

May 2019



INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

# CASTLE CRAGS STATE PARK

Root Creek Drainage Forest Fuels Management  
and Public Safety Improvement Project



PREPARED FOR:  
California State Parks  
Northern Buttes District  
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**Draft**  
**Initial Study/Mitigated Negative Declaration**  
**For The**  
**Castle Craggs State Park Root Creek Drainage Forest Fuels**  
**Management and Public Safety Improvement Project**

**PREPARED FOR**

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## ACRONYMS AND ABBREVIATIONS

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
2017 Scoping Plan	<i>California's 2017 Climate Change Scoping Plan</i>
AB	Assembly Bill
ARA	Aggregate Resource Area
ATV	all-terrain vehicle
BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal EPA	California Environmental Protection Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CALVEG	Classification and Assessment with Landsat of Visible Ecological Groupings
CAP	criteria air pollutant
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCC	Civilian Conservation Corps
CCSP	Castle Crags State Park
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
CNDDDB	California Natural Diversity Database
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CRHR	California Register of Historical Resources

CRPR	California Rare Plant Ranks
CSP	California State Parks
dB	decibels
dbh	diameter at breast height
DPM	diesel particulate matter
DPS	Distinct Population Segment
DTSC	California Department of Toxic Substances Control
ECA	Essential Connectivity Area
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	federal Endangered Species Act
FHSZ	Fire Hazard Severity Zone
FMMP	Farmland Mapping and Monitoring Program
FPR	Forest Practice Rules
FTA	Federal Transit Administration
FVS	Forest Vegetation Simulator
GHG	greenhouse gas
H <sub>2</sub> S	hydrogen sulfide
HFC	hydrofluorocarbons
I-5	Interstate 5
IPaC	Information, Planning, and Conservation System
LRMP EIS	1994 Shasta-Trinity NF Land and Resource Management Plan Environmental Impact Statement
LSAA	Section 1602 Lake or Streambed Alteration Agreement
mg/m <sup>3</sup>	milligrams per cubic meter
MRZ	mineral resource zones
MT CO <sub>2</sub> e	metric ton of carbon dioxide equivalent

N <sub>2</sub> O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEIC	Northeast Information Center
NO <sub>2</sub>	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSVAB	Northern Sacramento Valley Air Basin
NSVPA	Northern Sacramento Valley Planning Area
NWCG	National Wildlife Coordinating Group
OES	Shasta County Office of Emergency Services
OSHA	Occupation Safety and Health Administration
PCT	Pacific Crest Trail
PFC	perfluorocarbons
PM <sub>10</sub> and PM <sub>2.5</sub>	respirable and fine particulate matter
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
RTP	2018 Regional Transportation Plan
SARA	Superfund Amendments and Reauthorization Act
SF <sub>6</sub>	sulfur hexafluoride
Shasta County AQMD	Shasta County Air Quality Management District
Shasta-Trinity NF	Shasta-Trinity National Forest
SMP	Smoke Management Plan
SO <sub>2</sub>	sulfur dioxide
SPCP	Spill Prevention and Control Plan
SPR	Standard Project Requirement

SPRP	Spill Prevention and Response Plan
SRTA	Shasta Regional Transportation Agency
SWPPP	storm water pollution prevention plan
TAC	toxic air contaminant
TCR	tribal cultural resource
UPRR	Union Pacific Railroad
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VdB	vibration decibels
VMT	vehicle miles traveled
WRCC	Western Regional Climate Center

# 1 INTRODUCTION

## 1.1 INTRODUCTION AND REGULATORY GUIDANCE

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared by California State Parks (CSP) to evaluate the potential environmental effects resulting from implementation of the proposed Castle Crags Root Creek Drainage Forest Fuels Management Plan and Public Safety Improvement Project (both, together, comprising the project evaluated in this environmental document). The project area is in Shasta County, and would consist of forest fuel reduction and treatments as prescribed in the Forest Management Plan on 435-acres within the Root Creek Drainage, ongoing vegetation management, and a new emergency access road exiting Vista Point.

This document has been prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) and the State CEQA Guidelines (California Code of Regulations Section 15000 et seq.). An IS is prepared by a lead agency to evaluate if a project may have a significant effect on the environment (State CEQA Guidelines Section 15063[a]), and determine the appropriate type of CEQA environmental document. In accordance with State CEQA Guidelines Section 15070, a “public agency shall prepare...a proposed negative declaration or mitigated negative declaration...when: (a) The Initial Study shows that there is no substantial evidence...that the project may have a significant impact on the environment, or (b) The initial study identifies potentially significant effects, but 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 reduce the effects to a point where clearly no significant effects would occur....” In this circumstance, the lead agency prepares a written statement describing its reasons for concluding that, in light of the record as a whole, the proposed project would not have a significant effect on the environment and, therefore, does not require the preparation of an Environmental Impact Report (EIR).

As described in the environmental checklist (Chapter 3), the project would not result in significant environmental impacts with the identified mitigation incorporated. Therefore, an IS/MND is the appropriate document for compliance with the requirements of CEQA. This IS/MND conforms to these provisions and to the content requirements of State CEQA Guidelines Section 15071.

Under CEQA, the lead agency is the public agency with primary responsibility for consideration of project approval. As the agency responsible for approving the project, CSP is the lead agency and has directed the preparation of an analysis that complies with CEQA so as to inform decision-makers and the public of the environmental consequences of implementing the proposed project. This environmental document is being made available to the public for review and comment. The IS/MND is available for a 32-day public review period from May 16, 2018 to June 17, 2019.

Digital copies of the IS/MND are available on the internet at: [https://www.parks.ca.gov/?page\\_id=981](https://www.parks.ca.gov/?page_id=981).

Copies of the document are also available for public review at the following locations:

California State Parks  
Northern Buttes District Office  
400 Glen Drive  
Oroville, CA 95966

Dunsmuir Library  
Front Desk  
5714 Dunsmuir Avenue  
Dunsmuir, CA 96025

Shasta State Historic Park  
Museum/Visitor Center  
15312 Highway 299 West  
Shasta, CA 96087

Castle Crags State Park  
Entrance Kiosk  
20022 Castle Creek Road  
Castella, CA 96017

Comments or questions should be addressed to:

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If you wish to send written comments by postal mail, they must be postmarked by June 17, 2019. Email comments must be received by this due date.

