmission alignment (USGS 2016). In addition, the City of Mount Shasta General Plan Open Space and Conservation Element identifies two mines in the vicinity (City of Mount Shasta 2005). The Spring Hill Mine, owned and operated by Sousa Ready Mix, is located within the City limits east of Interstate 5 at the north end of the City, or about a mile north-northwest of the northern end of the distribution line alignment. Sousa Ready Mix also owns and operates the site known as the Upton Pit, outside the City limits on the west side of Interstate 5, south of Abrams Lake Road. The Upton Pit has been mined for aggregate for many years, and the facility imports and processes aggregate from the Spring Hill Mine. The Upton Pit facility contains the operation's concrete batch plant and crushing, screening, and washing facilities. This will be the most likely source of construction-grade aggregate to be used for construction of the proposed Lassen Substation.

5.11.2 Regulatory Setting

Federal

There are no relevant federal mineral resource regulations applicable to the proposed project.

State

California Surface Mining and Reclamation Act

SMARA, as codified in the California Public Resources Code (Section 2710 et seq.), provides a comprehensive surface mining and reclamation policy for the regulation of surface mining operations to ensure that adverse environmental impacts are minimized and mined lands are restored to a usable condition. SMARA also encourages the production, conservation, and protection of the state's mineral resources. Section 2207 of the California Public Resources Code

provides annual reporting requirements for all mines in the state, and the State Mining and Geology Board is granted authority and obligations under this section.

SMARA also mandates the classification of lands with valuable mineral resources so that land use decisions that may affect mineral-bearing lands can be made with the knowledge of these resources. The State Mining and Geology Board classified land in California based on the availability of mineral resources. Four mineral resource zone classifications have been established for classifying sand, gravel, and crushed rock resources. The project area has not been classified with mineral resource zones under SMARA, but any mines in the larger region are subject to SMARA.

Local

The Siskiyou County General Plan has no goals or policies specific to mineral resources.

The City of Mount Shasta General Plan has policies relevant to mineral resources in its Open Space and Conservation Element:

Policy OC-6.1: Allow mineral and aggregate resource lands at appropriate locations to be commercially developed for purposes of providing construction material and industrial minerals for the area (City of Mount Shasta 2005).

5.11.3 Applicant Proposed Measures

There are no applicant proposed measures applicable to mineral resources.

5.11.4 Environmental Impacts and Mitigation

a) Would the project 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?

No Impact. As indicated in Section 5.11.1, Environmental Setting, there are no known mineral resources of value to the region that underlies the proposed project site. PacifiCorp's transmission line is located within an already dedicated easement that is not currently available for mineral resource extraction. Further, portions of the transmission and distribution line routes located within public road rights-of-way are also not currently available for mineral resource extraction. In addition, the proposed new substation site is underlain by alluvium that is unlikely to be of value for aggregate. Finally, the project would not preclude or hinder access to mineral resources and mines in the larger region. For these reasons, the project would have **no impact** with respect to mineral resources.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. The local jurisdictions in the project area do not identify any additional mineral resource areas or locally important mineral resource recovery sites beyond those already identified in the Environmental Setting. There would be **no impact** from the project to mineral resources for the same reasons discussed in Section 5.11.4(a).

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.11.5 References Cited

California Geological Survey. 2016. "CGS Information Warehouse: Mineral Resources." Accessed August 8, 2016. http://maps.conservation.ca.gov/cgs/informationwarehouse/index.html.

City of Mount Shasta 2005. "Open Space and Conservation Element." *City of Mount Shasta General Plan*. 2005.

DOGGR (California Division of Oil, Gas and Geothermal Resources). 2016. "Oil, Gas & Geothermal - District 6 Maps." Website accessed 9/2/2016 at http://www.conservation.ca.gov/dog/maps/Pages/d6_index_map1.aspx.

Enplan. 2015. *Phase I Environmental Site Assessment, Lassen Substation Project, Siskiyou County, California*. Prepared for Power Engineers. July 20, 2015.

PacificCorp. 2015. *Proponent's Environmental Assessment for the Application of PacifiCorp (U 901 E) for a Permit to Construct the Lassen Substation Project*. Prepared by Power Engineers Inc. October 2015.

PSI (Professional Services Industries, Inc.). 2011. *Preliminary Geotechnical Engineering Report, Proposed Lassen Substation, Mount Shasta, California*. March 11, 2011.

USGS (U.S. Geological Survey). 2016. "Mineral Resources Online Spatial Data." Accessed September 2, 2016. http://mrdata.usgs.gov/website/MRData-US/viewer.htm.

5.12 Noise

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
NOISE – Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

5.12.1 Noise Background and Terminology

Fundamentals of Environmental Noise

Vibrations, traveling as waves through the air from a source, exert a force perceived by the human ear as sound. Sound-pressure level (referred to as sound level) is measured on a logarithmic scale in decibels, which represents the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second, or hertz. The normal frequency range of hearing for most people extends from approximately 20 to 20,000 hertz. The human ear is more sensitive to middle and high frequencies, especially when noise levels are on the quieter range. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise is to humans was developed. The frequency weighting, called "A" weighting, is typically used for quieter noise levels, and de-emphasizes the low-frequency components of the sound in a manner similar to the response of a

human ear. This A-weighted sound level is called the "noise level" and is referenced as an A-weighted decibel (dBA).

An individual's noise exposure occurs over a period of time, but noise level is a measure of noise at a given instant in time. Community noise sources vary continuously as the product of different noise sources from various distances, all of which constitute a relatively stable background, or ambient, noise environment. Ambient noise levels change throughout a typical day, corresponding to such things as traffic volume and changes in atmospheric conditions.

Noise levels are generally higher during the day and early evening when traffic (including airplanes) and commercial and industrial activities are the greatest. However, noise experienced during nighttime hours, when ambient levels are generally lower, can be potentially more conspicuous and irritating to the receiver than noise during the day. To evaluate noise in a way that considers these fluctuations, a concept termed "community noise equivalent level" (CNEL) was developed, which represents averaged noise levels over a 24-hour period to reflect magnitude, duration, frequency, and time of occurrence (see the definition of CNEL provided below).

Different types of measurements are used to characterize the time-varying nature of sound. These measurements include equivalent sound level (L_{eq}), minimum and maximum sound levels (L_{min} and L_{max}), day–night sound level (L_{dn}), and CNEL. Below are brief definitions of these measurements and other terminology used in this section.

- **Decibel** (dB) is a unitless measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- **A-weighted decibel** (dBA) is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Equivalent sound level** (L_{eq}) is the constant level that, over a given time period, transmits the same amount of acoustic energy as the actual time-varying sound. Equivalent sound levels are the basis for day–night average sound levels (L_{dn}) and CNEL scales.
- **Maximum sound level** (L_{max}) is the maximum sound level measured during the measurement period.
- **Minimum sound level** (L_{min}) is the minimum sound level measured during the measurement period.
- **Day–night average sound level** (L_{dn}) is a 24-hour average A-weighted sound level with a 10 dB penalty added to the nighttime and morning hours of 10:00 p.m. to 7:00 a.m. The 10 dB penalty is applied to account for increased noise sensitivity during these hours. Resulting

values from application of L_{dn} versus CNEL rarely differ by more than 1 dB; therefore, these two methods of describing average noise levels are often considered interchangeable.

- **Community noise equivalent level** (CNEL) is the average equivalent A-weighted sound level during 24 hours. CNEL accounts for the increased noise sensitivity during the evening hours of 7:00 p.m. to 10:00 p.m., and the nighttime and morning hours of 10:00 p.m. to 7:00 a.m. These are accounted for by adding 5 dB to the sound levels in the evening and 10 dB to the sound levels in the night/early morning. CNEL and L_{dn} are often considered equivalent descriptors.

Exterior Noise Distance Attenuation

Noise sources are classified in two forms: (1) point sources, such as stationary equipment or a group of construction vehicles and equipment working within a spatially limited area at a given time, and (2) line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dBA for each doubling of distance from the source to the receptor at acoustically "hard" sites, and at a rate of 7.5 dBA for each doubling of distance from source to receptor at acoustically "soft" sites. Sound generated by a line source (i.e., a roadway) typically attenuates at a rate of 3 dBA per doubling distance for hard sites, and 4.5 dBA per doubling distance for soft sites. Sound levels can also be attenuated by built or natural barriers. For the purpose of a sound attenuation discussion, a "hard" or reflective site is typically characterized by asphalt or concrete ground surfaces and by very hard-packed soils, and an acoustically "soft" or absorptive site is characterized by unpaved, loose soil or vegetated ground.

Fundamentals of Vibration

Vibration is an oscillatory motion that can be described in terms of displacement, velocity, or acceleration. The response of humans to vibration is complex, but it is generally accepted that it is best approximated by vibration velocity.

Heavy equipment operation, including stationary equipment that produces substantial oscillation or construction equipment that causes percussive action against the ground surface, may cause perceptible vibration for receptors. It is also common for groundborne vibration to cause windows, pictures on walls, or items on shelves to rattle. Although the perceived vibration from such equipment can be intrusive to building occupants, the vibration is seldom of sufficient magnitude to cause even minor damage to buildings.

The abbreviation VdB is used for vibration decibels. The vibration threshold of perception for most people is approximately 65 VdB. Vibration levels in the range of 70 to 75 VdB are often

noticeable but generally deemed acceptable, and levels in excess of 80 VdB are often considered unacceptable (FTA 2006).

5.12.2 Environmental Setting

Noise can be defined as unwanted sound, and sound is a pressure variation in the air that is detectable by the human ear. Pressure variations that occur at a minimum frequency of at least 20 times per second are audible to the human ear. Impacts from noise range from the inconvenient, such as interference with sleep and speech and can cause stress and annoyance, to more severe levels that can result in adverse health effects (e.g., loss of hearing or psychological damage).

Noise impacts to people can be placed into three categories (PacifiCorp 2015):

- Subjective effects of annoyance and nuisance
- Interference with activities such as speech, sleep, and learning
- Physiological effects such as sudden startling or hearing loss

Typical noise from surrounding human environments usually produces impacts in the first two of the above three categories. People who work in loud environments, such as at industrial plants, can experience noise in the last category.

The subjective and psychological effects of noise can be difficult to measure, especially rating reactions such as annoyance and nuisance. A wide variation exists in individual thresholds of annoyance, and different tolerances to noise can be related to an individual's past experiences with noise and their ability to "tune it out."

One way to predict a person's reaction to a new noise environment is the way new noise compares to existing ambient noise. Generally, the more a new noise exceeds the previous ambient noise level, the less acceptable the new noise will be judged by those hearing it. The following guidelines can be used to gauge a perceived level of change (PacifiCorp 2015):

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference when the change in noise is perceived but does not cause a human response.
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected.

- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

The above relationships occur, in part, because of how sound is perceived and measured. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA (PacifiCorp 2015).

Radio Noise

Radio interference and television interference are collectively known as radio noise. Radio interference occurs in the range of 535 to 1,605 kilohertz, and television interference occurs in the range of 54 to 88 megahertz (MHz). Radio noise interference to transmission line operation can occur during inclement weather conditions from what are called corona discharges and gap discharges. Corona discharges can occur when air surrounding a transmission line becomes ionized by the electrical field when it reaches a sufficiently high value at a particular point. Corona discharges are typically associated with transmission lines operating at voltages greater than 200 kilovolts (kV), and are most significant during inclement weather (typically rain), when water droplets occur on and trickle off of conducting wires. Cable and satellite systems are not prone to corona effects. Gap discharges, or "sparking," can occur between pieces of transmission line equipment that are poorly fit together, including hardware, insulators, clamps, and brackets. Gap discharges occur most often during dry weather, since dampness on the line can minimize resistance in the connection, allowing the current to flow freely. Gap discharges are the primary cause of television interference, and tend to interfere with broadcasts in the UHF range (greater than 300 MHz) (PacifiCorp 2015).