After comments are received from the public and reviewing agencies and considered by CSP, CSP may (1) adopt the MND and approve the proposed project; (2) undertake additional environmental studies; or (3) decide to modify or disapprove the project. If the project is approved, CSP could proceed with all or part of the project after obtaining all necessary permits and other approvals.

## 1.2 CEQA GUIDELINES UPDATE

In January 2018, the Governor's Office of Planning and Research (OPR) submitted comprehensive updates to the CEQA Guidelines to the California Natural Resources Agency (CNRA). The updates to the CEQA Guidelines were finalized in late 2018 and became effective on December 28, 2018. The updates cover a wide range of issues, such as use of regulatory standards as significance thresholds; a new metric for analyzing transportation impacts; inclusion of new Appendix G criteria questions; and numerous procedural and technical improvements. The Appendix G Environmental Checklist Form now includes new sections covering energy and wildfire; incorporates an analysis of vehicle miles traveled (VMT); and includes rearrangement, edits, and deletion of certain criteria questions.

According to the State CEQA Guidelines (2019), Appendix G is intended to be "a sample form that may be tailored to satisfy individual agencies' needs and project circumstances." Given that this project was initiated in 2016 and well before the most recent CEQA Guidelines update, it has not been revised to exactly mirror the recent revisions to the Appendix G Environmental Checklist Form. Instead, a brief discussion of potential energy and wildfire related impacts is provided below, and all other topics are adequately addressed throughout Chapter 3 of this IS/MND.

The project would result in the short-term consumption of energy to operate and maintain construction equipment, transport materials, and from worker commute during implementation activities. This one-time energy expenditure required to implement the project would be nonrecoverable. The energy needs for project construction and implementation would be temporary and would not require additional capacity or increase peak or base period demands for electricity or other forms of energy. Given the need for the project to increase public safety and improve habitat conditions in the park, this would not be an inefficient, wasteful, or unnecessary consumption of energy resources. Therefore, no significant impacts related to energy would occur.

The project is intended to increase public safety by providing an additional emergency access and evacuation road exiting Vista Point and by reducing wildfire risk through forest fuel treatment activities, such as hand and mechanical thinning and prescribed burning. As described in Section 3.8, "Hazards and Hazardous Materials," criterion h), standard precautions would be taken before and during prescribed burns to minimize the potential for the accidental spread of fire, such as the development of a Fire Safety Plan before prescribed burning and stationing fire engines on-site during prescribed burning. Therefore, no significant impacts related to wildfire risk would occur.

## 1.3 SUMMARY OF FINDINGS

Chapter 3 of this document contains the analysis and discussion of potential environmental impacts of the proposed project.

Based on the issues evaluated in that chapter, it was determined that the proposed project would have no impact related to the following issue areas:

- ▲ Agricultural Resources,
- ▲ Land Use and Planning,
- ▲ Mineral Resources,
- ▲ Population and Housing,
- ▲ Public Services,
- ▲ Transportation/Traffic, and
- ▲ Tribal Cultural Resources.

Project impacts were determined to be less-than-significant for the following issue areas:

- ▲ Aesthetics,
- ▲ Forest Resources,
- ▲ Geology and Soils,
- ▲ Greenhouse Gas Emissions,
- ▲ Hazards and Hazardous Materials,
- ▲ Hydrology and Water Quality,
- ▲ Noise,
- ▲ Recreation, and
- ▲ Utilities and Service Systems.

Project impacts were determined to be less-than-significant with mitigation incorporated for the following issues areas:

- ▲ Air Quality,
- ▲ Biological Resources, and
- ▲ Cultural Resources.

## 1.4 DOCUMENT ORGANIZATION

This IS/MND is organized as follows:

**Chapter 1: Introduction.** This chapter provides an introduction to the environmental review process. It describes the purpose and organization of this document, and presents a summary of findings.

**Chapter 2: Project Description.** This chapter describes the project objectives and provides a detailed description of the project.

**Chapter 3: Environmental Checklist.** This chapter presents an analysis of a range of environmental issues identified in the CEQA Environmental Checklist and determines if the project would result in no impact, a less-than-significant impact, a less-than-significant impact with mitigation incorporated, or a potentially significant impact. If any impacts were determined to be potentially significant, an EIR would be required. For this project, however, CSP has committed to resource protection measures, project modifications, and mitigation measures that would avoid or lessen the effects of the project to a less-than-significant level.

**Chapter 4: References.** This chapter lists the references used in preparation of this IS/MND.

**Chapter 5: List of Preparers.** This chapter lists the CSP and consultant staff involved in preparing the IS/MND.

**Appendices.** The appendices provide additional detail on resource protection measures and regulatory requirements, and provide detailed technical information used in the preparation of this IS/MND.

## **2 PROJECT DESCRIPTION**

### **2.1 PROJECT LOCATION**

Castle Crags State Park (CCSP or park) is located at the north end of the Sacramento Valley off Interstate 5 (I-5) in Shasta County; approximately 14 miles south of the City of Mount Shasta, 6 miles south of Dunsmuir, and 21 miles north of Shasta Lake (Figure 2-1). The northernmost portion of CCSP boundary lies just within the Siskiyou County boundary. The park comprises approximately 4,352 acres of primarily forest land and abuts portions of the Shasta-Trinity National Forest (Shasta-Trinity NF), including the Castle Crags Wilderness Area (Figure 2-2).

The project area is defined as the approximately 435-acre Root Creek Drainage, which encompasses the northern slope of Kettlebelly Ridge, Vista Point Road parking and viewing location, a portion of the Pacific Crest Trail (PCT), and land next to and just west of I-5, which is all entirely contained within Shasta County. The proposed project includes the forest fuel treatment area within the Root Creek Drainage and an emergency access road exiting Vista Point (Figure 2-3).