Existing Noise Sources

Land uses surrounding the project area consist of rural, open space, residential, commercial, and other uses. The proposed Lassen Substation facility and transmission line would be located within unincorporated Siskiyou County. The City of Mount Shasta is located east of the proposed Lassen Substation site. The majority of the transmission line would be located to the west of the City of Mount Shasta, but approximately 1,200 feet of the transmission line upgrade would be located within the City of Mount Shasta. The area near the distribution line upgrade component consists of residences, including an apartment community for older adults; undeveloped land; medical facilities; commercial buildings; and Interstate 5 (I-5).

The primary contributors to noise in the project area are traffic along I-5 and other local roadways, and fixed noise sources relating to residential and commercial uses.

Interstate 5

I-5 is approximately 0.2 mile from the proposed project site in a rural residential area. According to the City of Mount Shasta General Plan Noise Element (Table 7-1 of the Noise Element), L_{dn} ranged from 65 dBA at a distance of 464 feet from I-5 to 60 dBA at a distance of 999 feet from I-5 in 2006 (City of Mount Shasta 2007). The proposed distribution line would cross I-5 in three locations: approximately 170 feet south of Lassen Lane, at Jessie Street, and approximately 355 feet south of West Lake Street.

Sensitive Receptors

Noise-sensitive land uses are locations where people reside or areas where unwanted sound could adversely affect users at the location. Noise-sensitive receptors include schools; residences, including housing for older adults; hospitals; and certain types of businesses. Excessive noise in an area may result in the loss of local business and annoy residents. Land uses in the vicinity of the proposed Lassen Substation consist of pastureland and open space to the north, and rural residences to the south. Land uses in the vicinity of the transmission line (Line 2) primarily consist of rural residential uses, open space, and agricultural land. Land uses in the vicinity of the distribution lines consist of rural/open space, residences, commercial uses, I-5, and medical facilities. Most of the residences in the project area are located in the City of Mount Shasta, but residences are scattered throughout the project area.

The nearest existing noise-sensitive receptors that would potentially be impacted by construction and operation of the proposed project are residences. Residential dwellings potentially impacted by installation of new poles and replacement of existing poles along the transmission line are located at various distances from proposed pole locations. The majority of the residential uses are located south of the existing and proposed substation sites, and a few scattered residences occur north of the substation sites. These residences occur approximately 70 feet to 580 feet from the pole locations. Sensitive noise receptors near the distribution line upgrade consist of residential uses, including a community for older adults.

5.12.3 Regulatory Setting

Federal

The U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control was established to coordinate noise control activities on the federal level. It issued the federal Noise Control Act of 1972, which established programs and guidelines to identify and address the effects of noise on public health and welfare and the environment. Administrators of the EPA determined in 1981 that subjective issues such as noise would be better addressed at lower levels

of government. Consequently, in 1982, responsibilities for regulating noise-control policies were transferred to state and local governments. However, noise-control guidelines and regulations contained in the rulings by EPA in prior years remain upheld by designated federal agencies, allowing individualized control for specific issues by designated federal, state, and local government agencies.

State

California adopted noise standards for areas of regulation not preempted by federal laws. State standards regulate noise of motor vehicles, the transmission of sound through buildings, occupational noise standards, and noise insulation.

Vibration and Groundborne Noise Impact Regulations

The potential for excessive groundborne noise and vibration must be analyzed under the California Environmental Quality Act (CEQA); however, CEQA does not define "excessive." Various public and private organizations and governing bodies have provided guidelines to assist in the analysis of groundborne noise and vibration, but federal, state, and local governments have yet to establish specific groundborne noise and vibration requirements. No federal, state, or local vibration regulations or guidelines are directly applicable to the proposed project.

Local

Siskiyou County General Plan

The Noise Element of the Siskiyou County General Plan contains standards applicable to the proposed project. Table 5.12-1 reflects the land use compatibility standards set by the County of Siskiyou for exterior community noise. Residential land uses are the most sensitive land uses, with a noise limit of 60 dBA L_{dn}. Noise levels for new development within a residential area are limited to 60 to 65 dBA L_{dn}, with noise abatement features incorporated (County of Siskiyou 1978).

The proposed project site is under the jurisdiction of the County of Siskiyou, and land located to the east is under the jurisdiction of the City of Mount Shasta.

Table 5.12-1
County of Siskiyou General Plan Noise Element:
Land Use Compatibility for Exterior Community Noise

Land Use Category	Noise Ranges (dBA L_{dn}*)			
	1	*2*	*3*	*4*
Passively Used Open Space (auditoriums, parks, etc.)	50	50–55	55–70	70
Residential, Motels, Hospitals, etc.	60	60–65	65–75	75
Office Buildings, Light Commercial, Heavy Commercial, etc.	65	65–70	70–75	75

Source: County of Siskiyou 1978.
Notes: * Day-night average sound level that is equal to the 24-hour A-weighted equivalent sound level with a 10 decibel penalty applied to nighttime levels.
Noise Range 1 – Acceptable land use, no noise abatement required.
Noise Range 2 – New construction or development, noise abatement features included.
Noise Range 3 – New construction or development, noise abatement only after detailed analysis of noise reduction requirements.
Noise Range 4 – New construction or development not allowed.

Siskiyou County Municipal Code

Stationary-source noise is typically enforced through a noise ordinance or a jurisdiction's municipal code. The County of Siskiyou does not have an adopted Noise Ordinance; thus, limits on noise are not regulated by the Siskiyou County Municipal Code.

City of Mount Shasta General Plan

There is currently no specific Noise Ordinance to set noise standards in the City of Mount Shasta. However, Policy NZ-1.1(a) of the General Plan Noise Element states that it is the City of Mount Shasta's intent to "enact a noise control ordinance." The Mount Shasta General Plan Noise Element (Table 7-5) establishes noise standards for new uses affected by non-transportation noise. Policy NZ-1.1 states that the "standards of Table 7-5 shall be applied to both new noise-sensitive land uses and new noise-generating uses, with the responsibility for noise attenuation placed on the new use" (City of Mount Shasta 2007).

5.12.4 Applicant Proposed Measures

There are no applicant proposed measures pertaining to noise.

5.12.5 Environmental Impacts and Mitigation

a) Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction

Less Than Significant Impact. Proposed project construction noise would originate from on-site and off-site sources. On-site noise would occur from operation of heavy-duty diesel and gasoline-powered construction equipment. Off-site noise would occur from vehicles commuting to and from the job site, and from trucks transporting material to the staging areas or construction right-of-way. These sources are described below.

On-Site Noise Sources

Construction activities produce both intermittent and continuous noise. On-site construction noise would primarily come from heavy-duty construction equipment (e.g., dozers, backhoes, cranes). Construction activities required to construct the new Lassen Substation would include site preparation and grading; access road construction; concrete and form work; steel installation; equipment installation, testing, and energization; and right-of-way restoration and cleanup. Construction activities associated with the transmission and distribution lines would include access road construction, auger hole drilling, structure assembly and installation, structure erection, wire installation, and right-of-way restoration and cleanup. Construction activities also would include demolition of the existing Mount Shasta Substation and overhead structures. Construction for the Lassen Substation and the upgrade to the transmission and distribution lines would take 6 to 12 months. Work would generally occur 5 days per week for 10 hours per day between 7:00 a.m. and 5:00 p.m. Approximately 43 workers would be required for construction.

Noise from construction equipment at a distance of 50 feet is shown in Table 5.12-2. The maximum intermittent construction noise levels would range from 90 to 100 dBA at 50 feet for backhoes, bulldozers, and cranes for the substation and line construction operations. Direct noise impacts would result from construction activities occurring adjacent to sensitive receptors, such as houses and recreation areas, but this noise would be short term and would occur mostly during daylight hours.

Construction noise levels are calculated based on the assumption that noise from a localized source is reduced by approximately 6 dBA with each doubling of distance from the source. Noise levels for the proposed project would vary for different construction

tasks, but the maximum anticipated noise levels would occur from bulldozers and drilling operations; impacts would be **less than significant**.

Table 5.12-2
Construction Noise Sources

Equipment	Range of Noise Levels (dBA) at 50 Feet
Earth Moving	
Front loaders	66–93
Backhoes	72–92
Tractors, Dozers	68–93
Scrapers, Graders	72–92
Pavers	76–85
Trucks	65–92
Rollers	66–83
Material Handling	
Concrete mixers	67–86
Concrete pumps	68–81
Cranes (moveable)	70–92
Cranes (derrick)	80–83
Forklifts	76–82
Tensioners	76–86
Cable pullers	74–82
Pneumatic tools	
Pneumatic wrenches	84–88
Jack hammers and rock drills	72–93
Compactors	80–83

Source: WIA 1986.

Off-Site Noise Sources

Construction noise from off-site sources during construction would occur primarily from commuting workers and from truck trips to and from the construction site. The procedure for transporting personnel, materials, and equipment to each structure site would vary along the route alignment. It is assumed that truck trips would be required to haul structures, conductor line, and other materials to the construction sites. Peak noise levels associated with passing trucks and commuting worker vehicles (approximately 70 to 75 dBA at 50 feet) would be short term and would generate adverse but **less than significant** impacts.

Operation

Less Than Significant Impact. During the project's operational lifetime, noise generated by the new transformer would be comparable to noise generated by the transformer at the existing Mount Shasta Substation. Based on the specifications of the proposed transformer (115 kV by 69/12.5 kV, 15/20/25 megavolt ampere (MVA)), it would generate noise of approximately 53 dBA at 50 feet and 33 dBA at 500 feet. Thus, transformer noise at the closest residences (345 feet and 450 feet from the proposed project) would not exceed the County of Siskiyou's maximum noise exposure levels from a stationary source.

Compared to the existing 69 kV transmission line, the proposed transmission line would produce a negligible increase in noise levels. Thus, operation of the project's transmission line would not result in the generation of noise louder than 60 dBA, which is the Siskiyou County noise standard for the area. Therefore, potential impacts from operation of the transmission line would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction

Less Than Significant Impact. Demolition of the existing Mount Shasta Substation, construction of the Lassen Substation and associated transmission line, and activities associated with distribution line upgrades (tamping of ground surfaces, drilling, and driving heavy trucks on uneven surfaces) may produce minor groundborne vibrations in the immediate vicinity of construction. Impacts from construction-related groundborne vibration, should they occur, would be intermittent and confined to the immediate area surrounding the activity; therefore, impacts would be **less than significant**.

Operation

Less Than Significant Impact. Operation of the proposed project would involve routine maintenance activities and infrequent emergency repairs. These activities are unlikely to produce perceptible levels of groundborne vibration. Operation of transformers at the Lassen Substation could produce groundborne vibration; however, groundborne

vibrations would be perceptible only in the immediate vicinity of the transformer pad, if at all, and would therefore be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less Than Significant Impact. Permanent noise sources from the proposed project would be limited to the transmission/distribution line (conductors and insulators) and transformer operation at the proposed Lassen Substation.

Transmission Line Operation

Audible Noise

The typical noise range for the proposed transmission line when operated at the initial 69 kV and the planned 115 kV would be negligible at the center of the line and at the edge of the right-of-way because of the low electric field gradients from the transmission line, even in rainy conditions. Compared to the existing 69 kV transmission line, the proposed transmission line would not generate an increase in audible noise. Thus, operation of the project's transmission line would not result in the generation of noise louder than 60 dBA, which is the Siskiyou County noise standard for the area. Therefore, potential impacts from operation of the transmission line would be **less than significant**.

Radio Noise

For transmission lines with typical conductor spacings and rights-of-way, a fair-weather radio interference level of 40 dB per microvolt per meter (dBμV/m) at a lateral distance of 100 feet from the outermost phase has been established as a guideline for design criteria for radio noise limits (EPRI 2006). Radio interference levels from the Mount Shasta Substation transmission line would be less than 20 dBμV/m under fair weather conditions. This would be a **less than significant impact**.

Substation Operation

During project operation, transformers, reactors, voltage regulators, and circuit breakers have the potential to generate audible noise within the proposed substation. Among these sources, transformers and reactors are the most likely to produce audible noise, usually in

the form of a low-frequency humming. Fans, pumps, and coolers can also contribute to the noise level, but typically blend in with existing ambient noise.

The low humming noise generated by operation of substation equipment at the proposed project site would be mostly contained on site and would not result in a permanent increase in ambient noise levels in the vicinity. Residences close to the proposed project site are already exposed to noise associated with operation of the existing Mount Shasta Substation, and operation of a new substation at this location would not result in any appreciable increase to existing average ambient noise. Therefore, the proposed project would not cause a substantial permanent increase in ambient noise levels near the proposed project site above levels existing without the project; impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Construction

Less Than Significant Impact. Project construction noise would be generated by on-site and off-site sources, as discussed in greater detail in significance question (a), above. On-site construction noise would result from operation of heavy-duty construction equipment such as bulldozers, backhoes, and cranes. Off-site noise would be generated by trucks transporting construction materials and by workers traveling to and from the staging areas, transmission line right-of-way, and substation site. Noise from individual pieces of construction equipment would typically range from 70 dBA to 100 dBA at a distance of approximately 50 feet, as indicated in Table 5.12-2. Construction noise would be audible to residences located in the vicinity of the project site. However, these noise levels would be short term and would occur during daytime hours only. Compared to existing noise sources in the area (e.g., vehicles on adjacent roads and I-5, farming equipment), these intermittent noises would not represent a significant change or impact over existing noises in the vicinity.

Demolition of the existing Mount Shasta Substation, construction of the new Lassen Substation, and construction of transmission and distribution line upgrades would involve temporary and intermittent use of trucks to haul construction materials and bring personnel to and from the substation site, staging areas, and transmission and distribution

line rights-of-way. The substation and transmission/distribution line construction activities would occur in rural agricultural areas, although some activities would occur in or adjacent to rural residential areas. Construction activities in proximity to residential areas would occur between 7:00 a.m. and 7:00 p.m.

Although impacts associated with demolition and construction activities would be **less than significant**, the following noise-reducing practices would be in place to further reduce noise produced by these activities:

- Muffler requirements set by the manufacturer would be adhered to.
- Engines would be turned off when not in use, as applicable.
- Unnecessary use of equipment would be minimized.
- Compressors and other small stationary equipment would be shielded with portable barriers.
- "Quiet" equipment (i.e., equipment that incorporates noise-control elements into the design, including some models of jackhammers and compressors) would be used as much as possible.
- Equipment exhaust stacks/vents would be directed away from buildings.
- Truck traffic would be routed away from noise-sensitive areas where feasible.

Operation

Less Than Significant Impact. Operation of the proposed project would involve periodic short-term inspections and maintenance activities. Although the Lassen Substation would not have on-site staff and would, instead, be remotely monitored, routine maintenance activities would occur, consisting of testing, monitoring, and repairing equipment. Maintenance of the transmission/distribution lines would occur on an as-needed basis, and activities would include repairing conductors, replacing insulators, replacing poles, and maintaining the access road. Because operations would involve limited activity, the proposed project would not contribute to a substantial increase in ambient noise in the area and impacts would be **less than significant**.

Significance After Mitigation: Mitigation is not required because impacts would be **less than significant**.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The nearest public use airport is the Dunsmuir Municipal-Mott Airport, located approximately 4 miles southwest of the project site. No noise impacts associated with airport operations are anticipated to affect people working on the project site. No impacts would occur.

Significance After Mitigation: Mitigation is not required because **no impact** would occur.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. No private airstrips are located within the vicinity of the project site. Therefore, the proposed project would not expose people working on the proposed project to excessive noise levels attributable to an airport or private airstrip during construction, operation, or decommissioning. There would be **no impact** as a result of the proposed project.

Significance After Mitigation: Mitigation is not required because **no impact** would occur.

5.12.6 References Cited

City of Mount Shasta. 2007. "Noise Element." *City of Mount Shasta General Plan Revision*. http://mtshastaca.gov/wp/wp-content/uploads/2016/01/7Noise.pdf.

County of Siskiyou. 1978. "Noise Element." *Siskiyou County General Plan*. December 1978. https://www.co.siskiyou.ca.us/sites/default/files/docs/GP_NoiseElement.pdf.

EPRI (Electric Power Research Institute). 2006. EPRI AC Transmission Line Reference Book – 200 kV and Above, Third Edition ("the Redbook"). January 23, 2006.

FTA (Federal Transit Administration). 2006. Transit Noise & Vibration Impact Assessment. Federal Transit Administration, Office of Planning and Environment. May 2006.

PacifiCorp. 2015. *Lassen Substation Proponents Environmental Assessment for the Application of PacifiCorp (U 901 E) for a Permit to Construct the Lassen Substation Project*. Prepared by Power Engineers. October 2015.

WIA (Wilson, Ihrig & Associates Inc.). 1986. Data Recorded from a Calstar Messerschmitt BK 117 Helicopter in Castro Valley, California.

5.13 Population and Housing

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
POPULATION AND HOUSING – Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

5.13.1 Environmental Setting

The proposed project is located in southern Siskiyou County (County). Portions of the project site are located in unincorporated Siskiyou County and within the incorporated City of Mount Shasta (City). The existing substation and site of the proposed substation and new right-of-way (ROW) acquisition are within the City of Mount Shasta's Planning Area, which extends the City's influence and proposed future land use designations into portions of unincorporated County that border the City. The remainder of the project site, those areas proposed for transmission line upgrades along Line 2 and the upgrade of two existing distribution lines, is within existing utility ROWs, portions of which are in Siskiyou County and the City of Mount Shasta. Rural residential, agricultural, and undeveloped land uses predominate in the area around the existing and proposed substation site, and a variety of land uses, including rural and urban residential, Interstate 5 (I-5), commercial and office buildings, light industrial, and a hotel and senior housing community exist in the vicinity of the proposed distribution line upgrades and ROW.

Population

The most recent available Department of Finance data indicates that unincorporated areas in Siskiyou County had an overall population of 44,739 in January 2016, with a population of 24,260 in unincorporated areas of the County and 20,479 in incorporated areas of Siskiyou County. The 2016 population of the City of Mount Shasta is reported as 3,367 (DOF 2016a). Between 2000 and 2010 the U.S. Census population in unincorporated Siskiyou County grew at a relatively slow 2.5% growth rate (Siskiyou County 2014). The Department of Finance (2014) population projections are summarized in Table 5.13-1 and indicate that the population in

Siskiyou County will increase from an estimated 45,400 in 2015 to 46,217 in 2020, which translates into a growth in population of only 1.8% over the 5-year period. This represents a slow rate of population growth in the County overall. From 2020 to 2030, the population is expected to maintain a slow growth rate and increase only 1.7% to 47,013 (DOF 2014).

Table 5.13-1
Estimated Population Growth, Siskiyou County, 2015 to 2020

Year	Population	% Change from Previous 5 years
2015	45,400	0.9%
2020	46,217	1.8%

Source: DOF 2014.

The most recent Department of Finance data indicate that unincorporated areas of the County experienced a 0.2% decrease in population, from 24,285 to 24,156, between 2010 and 2013. From 2014 to 2016, Department of Finance data indicate that the unincorporated areas of the County experienced a 0.3% increase in population, from 24,176 in January 2014 to 24,260 in January 2016, and that incorporated areas in Siskiyou County lost 0.8% population during the same period, decreasing from 20,635 in 2014 to 20,479 in 2016. Over the same period the City of Mount Shasta lost one person, from a population of 3,368 in 2014 to 3,367 in 2016 (DOF 2016a).

The Department of Finance does not provide population projections for the City of Mount Shasta. From 2003 to 2013, the City's population declined at an average rate of 0.83% per year. However, the City's general plan projects an annual growth rate of 0.63% per year over the planning period. Assuming the general plan growth rate for the City and based on a 2010 population of 3,831, the City of Mount Shasta would have a population of 4,131 in 2020 (City of Mount Shasta 2014). However, with population declines in recent years, the population may not reach that level by 2020.

Housing

Scattered rural residential land uses are present in the vicinity of the existing and proposed substation and two vacant homes and associated rural outbuildings exist on the project site. The Department of Finance (2016b) estimates a housing unit vacancy rate of 10.1% for Siskiyou County overall and a 13.5% vacancy rate for unincorporated areas of the County. The City of Mount Shasta is estimated to have a 13.1% housing unit vacancy rate (DOF 2016b).

5.13.2 Regulatory Setting

Federal

There are no relevant federal policies related to population and housing.

State

General Plans

State planning and zoning law requires each city and county to adopt a general plan for its future growth (California Government Code, Section 65300). The general plan must include a housing element that identifies housing needs for all economic segments and provide opportunities for housing development to meet those needs. At the state level, the Housing and Community Development Department estimates the relative share of California's projected population growth that is projected to occur in each county presented by the California Department of Finance's demographic research unit.

Each city and county must update its general plan housing element on a regular basis (usually every 5 years). Among other things, the housing element must incorporate policies and identify potential sites that would accommodate the City's and the County's share of the regional housing need. The 2014 Siskiyou County Housing Element and 2014 City of Mount Shasta Housing Element identify policies to accommodate housing to provide for each jurisdiction's share of the regional housing need. Each of these plans is described below.

Local

Siskiyou County General Plan and Zoning Ordinance

The Siskiyou County General Plan, as the county's foundational land use and development policy document, establishes the type, density, and extent of housing permitted in unincorporated areas of the County. Siskiyou County is typically rural in land use and population and housing density, with a 2010 population in unincorporated areas of 24,285 (County of Siskiyou 2014). The Siskiyou County General Plan applies overlays that identify constraints to development rather than applying typical land use designations. The Siskiyou County zoning ordinance implements the policies of the general plan and places the site of the proposed substation and the area of the proposed ROW acquisition and surrounding lands in the Rural Residential Agricultural (RR) zoning district. The RR district allows rural residential uses mixed with commercial agricultural uses and allows for public utility uses with approval of a conditional use

permit (County of Siskiyou 2016). The proposed transmission line upgrade area is within an existing utility ROW within Siskiyou County and the City of Mount Shasta.

There are no relevant general plan policies related to population.

City of Mount Shasta General Plan and Zoning Ordinance

The City of Mount Shasta General Plan Housing Element provides an analysis of existing housing stock and housing needs for the 2014 to 2019 planning period and identifies policies to achieve specific housing objectives to meet the needs of the population residing in the City. The City's General Plan Land Use Map identifies land use designations that dictate the types of allowable land uses within each designation. The General Plan also applies land use designations to adjacent County lands that fall within the City's designated Planning Area. The City of Mount Shasta zoning ordinance implements the policies of the General Plan by identifying zones for which it identifies specific development standards.

There are no relevant general plan policies related to population.

5.13.3 Applicant Proposed Measures

No applicant proposed measures have been proposed for or apply to the analysis of impacts associated with population and housing.

5.13.4 Environmental Impacts and Mitigation

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less Than Significant Impact. The proposed project would construct no new homes or businesses and would not directly induce permanent population growth in the project area. Construction of the proposed project would take approximately 6 to 12 months. Though the number of workers on site at any time would vary depending on individual construction tasks and project scheduling, it is estimated that on average 43 workers would be on site. It is estimated that approximately 50% of the workers would be from outside of the local area and would use existing temporary lodging in the surrounding community. Staffing requirements for operations and maintenance are expected to remain the same as the existing condition. A temporary and intermittent increase in population of up to 22 workers would not represent a substantial growth in population in the project area. Direct impacts associated with inducing population growth would be less than significant.