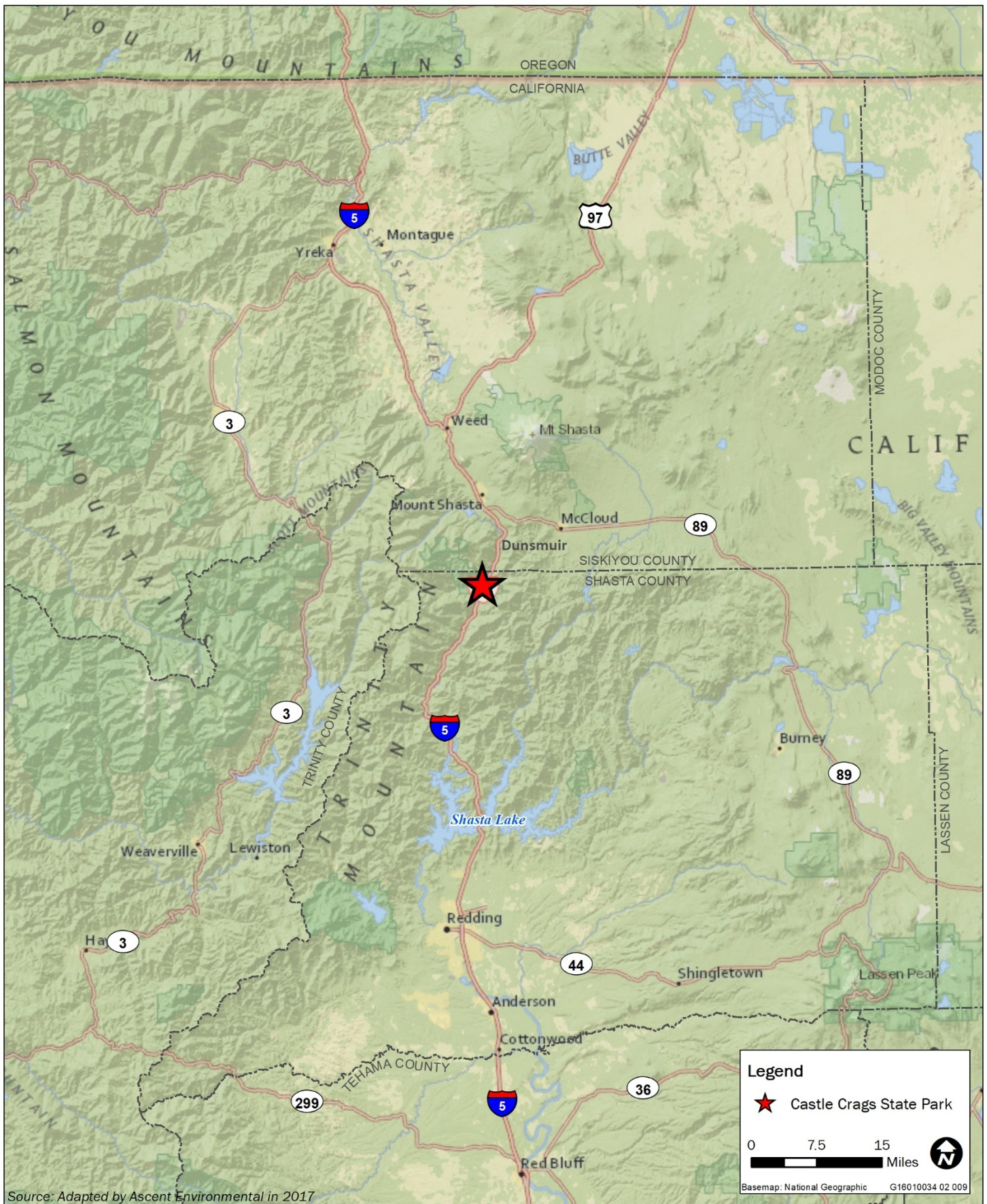
### **2.2 CASTLE CRAGS STATE PARK FACILITIES AND OPERATIONS**

CCSP offers a variety of recreational activities, including camping, picnicking, hiking, and fishing. Castle Creek, Indian Creek, Root Creek, Fall Creek, and the Sacramento River all run through the park. CCSP has 76 developed campsites, with flush toilets, showers, and drinking water available near each campsite. Picnic sites are located along the Sacramento River and at Vista Point. There are 28 miles of hiking trails, including a portion of the PCT. Eight staff residence buildings are located within CCSP; four are generally occupied year around by CCSP staff; two are occupied by park staff periodically during temporary visits, and the remaining two are not currently in use. Public roads within CCSP include Castle Creek Road, Vista Point Road, Frontage Road, and Riverside Road. Several restricted-access service roads are located throughout CCSP for park staff use only.

Currently, operations and maintenance activities within the Root Creek Drainage are minimal given that the area is generally inaccessible. Rangers patrol Vista Point Road and Vista Point parking lot about 3-4 times daily. Trail maintenance activities are typically conducted by volunteers every spring. When major repairs are needed, typically every 3-4 years, temporary crews assist CCSP staff.

### **2.3 BACKGROUND AND PROJECT NEED**

In general, the dense forest within the park is uniformly young, having developed following large wildfires before the 1930s. The forest type is described as mixed conifer series, Douglas-fir series, or Douglas-fir – Ponderosa pine series. Interspersed among the forest types are meadows, montane chaparral, and riparian vegetation. The current condition of a large portion of the park's forested area is much different than the historical condition. Outside of the campground areas, the forest has become notably overstocked. This overcrowding poses many problems for a timber stand, resulting in unhealthy and suppressed trees, and increased vulnerability to insect and disease outbreaks. Also, several invasive plant species have outcompeted the native vegetation, including but not limited to sugar pine, Pacific yew, Port Orford cedar, California blackberry, white alder. An overcrowded and unhealthy forest situation increases the area's susceptibility to damaging wildland fire events. In addition, road access in the park area is limited and the terrain is relatively steep with most slopes averaging 40-45 percent. Slope is an important factor in the speed or spread-rate of a wildland fire. The existing slopes and presence of ladder fuels within the majority of the forest create a setting that could sustain a major wildfire incident.