The proposed project also could indirectly induce population growth if it extends infrastructure to areas not served or facilitates increased capacity that could result in population growth in excess of community growth projections. The proposed project would replace and decommission an existing substation and upgrade the existing 69-kilovolt transmission line and distribution system that supplies power to the City of Mount Shasta. The proposed improvements are necessary to bring equipment and structures into compliance with current company, state and federal standards by replacing aging, obsolete, and non-standard equipment; to ensure reliability of the electrical supply to the area served by the Mount Shasta Substation; and to facilitate regional bulk transmission voltage stability and improve bulk power transfer across the region. Aging and non-standard equipment currently in use has resulted in ongoing maintenance issues, could negatively affect system reliability, and is a source of greenhouse gas emissions from sulfur hexafluoride (SF_6) breakers. The non-standard distribution line routing under I-5 was to be removed in 2005 in accordance with a conditional authorization from the California Department of Transportation (Caltrans). The proposed project would standardize routing of the distribution line crossing I-5 and bring it into compliance with Caltrans standards. The proposed project would provide for anticipated growth in power demand in the Mount Shasta service area, primarily due to the expected construction of a bottling plant, which is projected to use the remaining available power capacity on the existing system. The proposed project would also allow for removing local service areas from the regional bulk transmission systems and thereby eliminate constraints on the bulk transmission system resulting from voltage stability regulation when sharing transmission lines serving local service areas.

The proposed project would improve system reliability and accommodate increased load growth in the service area, which could accommodate additional development and population in the area served; however, growth in the study area is planned and regulated by applicable local planning and zoning ordinances. The proposed project would result in no change in zoning or land use in the project area, but would ensure system reliability and adequate system capacity to accommodate growth in the service area as envisioned by local planning policies and land use regulations. The proposed project would induce no growth in population beyond what is anticipated and allowable under existing adopted plans and land use regulations. Accordingly, the proposed project would not indirectly induce population growth and impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed substation would be constructed on two vacant rural residential properties that are each developed with a vacant single-family dwelling and associated rural outbuildings. The housing unit vacancy rate in unincorporated Siskiyou County is 13.5% and the loss of two vacant rural residential dwellings would not substantially affect the availability of housing in the project area and would not necessitate the construction of replacement housing elsewhere. The loss of two single-family dwellings would result in **no impact** associated with displacement of existing housing.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. As discussed in Section 5.13.4(b), the proposed project would remove two single-family dwellings to construct the proposed substation. Both of the residential units are unoccupied and no tenants or homeowners would be displaced by the proposed project. The proposed project would have **no impact** associated with the displacement of people or the construction of replacement housing.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.13.5 References Cited

City of Mount Shasta. 2014. City of Mount Shasta General Plan: Housing Element. Accessed August 30, 2016. http://www.hcd.ca.gov/housing-policy-development/housing-resource-center/plan/he/housing-element-documents/mount_shasta_5th_draft051414.pdf.

County of Siskiyou. 2014. Siskiyou County Housing Element. August 2014. Accessed August 30, 2016. https://www.co.siskiyou.ca.us/sites/default/files/docs/GP_HousingElement.pdf.

County of Siskiyou. 2016. Siskiyou County Code. Adopted February 28, 1961; updated August 12, 2016. Accessed August 30, 2016. https://www.municode.com/library/ca/ siskiyou_ county/codes/code_of_ordinances?nodeId=SICOCO.

DOF (California Department of Finance). 2014. "Total Population Projections for California and Counties: July 1, 2015 to 2060 in 5-year Increments." December 2014. Accessed September 1, 2016. http://www.dof.ca.gov/Forecasting/Demographics/projections/.

DOF. 2016a. E-4 Population Estimates for Cities, Counties, and the State, 2011–2016 with 2010 Census Benchmark. May 2016. Accessed August 30, 2016. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2011-20/.

DOF. 2016b. "E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011–2016 with 2010 Census Benchmark." January 2016. Accessed September 1, 2016. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5?

INTENTIONALLY LEFT BLANK

5.14 Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
PUBLIC SERVICES – Would the project:				
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☐	☒

5.14.1 Environmental Setting

The proposed project is located in southern Siskiyou County (County). Portions of the project site are located in the unincorporated County and within the incorporated City of Mount Shasta. The proposed project would upgrade transmission lines within existing rights-of-way in the County and the City of Mount Shasta, and would remove and decommission an existing substation and replace it with a new substation. The proposed project would also include installing transmission lines within a new transmission line right-of-way of 50 feet by 300 feet. The existing and proposed substations and new right-of-way and transmission lines are in the unincorporated County.

Fire Protection and Emergency Medical Services

Based on California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone (FHSZ) mapping data, the project site is situated in areas classified as Moderate, Very High, and Non-Very High FHSZs. Within the City of Mount Shasta, the project site occurs primarily within Non-Very High FHSZs, with a small portion of existing overhead distribution line near North Mount Shasta Boulevard and Road No. 2M05 and an existing underground distribution line near Interstate 5 and West Lake Street occurring in a Very High FHSZ (CAL FIRE 2009). Within unincorporated Siskiyou County, the project site occurs primarily within a Very High FHSZ, with portions of the proposed project to the west and north of the City of Mount Shasta occurring within a Moderate FHSZ (CAL FIRE 2007) (see Figure 5.8-1 in Section 5.8, Hazards and Hazardous Materials). More recent efforts undertaken by the California Public Utilities Commission (CPUC), in coordination with CAL FIRE, attempt to map environmental

conditions associated with an elevated potential for utility-associated fires. On May 26, 2016, the CPUC adopted Fire Map 1 (Rulemaking 15-05-006), which identifies areas of the state where an elevated hazard for the ignition and rapid spread of powerline fires exists due to strong winds, abundant dry vegetation, and other environmental conditions (CPUC 2016). Fire Map 1 will be the foundation for development of Fire Map 2, which will delineate the boundaries of a new High Fire Threat District, where utility infrastructure and operations will be subject to stricter fire-safety regulations (CPUC 2016). Fire Map 2 has not yet been completed.

Fire protection services and emergency response in the project vicinity are provided within the City of Mount Shasta city limits by the Mount Shasta Fire Department and within the County by the Mount Shasta Fire Protection District and the Siskiyou Unit of CAL FIRE. The Mount Shasta Fire Department and the Fire Protection District maintain a mutual aid agreement with other fire protection agencies operating in the County, including the U.S. Forest Service and CAL FIRE, to provide fire response and to reduce fire threats in the community (City of Mount Shasta General Plan 2007a).

CAL FIRE

CAL FIRE is responsible for State Responsibility Areas and primarily fights wildland fires; CAL FIRE is not responsible for structural fires. The Siskiyou Unit serves the proposed project area and surrounding areas, and participates in a County-wide mutual aid agreement with all other fire agencies in the County. This unit is geographically divided into four battalions and consists of state- and County-paid stations, local government departments, fire protection districts, and numerous volunteer companies. CAL FIRE enforces California Public Resources Code 4290 for all of the State Responsibility Areas, since the County has no adopted County fire safety regulations. The Siskiyou Unit Strategic Fire Plan lists life, property, timber, grazing land, and watershed as assets at risk from wildfire in the County (CAL FIRE 2011). Refer to the expanded discussion of CAL FIRE responsibilities with respect to utility facilities provided in Section 5.8, Hazards and Hazardous Materials.

Police Protection

Police protection services and emergency response within the City of Mount Shasta are provided by the Mount Shasta Police Department. The Siskiyou County Sheriff's Department provides services to the unincorporated area surrounding the City of Mount Shasta, including the area of the proposed substation.

Schools

School districts serving the project area are the Mount Shasta Elementary School District and the Siskiyou Union High School District (City of Mount Shasta 2007b).

Parks

The project site is in proximity to many recreational opportunities afforded by public open space and recreational lands, including National Forests, State Parks, and local recreation areas. The Mount Shasta Parks and Recreation District operates recreation facilities and maintains recreation programs within the project area. Recreational facilities in the vicinity of the proposed project maintained by the Mount Shasta Parks and Recreation District include Mount Shasta City Park on Nixon Road, Shastice Park on Rockfellow Drive, and the Youth Sports Field off of North Washington Drive (MSRPD 2016).

Please refer to Section 5.15, Recreation, for further discussion of recreational facilities, including parks, in the vicinity of the project site.

5.14.2 Regulatory Setting

Federal

There are no relevant federal policies related to public services.

State

California Public Utilities Commission

CPUC regulates privately owned telecommunications, electric, natural gas, water, railroad, rail transit, and passenger transportation companies in the state. CPUC is responsible for ensuring that California utility customers have safe, reliable utility service at reasonable rates; for protecting utility customers from fraud; and for promoting the health of California's economy. CPUC establishes service standards and safety rules, and authorizes utility rate changes. CPUC enforces CEQA compliance for utility construction.

Local

There are no relevant general plan or local plan policies related to public services.

5.14.3 Applicant Proposed Measures

No applicant proposed measures have been identified that apply to the analysis of impacts associated with public services.

5.14.4 Environmental Impacts and Mitigation

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

No Impact. Increases in long-term demand for fire protection services are typically associated with substantial increases in population. For the proposed project, staffing requirements for operations and maintenance would remain the same as the existing condition, and the project would not result in a permanent increase in population or introduce new uses to the area that would generate increased long-term demand for fire protection services.

Refer to Section 5.13, Population and Housing, for more information regarding potential increases in population that could result from the proposed project. See the discussion of fire hazards in Section 5.8, Hazards and Hazardous Materials, for more information related to fire codes applicable to utility projects, including Title 14, Section 1254 of the California Code of Regulations, and California Public Resources Code Section 4290 regulations, which identify minimum clearance requirements around utility poles and utility equipment. See also California Public Resources Code, Division 4, Chapter 6, which includes specific requirements related to controlling ignition sources; California Code of Regulations Title 14, Sections 1250–1258, Fire Prevention Standards for Electric Utilities, which includes fire prevention measures; CPUC General Order 95, which outlines maintenance and clearance requirements for safe operation or use of overhead lines; and General Order 165, which requires inspections of transmission facilities to ensure safe and high-quality electrical service. The facilities would continue to be maintained in accordance with fire-safe standards and regulations applicable to electrical transmission lines and facilities. Therefore, no impact would result from construction of new facilities to meet an increased long-term demand for fire protection services as a result of implementing the proposed project.

As discussed in Section 5.13, Population and Housing, construction of the proposed project would take approximately 6 to 12 months. It is estimated that construction activities would add approximately 22 people (construction staff) to the local population during peak periods. A temporary and intermittent increase in population of up to 22 workers would not represent a substantial growth in population in the project area, and would not require the construction of new facilities to meet an increased short-term demand for fire protection services. See also the discussion of fire-safe measures during construction, and Mitigation Measure (MM) HAZ-2, which requires a fire plan for the project to be developed in consultation with local and state fire agencies. Implementation of these fire-safe measures during construction would ensure that temporary construction activities would result in no need for new facilities to accommodate a short-term increase in demand for fire response during construction; therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

Police protection?

No Impact. Increases in the demand for police protection services are typically associated with substantial increases in population. The proposed project would result in no change in long-term maintenance or operations staffing needs that could result in a long-term increase in population in the project area, and would result in no change in land use in the project area that could generate increased long-term demand for police protection services. Refer to Section 5.13, Population and Housing, for more information related to potential long- and short-term population increases associated with the proposed project. Construction activities would last approximately 6 to 12 months. It is estimated that construction activities would add approximately 22 people (construction staff) to the local population during peak periods. A temporary and intermittent increase in population of up to 22 workers would not represent a substantial growth in population in the project area, and would not require construction of new facilities to meet an increased short-term demand for police protection; therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

Schools?

No Impact. Increased demand for public school services are typically associated with increases in the local population or demand for housing. The proposed project would result in no change in long-term maintenance or operations staffing needs that could result in a long-term increase in population in the project area. Construction activities

would last approximately 6 to 12 months. It is estimated that construction activities would intermittently add approximately 22 people (construction staff) to the local population during peak periods. Construction staff from out of the area on short work assignments would result in no change in the demand for public school facilities, and no new facilities would be required as a result of the implementing the proposed project; therefore, **no impact** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

Parks?

Less Than Significant Impact. For potential impacts on recreational facilities, including parks, see Section 5.15, Recreation. Impacts on recreational facilities would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant.**

Other public facilities?

No Impact. The proposed project would not result in substantial adverse impacts related to other types of public facilities (e.g., public libraries, hospitals, or other civic uses) because, as discussed previously, the proposed project would not result in a significant increase in the local population or housing, which is typically associated with increased demand for public facilities. Short-term construction activities would require up to 22 non-local construction workers per day. Operation and maintenance activities would consist of periodic (typically annually) inspection and minor repairs by existing employees. Therefore, the proposed project would not have an effect on the ability of other public services to maintain their service levels, and would have **no impact** associated with the provision of new or physically altered facilities for libraries, hospitals, or other civic uses.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.14.5 References Cited

CAL FIRE (California Department of Forestry and Fire Protection). 2007. Fire Hazard Severity Zones in SRA. Siskiyou County. http://frap.fire.ca.gov/webdata/maps/siskiyou/fhszs_map.47.pdf.

CAL FIRE. 2009. Very High Fire Hazard Severity Zones in LRA. Mount Shasta. http://www.fire.ca.gov/fire_prevention/fhsz_maps/FHSZ//siskiyou/Mt_Shasta.pdf.

CAL FIRE. 2011. Unit Strategic Fire Plan Siskiyou. June 2, 2011. http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf711.pdf.

City of Mount Shasta. 2007a. City of Mount Shasta General Plan Safety Element. http://mtshastaca.gov/wp/wp-content/uploads/2016/01/6SafetyElement.pdf.

City of Mount Shasta. 2007b. City of Mount Shasta General Plan Land Use Element. http://mtshastaca.gov/wp/wp-content/uploads/2016/01/3LandUseElement.pdf.

CPUC (California Public Utilities Commission). 2016. *Decision 16-05-036. Order Instituting Rulemaking (15-05-006) to Develop and Adopt Fire-Threat Maps and Fire-Safety Regulations.* May 26, 2016.

MSRPD (Mount Shasta Recreation & Parks District). 2016. "About the Mt. Shasta Recreation & Parks District." Accessed September 1, 2016. http://msrec.org/info.htm.

INTENTIONALLY LEFT BLANK

5.15 Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
RECREATION – Would the project:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

5.15.1 Environmental Setting

The City of Mount Shasta (City) and Siskiyou County (County) are within an area of diverse and scattered recreational opportunities within undeveloped areas on public lands including the Shasta–Trinity National Forest and Klamath National Forest. These areas provide opportunities for many passive recreational activities, including camping, hiking, mountaineering, fishing, and other outdoor-oriented recreation.

The Mount Shasta Recreation and Parks District maintains a variety of recreation facilities within the City of Mount Shasta and manages recreation programming for the population within the Recreation and Parks District's boundaries. Primary facilities maintained by the Recreation and Parks District within the project area include the Mount Shasta City Park on Nixon Road, Shastice Park on Rockfellow Drive, and the Youth Sports Field on North Washington Drive.

No established recreational facilities or City or County parks are within the project area. The Line 2 distribution lines are within existing utility rights-of-way and no recreational facilities exist on or adjacent to the proposed substation site and associated new right-of-way area.

5.15.2 Regulatory Setting

Federal and State

There are no federal or state policies relevant to the analysis of impacts of the proposed project on recreation resources.

Local

There are no City or County policies relevant to the analysis of the proposed project's impact on recreation.

5.15.3 Applicant Proposed Measures

No applicant proposed measures have been proposed for or apply to recreation resources.

5.15.4 Environmental Impacts and Mitigation

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less Than Significant Impact. The proposed project is anticipated to begin construction in the winter of 2016 and require up to 12 months to complete. Disturbed areas would be restored and monitoring of some areas for restoration success would be conducted as required by terms and conditions of applicable permits and project commitments. Construction of the proposed substation would take an estimated 43 workers approximately 6 to 12 months to complete. It is estimated that approximately 50% of the workforce would be made up of people from local communities. Therefore, it is expected that the proposed project would result in approximately 22 additional people in the project area for the duration of project construction. Following project construction, workers would intermittently be on site to monitor restoration and for operations and maintenance purposes. Operations and maintenance activities are anticipated to be similar to the existing condition and would result in no increase in population in the area or use of existing recreation facilities. The temporary increase in use of recreational facilities that could result from 22 workers over the anticipated 12-month construction period is expected to result in no substantial physical degradation of existing recreational facilities in the City of Mount Shasta or Siskiyou County. Impacts to recreational facilities would be **less than significant**.

Significance After Mitigation: Mitigation is not required because impacts would be **less than significant**.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed project does not include construction of new recreational facilities. The project would result in no permanent increase in demand for recreational facilities that would require construction or expansion of recreational facilities; therefore, **no impact** would occur.

Significance After Mitigation: Mitigation is not required because **no impact** would occur.

5.15.5 References Cited

No references were cited in this section.

INTENTIONALLY LEFT BLANK

5.16 Transportation and Traffic

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
TRANSPORTATION/TRAFFIC – Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☒	☐
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

5.16.1 Environmental Setting

The following includes a description of the roadways that would be used for the proposed project. This includes those roads that would be used to transport materials to the site and those that may be affected by construction activities associated with the proposed project.

The project site is located near the City of Mount Shasta (City), in Siskiyou County. The proposed project would be located in a rural residential area to the southwest of the City. The proposed location for the substation is adjacent to the existing Mount Shasta Substation on Old Stage Coach Road, approximately 1,000 feet west of Interstate 5 (I-5) . Transmission and

distribution system upgrades would occur both within the City and in rural open space to the west and north of the City and in unincorporated Siskiyou County.

The proposed project would involve demolition of the existing substation, construction of the Lassen Substation, and installation of steel poles to carry a new conductor in the predominately rural residential area to the west of I-5 on the border of the City. Construction activities would include the movement and transportation of project materials and construction crews throughout the project area. It would require the suspension of normal roadway function for construction of some elements, including replacing poles along Old Stage Coach Road and upgrading distribution lines and placing pole tops within the boundaries of the City.

Regional Roadways

The proposed project site is within 0.5 miles of I-5. The regional system consists of I-5, U.S. Route 97, and State Route 89 that link the cities of Dunsmuir, Mount Shasta, and Weed. The primary route for the supply of materials to the project site would be I-5. I-5 runs north/south through California from the Mexican border to the Oregon border. I-5 has limited access in the area, and the nearest interchange is the Mount Shasta/West Lake Street interchange, approximately 1,900 feet north of the project site. Traffic volume data along I-5 in the project area are provided in Table 5.16-1.

Table 5.16-1
Existing Traffic Volumes in the Project Area along Interstate 5

Milepost	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour)	Ahead Peak Month	Ahead AADT
8.475	Junction SR-89 East	3,000	23,600	19,600	2,850	23,100	19,600
10.485	Mount Shasta, Lake Street	2,850	23,100	19,600	2,300	26,500	20,000
12.062	North Mount Shasta	2,300	26,500	20,000	2,550	29,000	22,900

Source: Caltrans 2009.
Notes: AADT = Annual Average Daily Traffic; SR = State Route.

Local Roadways

Local roadways are in the purview of Siskiyou County. The following local roadways would be used to either access the project site or otherwise be affected by construction and operation activities: North Old Stage Road, South Old Stage Road, Fish Hatchery Lane, West Lake Street, North Mount Shasta Boulevard, South Mount Shasta Boulevard, and West Ream Avenue. Roads in the area of the substation carry very low volumes of traffic (PacifiCorp 2015).

Roads within the City would be affected by construction activities such as reconductoring of existing distribution lines and placing poletop transformers. Affected roads would be West Jessie Street, Ski Village Drive, CGWC Drive, North Mount Shasta Boulevard, South Mount Shasta Boulevard, Kingston Road, Mill Street, and Chestnut Street.

Bicycle and Pedestrian Transportation

Bikeways and Trails

The City of Mount Shasta Bicycle, Pedestrian, and Trails Master Plan 2009 divides bikeways into three classes: bike paths (Class I), bicycle lanes (Class II), and bicycle routes (Class III). Bike paths are distinctly separate from the flow of motorized traffic and are routes from which motorized traffic is precluded; bicycle lanes are dedicated lanes designated by lane striping, pavement legends, and signs in roadways; bicycle routes are routes for bicycle use that are shared with motorized traffic (City of Mount Shasta 2009).

Within the proposed project vicinity, the following are proposed as Class II bicycle lanes: North and South Mount Shasta Boulevard from Spring Hill Avenue south to the City limits, along Ream Avenue from South Mount Shasta Boulevard to the City limits, and along West Lake Street from Hatchery Lane east to the City limits. Mill Street and Chestnut Street are designated as Class III bike routes.

Fixed Bus Routes

Fixed-route bus services that serve the City are provided by Siskiyou Transit and General Express. North- and south-bound weekday services are provided. Bus stops within the City are at the Mount Shasta Shopping Center, Mercy Medical Center, and three locations along East Ivy Street and Rockfellow Drive. No scheduled stops are located in the immediate project site, west of I-5.

Freight/Passenger Rail Service

The Union Pacific Railroad and McCloud Railway Company provide freight rail services. The Union Pacific Railroad line, which runs the length of California, runs through the City. The McCloud Railway Company runs approximately two trains per week on a single line that connects the community of McCloud with the Union Pacific Railroad line.

Amtrak provides passenger service though Mount Shasta each day on the Union Pacific Railroad line. In addition, Amtrak Thruway Motorcoach service connects Amtrak train stations with locations not served by railways. Amtrak maintains a Thruway Motorcoach bus station in the

City on West Lake Street approximately 0.2 miles east of I-5. This station is an unstaffed bus stop that serves the Thruway Motorcoach route between Sacramento, California, and Medford, Oregon (Amtrak 2011).

Airports

The nearest airport to the project site is the Dunsmuir Municipal–Mott Airport, which is a public airport owned and managed by the City of Dunsmuir. The airport consists of a single 2,700- by 60-foot asphalt runway that runs parallel to I-5 approximately 4 miles from the project site. The relevant Airport Land Use Compatibility Plan includes the Dunsmuir Municipal–Mott Airport. The nearest commercial service airports are located in Redding, Cailfornia, and Medford, Oregon. A heliport site is located at the Mercy Medical Center of Mount Shasta (914 Pine Street) within the City.

5.16.2 Regulatory Setting

State

The California Department of Transportation (Caltrans) manages interregional transportation, including management of construction activities within or above state roadways. Caltrans is also responsible for permitting and regulating the use of state roadways. The only road Caltrans has responsibility for in the project area is I-5. I-5 would be used for regional and local access to the proposed project site.

Caltrans requires permits be obtained for transportation of oversized loads and transportation of certain materials, and for construction-related traffic disturbances (California Vehicle Code Division 15). Caltrans regulations would apply to the transportation of oversized loads on I-5 associated with the construction of the proposed project. Further, Caltrans' Construction Manual requires temporary traffic control planning "during any time the normal function of a roadway is suspended" (Caltrans 2001). Prior to project construction, Caltrans would require PacifiCorp to obtain all necessary transportation and encroachment permits in accordance with the Caltrans Transportation Permit Manual and Encroachment Permit Manual. Conditions of such permits would require the proposed project to incorporate best management practices (BMPs) to minimize impacts to traffic and transportation.