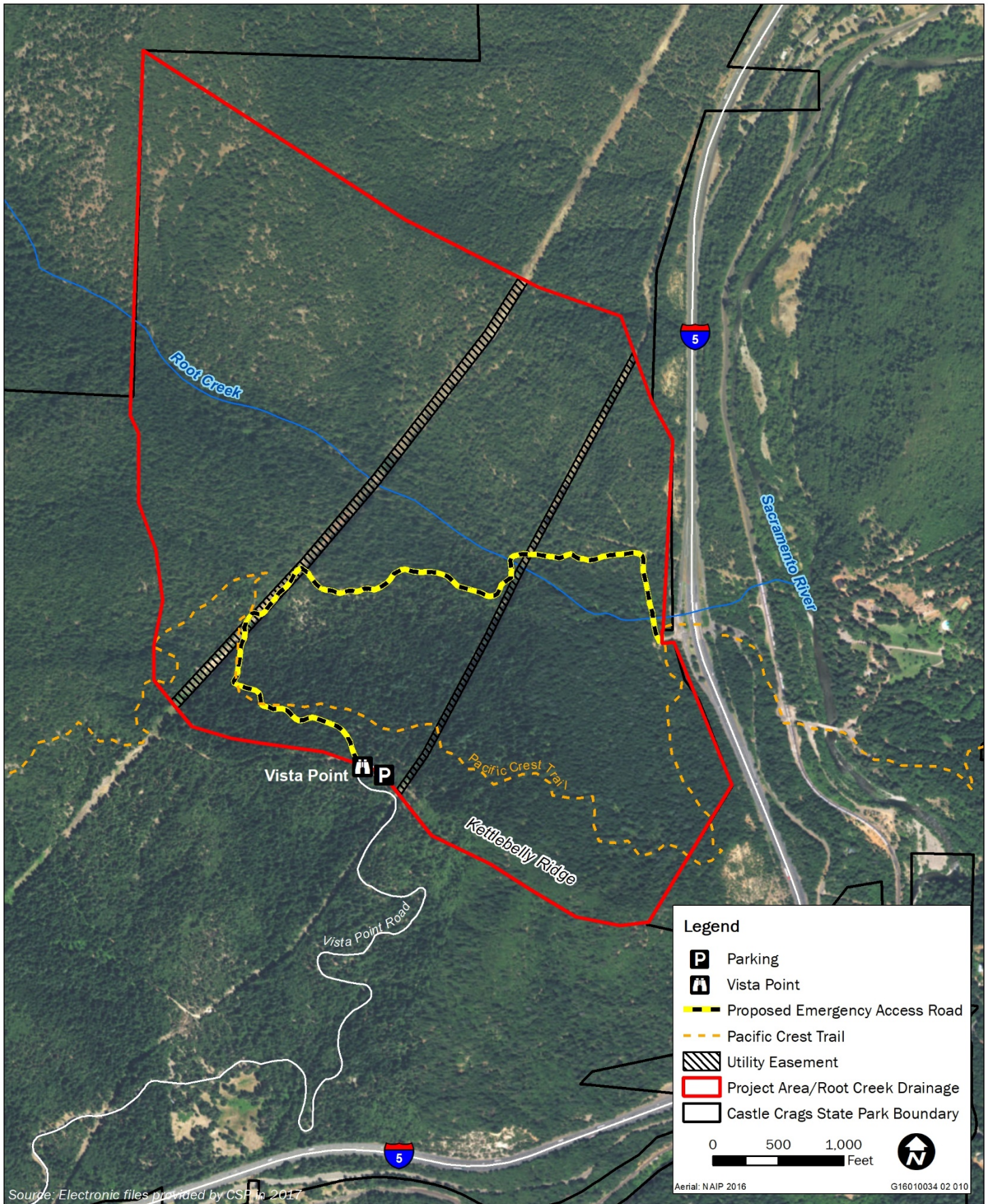


**Figure 2-1**

**Project Vicinity**







**Figure 2-3**

**Project Area/Root Creek Drainage**

Vista Point trail, the PCT, and several other park trails in this location are popular visitor destinations. The Vista Point Trail and Vista Point viewing area afford views of the rock formations at Castle Crags and Gray Rocks, as well as Mount Shasta. The crags for which the park is named are large granite formations that are over 170 million years old and are located northwest of the park in the Shasta-Trinity NF. Currently, there is one narrow paved road (Vista Point Road) providing the only vehicular access to Vista Point. Situated above the densely forested north-facing slope of Kettlebelly Ridge, visitors at Vista Point do not have an alternate evacuation route off Vista Point in case of a wildfire; similarly, responding fire crews do not have adequate access to attack a fire. The adjacent I-5 provides a source of possible ignitions because of the high volumes of traffic along the highway. With the excessive density of trees and presence of substantial ladder fuels and ground duff, a fire in this high-use area may not be quickly contained and could threaten public safety, the park's forest habitat, and the abutting Shasta-Trinity NF.

Within the Root Creek Drainage, there is an abandoned dirt road bed, existing utilities, and utility easements. The lower portions of the road bed are used by the utility companies to access existing infrastructure. The road bed crosses Root Creek at two locations: upper Root Creek and lower Root Creek. Culverts have been placed within the stream at these road bed crossings. During a high-flow storm event over 10 years ago, one of two culverts at the upper Root Creek crossing was lost. Without authorization by California State Parks (CSP), an unknown entity used shotcrete (a form of concrete applied pneumatically) on the one remaining culvert to keep it in place and allow for vehicle access over the creek. In its current form, the one remaining culvert is extremely undersized to handle high water flows and has resulted in a channel diversion of Root Creek around the culvert, which has caused substantial erosion and a decrease in stream water quality.

CSP has proposed implementation of a Forest Management Plan for CCSP. The plan outlines the future management of forest and other vegetation within Root Creek Drainage. The primary objective of developing the Forest Management Plan is to define the forest fuel treatments needed to reduce the likelihood of large-scale wildfires that would risk visitor safety and result in the loss of late-successional conditions that occur (i.e., the larger, older trees with historically appropriate amounts of downed wood and understory vegetation with adequate spacing for new tree regeneration). The plan describes how trees and plant communities represented at CCSP would be properly managed following best management practices, such as seasonal timing of fuels reduction around migratory bird nesting season and air quality permissible burn days. This plan also defines goals for vegetative communities in terms of a desired condition for each, describing the range of acceptable management practices, and establishing guidelines for how and when they are to be used, describing any constraints that may limit their application. Specific proposed treatments would result in long-term development of vertical and horizontal diversity, snags, coarse woody debris and other stand components benefiting late-successional species. Forest management using thinning from below and the reintroduction of prescribed fire after thinning would be central to reducing fuel loads, improving forest heterogeneity and carbon sequestration, and enhancing wildlife habitat quality. The plan is proposed to be an important tool, allowing future forest managers to build upon knowledge gained from past efforts. Adoption of the plan is intended to benefit current and future management of the forest at CCSP.