Local

Siskiyou County

Local roads within the project area are under the jurisdiction of Siskiyou County. Local roads used during construction and maintenance of the project may include North Old Stage Road, South Old Stage Road, Fish Hatchery Lane, Lake Street, and West Ream Avenue. Siskiyou County policies and regulations regarding the design and use of roadways are detailed in the Land Use and Circulation Element of the Siskiyou County General Plan.

For any construction activities that would impede the normal flow of traffic or require closure of parts of the roadway, Siskiyou County requires an encroachment permit for any impediment to travel on highways over which Siskiyou County has jurisdiction, and requires a transportation permit to carry extralegal loads on Siskiyou County roadways. As such, encroachment and extralegal load permits would be required prior to beginning project construction (County of Siskiyou 1980).

City of Mount Shasta

The City outlines local policies and regulations regarding the design and use of roadways within City limits in the Circulation Element of the City of Mount Shasta General Plan (City of Mount Shasta 2007). In addition, the City has a Bicycle, Pedestrian, and Trails Master Plan that provides for a City-wide network of bicycle paths, lanes, and routes, along with bicycle- and pedestrian-related programs and support facilities (City of Mount Shasta 2009). The proposed substation site is located in unincorporated Siskiyou County, but some components of the upgraded distribution system would be within the City boundary.

5.16.3 Applicant Proposed Measures

The proposed project would integrate the following applicant proposed measure (APM) into design and implementation:

APM-TT-1 **Traffic Management Plan.** Prior to the start of construction, PacifiCorp shall prepare a Traffic Management Plan. The Plan would define the use of flag persons, warning signs, lights, barricades, cones, etc. to control construction traffic. The Plan would include but not be limited to the following:

- All property owners and residents of streets affected by construction shall be notified prior to the start of construction. Advance public notification shall include postings of notices and appropriate signage of construction

activity. Access to all residences and properties near the project shall be maintained at all times.

- All construction activities shall be coordinated with local law enforcement and fire protection agencies. Emergency service providers shall be notified of the timing, location, and duration of construction activities.
- Road use-related wear and tear shall be documented during construction of transmission line facilities and PacifiCorp shall repair any damaged roadway sections, as applicable.

5.16.4 Environmental Impacts and Mitigation

a) Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Construction Impacts

Less Than Significant Impact. The proposed project would generate new traffic during the 41 weeks of construction activities over a 12-month period. Daily vehicle trips would be generated by the arrival and departure of construction workers, and heavy-truck trips for hauling equipment and materials to and from the construction site. PacifiCorp estimates an average of 14 commuting construction personnel working on a given day (PacifiCorp 2015). It is anticipated that personnel would commute in their own vehicles, generating 28 trips per day.

Heavy-vehicle trips would increase to deliver construction materials. Construction activities would include hauling oversized loads, including poles, conductor spools, substation hardware, and other types of equipment. Trips would primarily be to the substation site, as this site is the location of most of the construction activities and the location of the temporary storage yard. However, equipment and materials would be delivered to locations throughout the project site. Delivery and movement of vehicles would be dispersed throughout the day.

Construction activities would last no longer than 12 months, and any increased traffic would be dispersed across the project site and throughout the day. Therefore, any degradation in level of service at a given location is likely to be temporary, resulting in

no long-term degradation of traffic service at key interchanges. Impacts would be **less than significant**.

Operational Impacts

No Impact. The existing Mount Shasta Substation is an unattended and remotely operated substation. Traffic associated with the existing substation consists of annual or biannual inspections and ad hoc maintenance activities that occur because of unusual events such as storm damage, vandalism, or equipment failure. Other traffic associated with existing transmission and distribution lines include for vegetation management such as control of noxious weeds and the periodic trimming of shrubs or trees to reduce fire fuel in the transmission/distribution line easements. The proposed project would operate under the same management regime with similar frequencies of inspection and management activities. As such, the proposed project would introduce no new traffic load to the project area that would result in change to the existing traffic load. Consequently, there would **no impact** to traffic related to operational activities.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

b) Would the project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Less Than Significant Impact. See discussion in Section 5.16.4(a). Impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

c) Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

No Impact. The proposed project would not change air traffic patterns nor would it require the use of helicopters or other aircraft; therefore, implementation of the project would result in **no impacts**.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

d) Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The proposed project would not change the configuration (alignment) of area roadways, would not result in construction activities within a public road right-of-way, and would not introduce types of vehicles that are not already traveling on area roads; therefore, **no impacts** would occur.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

e) Would the project result in inadequate emergency access?

Less Than Significant Impact. As discussed in Section 5.16.4(a), construction activities would occur throughout the project site, but would be predominantly concentrated at the proposed substation site on Old Stage Coach Road. Where activities cross or occur within existing roadways, there is a potential to block or otherwise hinder emergency service access. Implementation of APM-TT-1 would require prior coordination with emergency services to ensure access strategies for any affected locations during construction. Therefore, the proposed project would not restrict emergency access without a prior plan, and impacts would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

f) Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Less Than Significant Impact. The proposed substation site is in unincorporated Siskiyou County and outside the jurisdiction of the City. No trails or associated signage occur within or near the proposed substation site or any section of the 69-kilovolt line to be reconductored. Conflicts with existing bike plans would be confined to temporary construction activities within the Class III bike routes on Mill Street and Chestnut Street. Reconductoring and pole transformer placement on existing lines would require temporary traffic control in these locations. Construction activities may temporarily impede the normal flow of traffic along these routes. However, construction activities would be for no more than a few days in each location and would not result in a long-term decrease in the performance of these Class III bike routes. As such, any impact would be limited and temporary, and would be **less than significant**.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

5.16.5 References Cited

Amtrak. 2011. California Thruway Motorcoach website. Accessed June 24, 2011. http://www.amtrak.com.

Caltrans (California Department of Transportation). 2001. Construction Manual. Accessed May 27, 2011. http://www.dot.ca.gov/hq/construc/manual2001/cmaug2009withbookmarks.pdf.

Caltrans. 2009. "Traffic Volumes." Traffic and Vehicle Data Systems Unit.

City of Mount Shasta. 2007. "City of Mount Shasta General Plan: Circulation Element." http://mtshastaca.gov/wp/wp-content/uploads/2016/01/4TrafficCirculation.pdf.

City of Mount Shasta. 2009. City of Mount Shasta Bicycle, Pedestrian, and Trails Master Plan 2009. Prepared by Alta Planning and Design. Adopted February 23, 2009. http://mtshastaca.gov/wp/wp-content/uploads/2016/01/Bicycle_Master_Plan_File2.pdf.

County of Siskiyou. 1980. "Land Use and Circulation Element." *Siskiyou County General Plan*. August 12, 1980. https://www.co.siskiyou.ca.us/sites/default/files/docs/GP_LandUse-CirculationElement.pdf.

PacifiCorp. 2015. *Proponent's Environmental Assessment for the Application of PacifiCorp (U 901 E) for a Permit to Construct the Lassen Substation Project*. Prepared by Power Engineers Inc. October 2015.

INTENTIONALLY LEFT BLANK

5.17 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

5.17.1 Environmental Setting

Under the proposed project, the proposed upgrades to the existing 69-kilovolt transmission line and the distribution lines would occur within an existing utility or public road right-of-way (ROW). The existing substation and proposed site for the new substation are within an area characterized by rural residential development. Portions of the project occur within the City of Mount Shasta (City) and unincorporated Siskiyou County (County).

Wastewater disposal in the general area is accommodated by rural on-site septic systems or connected to a community sewer system operated and maintained by the City of Mount Shasta. Wastewater is piped to the Mount Shasta Wastewater Treatment Plant (WWTP), which is owned and operated by the City and provides service to the City and adjacent areas (City of Mount Shasta 2016a). The plant treats wastewater and discharges the treated wastewater to the

Sacramento River during the non-recreation season and to a reclamation leach field or to the Mount Shasta Golf Course for irrigation use if conditions allow (City of Mount Shasta 2016a). The Mount Shasta WWTP has a design capacity of about 0.75 million gallons per day (MGD) for dry weather and a peak wet weather design capacity of approximately 2.8 MGD (Pace Engineering 2014). As of 2014, the Mount Shasta WWTP was operating at a dry-weather flow of approximately 0.67 MGD and wet-weather flow of 1.83 MGD.

The proposed Lassen Substation site is composed of two vacant rural residential parcels. The former residence at 504 South Old Stage Road is connected to an on-site septic system and leach line, and the former residence at 506 South Old Stage Road is connected to the public sewer system. Refuse collection service is not currently provided to the property, but is available through Black Butte Transfer Station (Dump) and/or John Smith Sanitation (collection service) (City of Mount Shasta 2016b). No municipal water is connected to either property; the properties both relied on private well water (Enplan 2015). Electric service is provided by PacifiCorp. No sumps, hoists, hydraulic lifts, storm drains, basements, or elevators were observed on the property (Enplan 2015).

The existing power-line ROW and substation are not served by any existing sewer or septic system because they generate no wastewater.

5.17.2 Regulatory Setting

Federal

There are no federal policies applicable to the analysis of impacts associated with utilities or service systems for the proposed project.

State

Protection of Underground Infrastructure

California Government Code, Section 4216 et seq., requires an excavator to contact a regional notification center (e.g., Underground Service Alert (USA), or DigAlert) at least 2 days prior to excavation of any subsurface installations. Any utility provider seeking to begin a project that could damage underground infrastructure can call DigAlert, the regional notification center for Southern California. DigAlert will notify the utilities that may have buried lines within 1,000 feet of the project. Representatives of the utilities, once notified, are required to mark the specific locations of their facilities within the work area prior to the start of project activities.

State Agency Model Integrated Waste Management Act of 1999

Assembly Bill 75 was passed in 1999, and the State Agency Model Integrated Waste Management Act (Chapter 764, Statutes of 1999, Strom-Martin) took effect on January 1, 2000. The State Agency Model Integrated Waste Management Act mandated that state agencies develop and implement an integrated waste management plan. The act also mandated that community service districts providing solid waste services report disposal and diversion information to the city, county, or regional agency in which the community service district is located. Provisions of the act require all state agencies and large state facilities to divert at least 50% of solid waste from landfills after 2004 and that each state agency and large facility submit an annual report to the California Department of Resources Recycling and Recovery summarizing its yearly progress in implementing waste diversion programs.

California Public Utilities Commission General Order 95

The applicant is required to comply with California Public Utilities Commission General Order 95, which institutes requirements for overhead line design, construction, and maintenance (CPUC 2012). The order specifies requirements for joint-use poles, including clearances, inspection schedules, and coordination requirements intended to minimize conflicts among utility supply lines and telecommunications facilities.

Local

There are no general plan policies relevant to the analysis of the proposed project's impacts associated with the provision of appropriate utilities or service systems.

5.17.3 Applicant Proposed Measures

No applicant proposed measures (APMs) have been proposed for or apply to utilities and service systems.

5.17.4 Environmental Impacts and Mitigation

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

No Impact. The proposed project includes electrical utility upgrades and would result in no permanent increase in population that would generate additional wastewater with potential to exceed the capacity of existing wastewater treatment facilities or cause existing facilities to exceed wastewater treatment standards. Portable toilets would be

used for the 12-month construction period and one on-site portable toilet would be located in the proposed substation for use by maintenance and operations staff. Portable toilets would be maintained and serviced by an outside contractor, who would dispose of effluent in accordance with applicable regulations for wastewater disposal.

The project does not involve sanitary wastewater discharges; therefore, wastewater treatment requirements of the Regional Water Quality Control Board are not applicable. Discussion of treatment requirements for construction dewatering discharge and stormwater runoff can be found in Section 5.9, Hydrology and Water Quality. Implementation of the proposed project would have **no impact** relating to exceedance of wastewater treatment requirements.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The proposed project would generate no permanent change in water demand or wastewater generation that could result in a need for new or expanded facilities and would result in no construction of new facilities. The project would require an estimated 43 workers for approximately 12 months. It is estimated that 50% of these workers would be from the local area. The non-local workforce would stay at existing hotels in the vicinity of the project site and no new facilities would be required to provide adequate water and wastewater facilities to serve the temporary workforce.

It is estimated that less than 100 gallons of water per day would be needed for dust suppression and compaction during the 12-month construction period and for irrigation to reestablish vegetation in disturbed areas after construction is complete. The increased demand for water would be met commercially (e.g., bottled water) or by using a nearby authorized municipal source to fill up water trucks. These water needs would not require additional treatment capacity or new treatment facilities, because the demand would be minimal and temporary during and after construction.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

No Impact. The stormwater pollution prevention plan (SWPPP) (APM-WQ-1) prepared for the proposed project would identify appropriate best management practices (BMPs) to implement during and after construction to ensure that stormwater is adequately controlled in the project area and that stormwater from limited areas of new impervious surfaces, such as concrete foundations for new power poles, would not increase stormwater runoff to existing stormwater facilities.

The proposed new substation is designed to control stormwater runoff in accordance with the grading plan that would be approved through Siskiyou County and BMPs specified in the SWPPP and site plan. The new substation would be surfaced with gravel to provide for on-site infiltration of stormwater and would be graded to maintain natural surface drainage patterns. The site of the existing substation would be restored in accordance with the approved grading plan and BMPs included in the SWPPP. Any new stormwater drainage facilities constructed to serve the proposed Lassen Substation site would be minor facilities (e.g., gravel pads, drainage swales, velocity dissipation devices), and are included in the analysis of overall footprint impacts of the project. Discussion of stormwater quality BMPs (both permanent and temporary) can be found in Section 5.9, Hydrology and Water Quality. Implementation of the proposed project would have **no impact** on stormwater drainage facilities.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

No Impact. The proposed project would generate no permanent change in water demand that could result in a need for new or expanded water entitlements. The project would require an estimated 43 workers for approximately 12 months. It is estimated that 50% of these workers would be from the local area. The non-local workforce would stay at existing hotels in the vicinity of the project that are served by existing water service from existing entitlements.

Limited water would be needed for dust suppression during the 12-month construction period and for irrigation to reestablish vegetation in disturbed areas after construction is complete. The temporary increased demand for water would be sourced from existing

service hookups served from existing entitlements and would not require new or expanded entitlements. Implementation of the proposed project would have **no impact** on water supplies.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

e) Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No Impact. See the discussion in Section 5.17.4(a). The proposed project includes electrical utility upgrades and would result in no permanent increase in population that would generate additional wastewater with potential to exceed the capacity of existing wastewater treatment facilities or cause existing facilities to exceed wastewater treatment standards. Portable toilets would be used for the 12-month construction period and one on-site portable toilet would be located in the proposed substation for use by maintenance and operations staff. Portable toilets would be maintained and effluent would be pumped and disposed of at existing facilities in accordance with applicable regulations for wastewater disposal. **No impact** would occur on wastewater treatment capacity as a result of implementation of the proposed project.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less Than Significant Impact. All forms of refuse and waste produced along the ROW during construction would be collected and disposed of in a designated landfill or appropriate waste disposal site. Refuse and waste are defined as any discarded material, trash, garbage, packing material, containers, waste petroleum products, broken equipment, used parts, or excess construction materials (PacifiCorp 2015). All remaining subtransmission, distribution, and telecommunication lines that are not reused by PacifiCorp would be removed and delivered to a suitable facility for recycling. Any wood poles not reused by PacifiCorp would be checked for the presence of wood preservatives (creosote, pentachlorophenol or other wood preservative), and would disposed of in an appropriately permitted disposal facility such as a Class I hazardous waste landfill or in a lined portion of an RWQCB-certified municipal landfill (PacifiCorp 2015).

Demolition activities for the proposed project (which includes demolition of existing residences and the existing Mount Shasta Substation) are likely to produce substantial

quantities of debris that would need to be disposed of. State regulations (i.e., Integrated Waste Management Act) require diversion (i.e., recycling/reuse) of at least 50% of construction and demolition (C&D) debris, which John Smith Sanitation (or other hauler contracted by PacifiCorp) would accommodate as the franchise hauler in the City. This C&D requirement would substantially reduce solid waste associated with the proposed project's C&D activities. The remaining construction material would be disposed of at a solid waste facility with available capacity. The Black Butte Transfer Station is listed as accepting C&D waste and would transfer it to regional recycling or disposal facilities (CalRecycle 2016a). It has a permitted throughput of 100 tons/day. According to a landfill capacity analysis, the County has an annual capacity of 300,000,000 tons, a current managed disposal amount of 900,000 tons, projected to be approximately 1,100,000 tons by 2025, assuming a medium growth rate projection for the region (CalRecycle 2016b). Therefore, the County has adequate landfill capacity to accommodate regional waste disposal needs through 2025.

In the operational condition, the proposed project would intermittently generate nominal quantities of solid waste associated with normal maintenance activities and would result in little to no change in the existing condition.

All solid waste generated during construction would be collected and hauled to an approved facility with permitted capacity to accept waste material. As indicated above, there is sufficient capacity; therefore, the project would have a **less than significant** impact on landfill capacity.

Significance After Mitigation: No mitigation is required because impacts would be **less than significant**.

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. See the discussion in Section 5.17.4(f). All solid waste generated by the proposed project during and following construction would be handled in accordance with federal, state, and local statutes and regulations and hauled to an approved solid waste facility with permitted capacity to accept the waste materials. Implementation of the proposed project would have **no impact** regarding solid waste statutes and regulations.

Significance After Mitigation: No mitigation is required because **no impact** would occur.

5.17.5 References Cited

CalRecycle (California Department of Resources Recycling and Recovery). 2016a. "Facility/Site Summary Details: Black Butte Transfer Station (MVTS) (47-AA-0056)." Accessed September 2, 2016. http://www.calrecycle.ca.gov/SWFacilities/Directory/47-AA-0056/.

CalRecycle. 2016b. Disposal Facility Annual Capacity Analysis for Siskiyou County. Facility Information Toolbox. Accessed September 2, 2016. http://www.calrecycle.ca.gov/FacIT/Facility/Charts/DisposalGap/19DispAnn.pdf.

CPUC (California Public Utilities Commission). 2012. General Order 95: Overhead Electric Line Construction.

City of Mount Shasta. 2016a. "Wastewater Treatment Plant." City of Mount Shasta website. Accessed August 29, 2016. http://mtshastaca.gov/public-works/wtp/.

City of Mount Shasta. 2016b. "Black Butte Transfer Station (Dump) and John Smith Sanitation." City of Mount Shasta website. Accessed August 30, 2016. http://mtshastaca.gov/resources/trash-pickup/.

Enplan. 2015. *Phase I Environmental Site Assessment, Lassen Substation Project, Siskiyou County, California*. Prepared for Power Engineers. July 20, 2015.

PACE Engineering. 2014. Draft Preliminary Engineering Report and Feasibility Study for City of Mt. Shasta State Mandated Wastewater Treatment and Disposal Improvement Project. Job No. 111.44. Accessed August 29, 2016. http://mtshastaca.gov/wp/wp-content/uploads/2015/11/PER-WWTP.pdf.

PacifiCorp. 2015. *Proponent's Environmental Assessment for the Application of PacifiCorp (U 901 E) for a Permit to Construct the Lassen Substation Project*. Prepared by Power Engineers Inc. October 2015.

5.18 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

5.18.1 Environmental Impacts and Mitigation

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant Impact with Mitigation Incorporated. The project could result in impacts to special status plant and wildlife species. With implementation of APM-BIO-1 through APM-BIO-10 and MM-BIO-1, as described in Section 5.4.4, Biological Resources, impacts would be reduced to less than significant.

As described in Section 5.5, Cultural Resources, the proposed project would not have an adverse effect on known cultural archaeological or paleontological resources. Should unanticipated human remains be discovered during ground-disturbing activities, project personnel would implement California Health and Safety Code Section 7050.5 and

California Public Resource Code Section 5097.98. With implementation of current applicable legal regulatory framework, the project would not eliminate important examples of major periods of California history or prehistory.

Operation of the proposed project would be similar to current operation activities associated with the existing Mount Shasta Substation. Therefore, there would be no incremental change in environmental impacts associated with the new substation, and no operational impacts.

Therefore, the proposed project does not have the potential to substantially reduce the habitat of fish or wildlife species, reduce the number or restrict the range of a rare or endangered plant or animal, or cause a fish or wildlife population to drop below self-sustaining levels or threaten to eliminate a plant or animal community or eliminate important examples of the major periods of California history or prehistory. Impacts from implementation of the proposed project would be **less than significant with mitigation incorporated**.

Significance After Mitigation: With implementation of MM-BIO-1, impacts from the proposed project would be **less than significant with mitigation incorporated.**

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

Less Than Significant Impact with Mitigation Incorporated. The proposed project does not have impacts that are individually limited but cumulatively considerable. The California Environmental Quality Act (CEQA) Guidelines Section 15130 requires a discussion of the cumulative impacts of a project when the project's incremental contribution to a significant cumulative effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects (14 CCR 15000 et seq.). An incremental, project-specific contribution to a cumulative impact is less than cumulatively considerable, and thus is not significant, if, for example, the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact. The cumulative impacts discussion does not need to provide as much detail as is provided in the analysis of project-only impacts and should be guided by the standards of practicality and reasonableness.

CEQA Guidelines Section 15130(b) identifies the following three elements as necessary for an adequate cumulative analysis:

- A list of past, present, and reasonably anticipated future projects producing related or cumulative impacts, including those projects outside the control of the Lead Agency; or a summary of projections contained in an adopted General Plan or related planning document designed to evaluate regional or area-wide conditions.
- A summary of expected environmental effects to be produced by those projects. The summary shall include specific reference to additional information stating where that information is available.
- A reasonable analysis of the cumulative impacts of the relevant projects and an examination of reasonable options for mitigating or avoiding any significant cumulative effects of a proposed project (14 CCR 15130(b)).

This section analyzes the cumulative impact of construction, operation, and maintenance of the proposed project, taking into account the effects in common with other past, present, and reasonably anticipated future projects. Past projects include completed projects whose long-term effects are closely related either in time or space (i.e., temporally or in geographic proximity) to the effects of the proposed project. Present projects are those being constructed, installed, or implemented concurrently with the preparation of this environmental document. Reasonably anticipated future projects include those for which there are existing decisions, funding, formal proposals, or that are highly probable, based on known opportunities or trends. To determine the extent of the cumulative scenario for the proposed project, the California Public Utilities Commission contacted Siskiyou County (Walker, pers. comm. 2016), the City of Mount Shasta (Lucchesi, pers. comm. 2016), and the California Department of Transportation (Caltrans; Quiney, pers. comm. 2016) for information on present or reasonably anticipated future projects within their respective jurisdictions in proximity to the proposed project.

The proposed project would replace the existing Mount Shasta Substation with the updated Lassen Substation. As such, it is anticipated that operational impacts of the proposed substation would not be differ from the existing substation. Therefore, the proposed project introduces no new long-term impacts to the project area. Any impacts caused by the proposed project would be would be related to construction activities.

As discussed in Sections 5.1 through 5.17, many of the potential impacts of the proposed project would occur during construction, with no new operational effects. Because the

construction-related impacts of the proposed project would be temporary and localized, they would have the potential to combine with similar impacts of other projects only if they occur at the same time and in close proximity. Construction impacts, mostly relating to air quality, hazards and hazardous materials, and hydrology and water quality, may combine with similar effects of other projects in the vicinity to create a cumulative considerable impact.