The primary project needs arise from the existing very high wildfire risk in the park and the lack of suitable emergency access and evacuation routes at Vista Point, including resolution of a failed creek drainage.

## 2.4 PROJECT OBJECTIVES

The basic objectives of the proposed project are to:

- ▲ Improve forest health by restoring appropriate forest tree density, natural forest regeneration processes and erosion source controls, stream water quality conditions, and wildlife habitat values.
- ▲ Increase public safety by reducing damaging wildfire risk and providing a secondary emergency access/evacuation road serving Vista Point.

- ▲ Reduce hazardous fuel accumulation to decrease the risk of damaging wildfires.
- ▲ Effectively sequester carbon.
- ▲ Reduce noxious weed infestations to restore and protect native plants and natural habitat values.

## 2.5 DESCRIPTION OF THE PROPOSED PROJECT

The project consists of three main activities:

- ▲ **Implementation of the Forest Management Plan and Fuels Reduction:** Forest fuels in the Root Creek Drainage would be strategically reduced via hand and mechanical thinning, followed by biomass disposition and prescribed burns, per guidance in the Forest Management Plan. The application of understory thinning followed by prescribed burning would be the most common technique for forest management within Root Creek Drainage. The activities associated with implementation of the Forest Management Plan and fuels reduction are referred to generally as forest fuels treatment activities throughout this initial study.
- ▲ **Ongoing Vegetation Management.** Ongoing vegetation management would occur, including targeted herbicide use to control noxious weeds including, but not limited to: French broom (*Genista monspessulana*), sweet pea (*Lathyrus latifolius*), bull thistle (*Cirsium vulgare*), woolly mullein (*Verbascum thapsus*) and Himalayan blackberry (*Rubus armeniacus*). Herbicides including Milestone, Milestone VM plus, Garlon-4 Ultra, Element-4 and RoundUp Pro Concentrate would be applied via foliar spray at concentrations specified on the chemical's label during fall and/or spring season depending upon species. Infested areas could be treated up to three times a year.
- ▲ **Reestablish Secondary Emergency Access Road to Vista Point.** A secondary emergency access road between the park entrance and Vista Point would be reestablished along an existing, abandoned road bed to serve multiple purposes: (1) provide a secondary emergency access road for visitors at Vista Point in case of wildfire or other emergency where the paved road becomes blocked, (2) provide secondary access to the watershed and Vista Point for fire crews in case of wildfire, (3) provide access for equipment and crews to perform forest fuels reduction activities, and (4) replace an existing failed culvert in Root Creek and restore the current creek crossing so that culvert capacity would be adequate, diversion of high flows outside the creek channel would cease, and water quality would be improved as a result.

### 2.5.1 Root Creek Drainage Forest Management Plan and Fuels Reduction

The basic objective of the Forest Management Plan is to define the fuel treatments needed to reduce the likelihood of high intensity, large-scale wildfires. Additional objectives include large tree development, development and maintenance of forest heterogeneity, increased forest carbon sequestration, reintroduction of fire into ecological processes, and creation and maintenance of habitat conditions for wildlife and of a forest resilient to disturbance. Specific treatment best management practices and desired condition guidelines include the following:

- ▲ Retain all scattered Old Growth remnants and late seral recruitment trees > 28 inches diameter at breast height (dbh).
- ▲ Retain selected tree groupings and selected clumps of understory species.
- ▲ Retain all defect trees when possible; decadent, broken top, forked, malformed, signs of previous wildlife use such as cavities or nests.

- ▲ Retain hardwood species free of shade tolerant conifer encroachment and over-topping.
- ▲ Retain or create hard and soft snags at a rate of 3-6 per acre across diameter classes >15 inches dbh.
- ▲ Retain or create downed woody material across diameter classes >14 inches dbh at a rate of 3–12 per acre.
- ▲ Retain all trees, if possible, with active nests. Screen and perch trees must also be retained in the immediate area surrounding nest tree.
- ▲ Retain shade intolerant pine species; provide and maintain conditions for pine reproduction.
- ▲ Create and/or maintain forest gaps 0.1 to 0.5 acre at a rate of one every 2 to 10 acres.
- ▲ Limit management activities in the immediate riparian corridor of Root Creek.
- ▲ Prevent the introduction and/or spread of invasive species.

Forest fuels treatments would include understory thinning, prescribed fire, snag management, maintaining downed woody debris, wood utilization, and post management repair.

## UNDERSTORY THINNING

The application of understory thinning followed by prescribed burning would be the most common technique for forest management within the project area. Hand and mechanical thinning from the ground, targeting dense understory and small trees up to 16 inches dbh; larger overstory conifers would generally be retained, except where crowding or other forest conditions have resulted in poor tree health or habitat quality. Selection thinning under structural restoration to remove or fell dominant or co-dominant groups or individual overstory trees from 14–28 inches dbh would be carried out on an as needed basis to create forest gaps, create large downed woody debris, decrease on-site basal area, pine management, hardwood management, reduce fire behavior, and to enhance overall forest heterogeneity. Smaller diameter trees, in some cases, may also be favored over larger diameter trees to promote species and structural diversity.