Table 5.18-1 presents foreseeable projects in the vicinity that could combine with the proposed project, resulting in cumulative impacts. The potential cumulatively considerable impacts of the proposed project in relation to these nearby projects are discussed in Table 5.18-2. Combined impacts from the proposed project and past, present, and reasonably foreseeable projects would be **less than significant with mitigation incorporated**.

Table 5.18-1
Foreseeable Projects in the Vicinity of the Proposed Project

Project Name, Location, Responsible Agency	Project Description	Status
Crystal Geyser Bottling Plant 210 Ski Village Drive, Mount Shasta, California 96067 Siskiyou County	The proposed project to be evaluated in the EIR consists of the operation of the existing Crystal Geyser Bottling Plant as a bottling facility, with the addition of several proposed components and utility/infrastructure options. The proposed addition of an on-site permanent caretaker/security residence requires a conditional use permit from the County, which triggers the need for compliance with CEQA. The EIR will analyze all plant modifications undertaken and proposed by the applicant to resume operation of the plant.	NOP issued June 24, 2016; estimated Final EIR – Q1 2017. Construction schedule unknown.
Mount Shasta Wastewater Treatment Plant upgrades (a.k.a. Mount Shasta Sewer Line Project) Grant Road City of Mount Shasta	The proposed project entails improvements to the Mount Shasta Wastewater Treatment Plant and Sacramento River Outfall. These improvements are necessary to comply with Central Valley Regional Water Quality Control Board requirements for wastewater discharge. The proposed improvements would be located within the footprint of the existing facilities and would include a replacement treatment plant and a new diffuser at the river outfall. The project site is not identified as a hazardous waste facility, hazardous waste property, or hazardous waste disposal site. The +10-acre project site is located at the southern terminus of Grant Road, southeast of the Mount Shasta Resort Golf Course, just south of the City of Mount Shasta, Siskiyou County, California.	Issuance and adoption of a MND, with the NOD issued May 16, 2016. Construction schedule unknown.
Dunsmuir Interstate 5 Roadway Rehabilitation Project Caltrans	Rehabilitation and construction would extend from milepost 2.7 to R11.4. The Lake Street undercrossing is about milepost R10.5. The project would likely occur during 2017 and possibly 2018.	Construction anticipated 2017–2018.
Black Butte Roadway Rehabilitation Project Caltrans	Black Butte Roadway Rehabilitation of overhead on I-5, approximately milepost 15.3 to 16.5; replacement.	Construction anticipated 2018.

EIR = environmental impact report; NOP = Notice of Preparation; MND = mitigated negative declaration; NOD = Notice of Determination.

Table 5.18-2
Analysis of Potential Cumulatively Considerable Impacts

Aesthetics	The proposed project would introduce no significant new elements to aesthetics resources within the project area and would have no significant impact on aesthetics resources. The projects listed in Table 5.18-1 either do not share the same environmental setting or do not introduce any new elements to a shared setting. Consequently, the combined effects would not result in a cumulatively considerable impact to aesthetic resources.
Agriculture and Forestry	Individually, the proposed project would result in no impacts to agricultural lands or Farmland or Williamson Act contracts; the project would result in a less than significant impact related forestry resources. Therefore, the project would not contribute to a potential cumulative impact to agricultural or forestry resources in the project area.
Air Quality	Less than significant air quality impacts would be associated with construction impacts. BMPs and APMs discussed in Section 5.3, Air Quality, would ensure that air quality impacts would be less than significant. Air quality impacts for other projects listed in Table 5.18-1 would be under the same federal, state, and regional regulation. It is therefore anticipated that impacts from other projects would be similarly mitigated; therefore, taken in their entirety the projects listed in Table 5.18-1 and the proposed project would not result in a cumulatively considerable impact.
Biological Resources	Long-term impacts to biological resources be would be localized to the proposed new substation site and existing right-of-way. Implementation of APMs and mitigation measures would reduce impacts to biological resources to less than significant. It is anticipated that the proposed project combined with the projects listed in Table 5.18-1 would not have cumulatively significant or considerable impacts. Because the projects listed in Table 5.18-1 would be subject to the same federal, state, and local regulations and would incorporate the feasible mitigation measures to reduce significant biological impacts,. Given the tiny and localized nature of the impacts associated with the proposed project and the projects listed in Table 5.18-1, taken in their entirety, they would not result in a cumulatively considerable impact and would not contribute to cumulative impacts on biological resources.
Cultural Resources	The proposed project would have no impact on known cultural resources. Therefore, the proposed project would not contribute to an impact that would be cumulatively considerable.
Geology and Soils	The proposed project would result in less than significant impacts to geological and soils resources. Geological resources are subject to a federal, state, and regional regulatory framework designed to minimize exposure to geological hazards. The projects listed in Table 5.18-1 would be subject to the same regulatory framework and would therefore also minimize and avoid exposure to geological hazards. Consequently, the potential combined impacts of the proposed project and identified projects would not result in a cumulatively considerable impact.
Greenhouse Gas Emissions	The proposed project is expected to have a less than significant impact on the environment through the minor generation of greenhouse gas (GHG) emissions during construction, and would only temporarily contribute to the cumulative effect on GHG emissions from other projects in the project area. Furthermore, the proposed project's operation would not require the combustion of fossil fuels; therefore, the proposed project's cumulative impact on GHG emissions would be less than significant.
Hazards and Hazardous Materials	Although the proposed project is in a Very High Fire Hazard Severity Zone, application of applicable APMs and mitigation measures would reduce the impact to less than significant. The projects listed in Table 5.18-1 would be subject to the same regulatory framework and would be required to comply with applicable wildland fire management plans and policies established by state and local agencies As such, there would be no cumulatively significant impact related to an increased risk of wildfire in the vicinity of the proposed project; therefore, no cumulative impacts relating to wildland fires would result. Hazardous materials that would be used during operation and construction are identified in Section 5.8, Hazards and Hazardous Materials. Hazardous materials would be stored and used in compliance with applicable regulations. Impacts from operational and construction use of hazardous materials would be less than significant. Hazardous materials impacts could combine with related impacts from nearby projects to

Table 5.18-2
Analysis of Potential Cumulatively Considerable Impacts

	create a significant cumulative impact. Nearby projects would be required to comply with federal, state, and local regulations to minimize risk. The net effect would be a less than significant cumulative impact
Hydrology and Water Quality	The projects listed in Table 5.18-1 would be subject to the same federal, state, and local regulations regarding drainage plans and flooding potential as the proposed project, and would typically be required to draft and implement a stormwater prevention and protection plan with specific provisions that address erosion and sedimentation control during construction and operation. These impacts would be localized and controlled at the source and would not be considerable in relation to other cumulative projects. The proposed project would not contribute to cumulative effects on surface water or wetland resources in the project area.
Land Use and Planning	The proposed project would have no impact on habitat conservation plans or natural communities conservation plans, nor would it split any communities; therefore, it would not contribute to any impacts on these resources. Further, because the California Public Utilities Commission preempts city and county planning and discretionary actions, the project would not adversely contribute to cumulative impacts on local general plans.
Mineral Resources	The proposed project would result in no impacts to mineral resources and therefore would contribute no cumulative impacts to mineral resources.
Noise	The proposed project would not contribute to long-term ambient noise levels because it is a replacement project, which would add no significant new noise sources to the existing setting. The construction schedule could overlap with some of the projects described in Table 5.18-1. However, given the distance between the projects, they do not share the same environmental setting and would not result in cumulatively considerable impacts during construction.
Transportation and Traffic	The proposed project would replace an existing substation, and therefore would introduce no new long-term impacts to traffic or reduce level of service for critical roads such as I-5. Therefore, the project would not contribute to cumulatively considerable long-term impacts. Construction of the proposed project would have the potential for minor impacts to traffic volumes. These impacts would be temporary and less than significant. The potential for cumulative construction traffic impacts would be restricted to projects that are under construction simultaneously with the proposed project. However, given that such impacts would be of short duration and that all projects would be subject to traffic control plans, the project would not result in a cumulatively considerable impact to traffic.
Population and Housing; Public Services; Recreation; Utilities and Service Systems	Increased pressure on these services as a result of construction worker activity would be small. Additionally, construction would be 12 months or less in duration and would not result in long-term demand on any of these resources. The projects listed in Table 5.18-1 may result in similar effects, which would also be limited in duration and would not contribute to an increased long-term need for any of these services. The proposed project would result in less than significant impacts related to utilities and service systems. Therefore, the project would not contribute to a potential cumulative impact in relation to these services and utilities. Like PacifiCorp, most energy and utility providers plan infrastructure upgrades incrementally to accommodate planned growth in their service areas, based on adopted city/county general plans. The proposed project would accommodate the current and planned growth, but would not itself induce growth; thus, the project would not contribute to significant cumulative impacts on energy and utilities in the area.

Significance After Mitigation: Impacts would be **less than significant with mitigation incorporated**.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact with Mitigation Incorporated. With integration of APMs into project design for air quality (APM-AQ-1), geology and soils (APM-GEO-1), hazards and hazardous materials (APM-HAZ-1 through APM-HAZ-3), hydrology and water quality (APM-WQ-1 through APM-WQ-3), and transportation and traffic (APM-TT-1), in conjunction with mitigation measures for hazards and hazardous materials (MM-HAZ-1, MM-HAZ-2) and hydrology and water quality (MM-WQ-1), the proposed project would not have the potential to have environmental effects that could cause substantial direct or indirect adverse effects on human beings. The proposed project's impacts would all be less than significant.

Significance After Mitigation: Impacts would be **less than significant with mitigation incorporated.**

5.18.2 References

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

Lucchesi, J. 2016. "RE: PacifiCorp Lassen Substation Project – California Public Utility Commission Environmental Review – Cumulative impact assessment." Email from J. Lucchesi (City of Mount Shasta) to I. Fisher (Dudek) and R. Bryan (City of Mount Shasta). September 9, 2016.

Quiney, C. 2016. "Re: Lassen Substation Project." Email from C. Quiney (Caltrans) to I. Fisher (Dudek) regarding Caltrans projects in the vicinity of the proposed Lassen Substation Project. September 13, 2016.

Walker, B. 2016. "Re: PacifiCorp Lassen Substation Project. California Public Utility Commission Environmental Review – Cumulative impact assessment." Email from B. Walker (Siskiyou County) to I. Fisher (Dudek). September 9, 2016.

6 LIST OF PREPARERS AND AGENCY CONSULTATION

6.1 Lead Agency

Michael Rosauer, CPUC Project Manager, Energy Division

6.2 Preparers

Dudek – Primary Consultant

Iain Fisher, Project Manager
Dylan Duvergé, Hydrogeologist and Environmental Analyst
Jennifer Reed, Senior Air Quality Specialist
Jennifer Sucha, Air Quality Specialist
Mike Greene, Noise Specialist
Josh Saunders, Aesthetics Specialist and Environmental Analyst
Markus Lang, Environmental Specialist
Keith Babcock, Senior Biologist
Scott Eckardt, Fire Hazards and Forestry
Laurel Porter, Technical Editor
Anne McDonnell, Technical Editor
Devin Brookhart, Publications Specialist Lead
David Mueller, Publications Specialist
Rachel Strobridge, GIS Specialist

6.3 Agency Consultation

City of Mount Shasta

Juliana Lucchesi
City Planner
Planning Department
305 North Mount Shasta Boulevard
Mount Shasta, California 96067

Siskiyou County

Brett Walker, AICP
Senior Planner, Planning Division
Siskiyou County Community Development Department
806 South Main Street
Yreka, California 96097

California Department of Transportation

Chris Quiney
Senior Environmental Planner
Office of Environmental Management – Redding
Caltrans – District 2
1657 Riverside Drive
Redding, California 96001