Forest thinning would be an ongoing task in the park and would generally occur from October through mid-March (depending on weather conditions), and be applied over the entire Root Creek Drainage (except where slopes are too steep, or within 50 feet of a water course). Depending on staffing levels, thinning activities would occur, on average, 5 days a week, for 5-10 hours per day. Equipment would include chainsaws, pole saws, mcleods (a hand tool similar to a rake, but one end can cut roots), and possibly a mechanical tree feller. The following seasonal constraints and best management practices (BMPs) would be in place for all activities:

- ▲ The felling of trees would occur outside the migratory bird nesting season (March 15 - September 1) unless a bird focused survey is conducted by a CSP biologist, ensuring no nesting birds would be directly or indirectly harmed or disturbed by the tree felling;
- ▲ Existing nests/tree hollows along with designated perch trees, screening trees, and replacement trees shall be left standing and unharmed;
- ▲ If active or occupied nests for the following species are located, refer to Article 9 of the California Forest Practice Rule for establishment of buffers and avoidance measures: Peregrine falcon, osprey, golden eagle, bald eagle, northern goshawk, great blue heron and great egret;
- ▲ During operations, no operator shall place, discharge, or dispose of or deposit any material including, but not limited to soil, silt, bark, slash, sawdust or petroleum into any water body;

- ▲ Where mineral soil is exposed by tree felling operations on approaches to watercourses, these areas shall be stabilized to the extent necessary to prevent discharge of soils into the waterbody; and
- ▲ Dirt roads may not be used by heavy trucks or motorized equipment during and immediately after significant precipitation so as not to result in significant sediment discharge.

## **PRESCRIBED FIRE**

Prescribed fire, in the form of pile burning or understory broadcast burning, would be applied on an 8- to 35-year fire return interval at varying levels of intensity depending on site location and condition. A Prescribed Fire Plan would be developed before burning that details control lines, contingency lines, burn compartments, types of firing operations, hours of the burn, and safety zones. Burn compartments would vary in size from 5 acres up to 50 acres, based on topography and tactical defense locations. Depending on statewide fire conditions, air quality, and personnel availability, prescription burns could be implemented on approximately 100 acres of the 435-acre Root Creek Drainage over the next 2 years, starting in year 2019. Burn activities would typically occur October through March (depending on the fire season) for approximately 8–10 hours per day, involving approximately 1–3 acres per day, for up to 24 days per month (as permissible). Burn activities could extend into June, depending on rainfall and fuel moisture levels from the preceding winter season. The goal of all prescribed broadcast burns is to establish a ground fire of low to moderate intensity, creating a mosaic of vegetation along a range of burned and unburned fuels.

Before implementing prescribed burns, CSP would develop the Prescribed Burn Plan and a Smoke Management Plan, as well as obtain all appropriate permits. The following safety precautions, to be detailed in a Prescribed Burn Plan, would be taken to reduce the potential for the accidental spread of fire:

- ▲ Smoke management and burn plans shall be prepared by CSP and all required permits acquired before burn season.
- ▲ Prior to the start of incineration or prescription burning, CSP would develop a Fire Safety Plan for all personnel on the fire. The plan would include the emergency calling procedures for the U.S. Forest Service (USFS) as the park falls within the USFS Responsibility Area, as well as the California Department of Forestry and Fire Protection (CAL FIRE) and local fire department(s).
- ▲ Prescribed fires shall be conducted outside of the active fire season on allowable burn days per the Air Quality Control Board.
- ▲ Neighbors, stakeholders, and the community would be advised of prescribed burns via public notice. This includes placing signs on the trails that enter the areas of prescribed burns. If needed, hikers would be rerouted during active burns.
- ▲ All heavy equipment would be required to include spark arrestors or turbo chargers (which eliminate sparks in exhaust) and have fire extinguishers on-site.
- ▲ Construction crews would park vehicles 50 feet from flammable material, such as dry grass or brush. At the end of each workday, construction crews would park heavy equipment over a non-combustible surface to reduce the chance of fire.
- ▲ CSP personnel would have a CSP radio at the park, which allows direct contact with the USFS, CAL FIRE and a centralized dispatch center, to facilitate the rapid dispatch of control crews and equipment in case of emergency.
- ▲ Under dry conditions, a filled water truck and/or fire engine crew would be on-site during activities with the potential to start a fire.

## SNAG MANAGEMENT AND DOWNED WOODY DEBRIS

The goal of snag management for the Root Creek Drainage would be to retain, create, and maintain, at a minimum, both hard and soft snags across diameter classes less than 14 inches dbh at a density of 3-6 per acre; with the objective of at least one large snag less than 24 inches dbh per acre. If an area within Root Creek has more than 6 snags per acre, this does not indicate those snags should be felled. Snags need to be supplied over time with varying levels of decay across diameter classes down to 15 inches dbh. Snags should only be felled for fire safety and downed wood creation when needed. When no snags exist or have not been recruited through prescribed fire, the use of girdling should be considered for snag creation. Chainsaws, axes, hand saws and other cutting devices can be used to girdle a tree. The use of girdling can also be employed to release shade intolerant or suppressed species such as oaks and pines.

The Root Creek Drainage is lacking in large downed woody debris up to 30 inches dbh. With the reintroduction of fire, large tree development, and snag management, recruitment of woody debris both large and small would be maintained over time. In the event an area lacks downed woody debris, recruitment by felling after reintroduction to fire may be used. Downed woody debris should be maintained across all decay stages and across diameter classes at a rate of 3–12 per acre.

## WOOD UTILIZATION/DISPOSAL

Wood utilization within the park, such as for firewood, bio-energy, dimensional lumber, whole logs, or other uses would be considered following hand and mechanical thinning. However, in most cases, pile burning would be the method used for biomass disposal. Park staff would create 4-foot-by-4-foot burn piles and ignite the piles using a drip torch. Green material would be allowed to dry out for up to 1 year before burning. This drying period creates less smoke than burning green wood, providing better air quality and quicker consumption of biomass. In some cases, park staff would use a mobile incinerator called a Burn Boss to dispose of a portion of the biomass from previously treated areas. The Burn Boss is a self-contained, above ground air curtain incinerator with a refractory lined burn container that has dual-axes and is mounted for off-road use. The air curtain is powered by an on-board diesel engine. The Burn Boss is designed for the high temperature burning of forest fuels in compliance with the requirements of U.S. Environmental Protection Agency (EPA) 40 Code of Federal Regulations (CFR) 60, and other regionally applicable regulations. The Burn Boss meets the EPA's Tier 4 emissions standard.<sup>1</sup> Average throughput is approximately 10–20 cubic yards of material per hour. Per Shasta County's Department of Resource Management, the Burn Boss may operate for a period of 8 calendar weeks (not consecutive) between the hours of 10 a.m.–12 p.m. Use beyond the permitted eight calendar week period would require submittal of an application for a federal Title V operating permit.

## POST MANAGEMENT REPAIR

Once forest fuels treatment activities are complete, disturbed areas may need to undergo post-treatment repair. This would include the following, as needed:

- ▲ Flush cut stumps – flush cut stumps should be accomplished during initial activity, otherwise, crews would have to return to complete. Stumps should be cut as close to ground as possible without damaging saws or equipment.
- ▲ Soil displacement – soil moved by equipment must be returned to topography. This includes skid trails, log landings, roads, staging areas and handline construction or any other displacement of soil.
- ▲ Exposed soil – once displaced soil is returned to topography, woody surface material should be used to cover exposed soil on skid trail, road, landing or other areas.

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<sup>1</sup> On May 11, 2004, EPA signed the final rule introducing Tier 4 emission standards, which are phased-in over the period of 2008–2015. The Tier 4 standards require that emissions of PM and NO<sub>x</sub> be further reduced by about 90 percent. Such emissions reductions can be achieved through the use of control technologies—including advanced exhaust gas aftertreatment—similar to those required by the 2007-2010 standards for highway engines.

- ▲ Riparian cleanup – any side-cast or material, as a result of management activity, that is displaced into the immediate riparian zone of any creek must be removed and the area stabilized.
- ▲ Work site cleanup –work site areas should be free of trash. Oil or other equipment/engine fluids would not be allowed to enter soil or be cast on to vegetation at any time.

## 2.5.2 Ongoing Vegetation Management

Herbicides as a vegetation management tool are used to suppress undesirable competing vegetation, allowing the desired species ample space to grow. At CCSP, several invasive plant species have outcompeted the native vegetation. Ongoing vegetation management is proposed following forest fuel treatment and in other areas where noxious weeds have been established. A licensed herbicide applicator would apply herbicides using a backpack sprayer and/or a spray rig to selectively target invasive plant species in the Root Creek Drainage. Target species include, but would not be limited to French broom (*Genista monspessulana*), Sweet pea (*Lathyrus latifolius*), Himalayan blackberry (*Rubus armeniacus*), Woolly mullein (*Verbascum thapsus*), and invasive thistles such as bull thistle (*Cirsium vulgare*) and yellow starthistle (*Centaurea solstitialis*). Herbicide applications would occur between September-November for species such as Himalayan blackberry; February-March for broom, and March-June for most other species. Maintenance of these invasive species would occur on yearly intervals with treatment up to 3 times a year for heavy infestations. Once an invasive population is under control, follow up monitoring would occur and any resprouts would be treated on an as needed basis. Invasive plant management is an ongoing task. Herbicide application using a backpack sprayer would not occur when wind speed exceeds 10 miles per hour or when drift is visually observed.

Milestone, Capstone, Garlon-4 Ultra, Element-4, and RoundUp Pro Concentrate would be applied, using water, basal oil, or Agridex as adjuvants. A Pesticide Control Advisor (PCA) would prescribe the formula for each invasive plant, but it would be one or a combination of the abovementioned herbicides because these are the chemicals that are registered with Shasta County. All herbicides used would be reported to the Shasta County Department of Agriculture on a monthly basis, as is required by the Shasta County Agricultural Commissioner's Office and the Department of Pesticide Regulation, and records maintained at District Headquarters in Oroville, California. The chemicals would be applied per the label and PCA prescription. The full list of anticipated herbicide compounds and uses are presented in Table 2-1.

**Table 2-1 Herbicide Compounds and Uses**

Herbicide General Name	Primary Compound	Uses
Milestone	Aminopyralid Triisopropanolamine Salt	For control of annual and perennial broadleaf weeds including invasive and noxious weeds, certain annual grasses, and certain woody plants and vines on rangelands, non-crop areas, natural areas, and grazed lands.
Capstone	Triclopyr Triethylamine Salt	For control of annual and perennial broadleaf weeds and woody plants in rangelands, forests, natural areas, grazed areas, utility rights-of-way, etc.
Garlon-4 Ultra	Triclopyr-2-butoxyethyl ester	For the control of woody plants and annual and perennial broadleaf weeds in non-crop areas, including industrial manufacturing and storage sites, rights-of-way such as electrical power lines, communication lines, pipelines, roadsides, railroads, fence rows, non-irrigation ditch banks, forests and in the establishment and maintenance of wildlife openings.
Element-4		
RoundUp Pro Concentrate	Isopropylamine salt of glyphosate	A broad-spectrum post-emergence herbicide for industrial, turf, and ornamental weed control.

Source: Dow AgroSciences 2008, 2015a, 2015b, 2016; Monsanto 2010

## 2.5.3 Emergency Access Road

The proposed emergency access road would be developed between Vista Point parking lot and I-5. The unpaved access road's alignment would largely follow an old abandoned road bed that would connect with existing utility easements and coincide with a short segment of the PCT. Ninety percent of the alignment would occupy an existing, abandoned road bed, which would be regraded and remain unpaved. The typical cross-section would be at least 16 feet wide, with periodic turnouts to allow fire vehicles, utility vehicles, and trucks involved in forest fuel treatments adequate access from the I-5 corridor to the Vista Point parking lot. The emergency access road would remain unpaved to minimize maintenance following severe winters and graded to maintain adequate drainage and minimize the potential for erosion. Water for dust abatement, compaction of switch back areas, or areas where cut and fill have occurred would be used as needed via a water truck.

Once reestablished, this road would provide access for implementing forest fuel treatments, as well as a secondary emergency evacuation road for visitors and staff from Vista Point in case of emergencies. It would also serve as an emergency access for responders to medical and fire calls in the Root Creek Drainage area or at Vista Point. Existing vegetation and up to 150 trees of varying sizes would require removal to establish the roadway. Small diameter (4–14 inches dbh) Douglas fir and incense cedar would be the primary tree species removed, as well as California dogwood, an understory dominate. Biomass would be disposed of via burn piles and/or the BurnBoss. Discrete segments of the emergency access road are described in detail below, from Vista Point at the top to near I-5 at the bottom. Figure 2-4 provides a detailed overview of the emergency access road.

### VISTA POINT

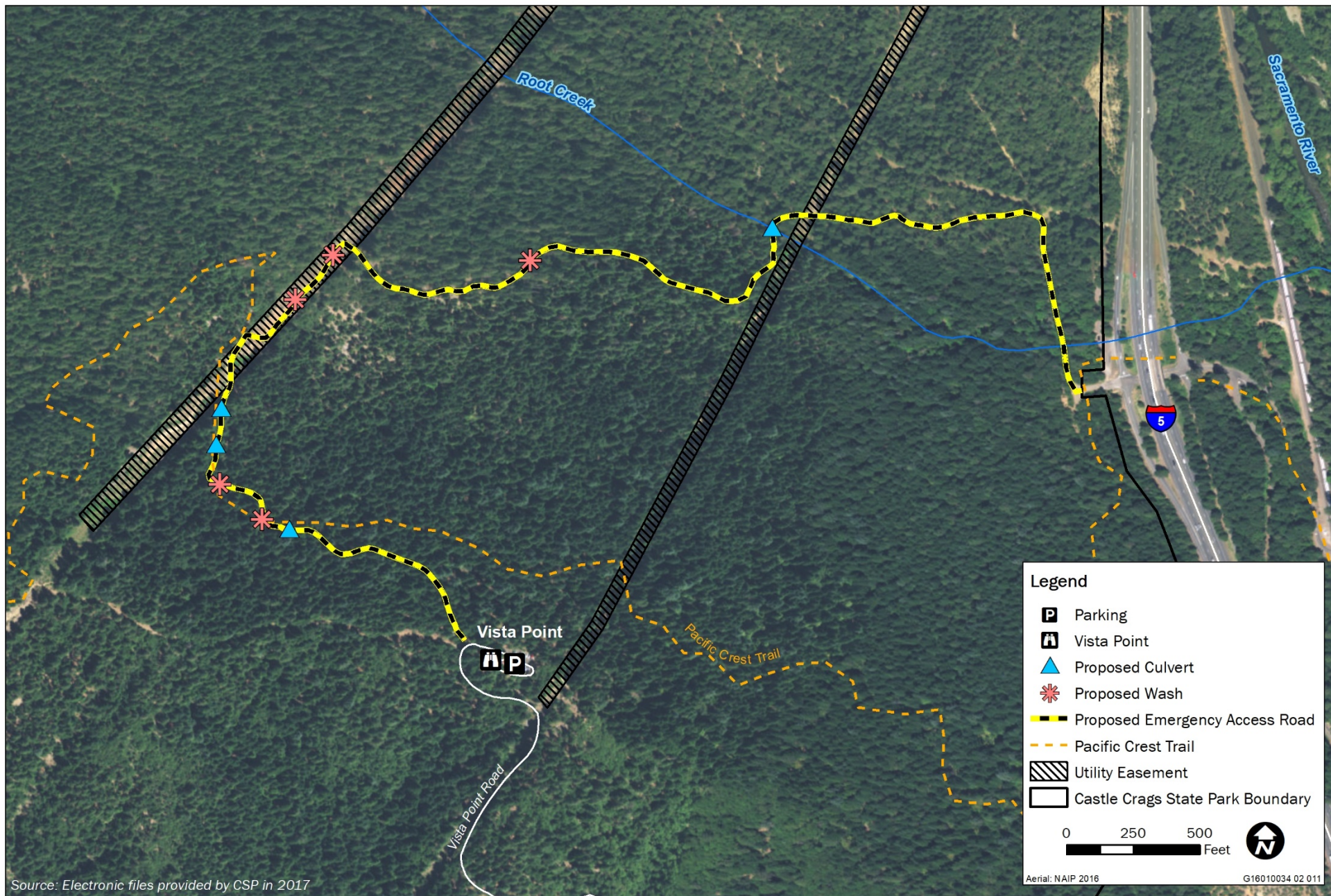
The new unpaved access road would begin at the Vista Point parking lot, requiring modification to the existing Americans with Disabilities Act parking stall and installation of a barrier that prevents unnecessary vehicular access while still providing an emergency exit. The top section of the emergency access road would require fill to decrease the grade of the slope in the first road segment. This fill would be balanced from other sections of the roadway requiring grading and/or excavation. Several small trees, primarily California dogwood, Douglas fir, and incense cedar would be removed to reestablish the 10-foot-wide roadway.

### UPPER HILLSIDE/PACIFIC CREST TRAIL

The emergency access road would continue from the Vista Point parking area through the forest on the existing, abandoned road bed, requiring re-grading and removal of vegetation and small trees where necessary. Hillside slope cuts and grading would occur at steep cross-slope locations in the upper hillside portion of the alignment to avoid the removal of large trees, particularly ponderosa pine, black oak and any sugar pines, if present. The new unpaved access road would wrap around the hillside and meet the PCT. A small portion of the PCT would be used and graded to be 10 feet wide and free of vegetation. The PCT would remain in place and open to hikers, though small delays may occur to hikers during construction when heavy equipment is in use or when prescribed burns are occurring. For approximately 670 feet, the PCT and access road would share the same alignment.

### INTERSECTION OF PACIFIC CREST TRAIL AND UTILITY EASEMENT

Below the upper hillside alignment, in the vicinity of the first intersection of the PCT, the abandoned road bed also intersects with an existing overhead utility easement. The unpaved road would diverge from the abandoned road bed onto the utility easement and would undergo grading to create a series of switchbacks to reduce slope instability issues, steep grades, and to prevent erosion. Five washes, generally constructed from compacted rock, and three 18–24-inch culverts are proposed along the road to allow drainage of overland runoff, minimize erosion, and reduce ongoing maintenance to the unpaved roadway. Some vegetation removal and grading/upsloping would be required.



Source: Electronic files provided by CSP in 2017

**Figure 2-4**

**Proposed Emergency Access Route**



## UPPER ROOT CREEK CROSSING

At the upper Root Creek crossing, an existing pair of 24-inch shotgun style culverts were damaged over 10 years ago and an unauthorized “repair” to maintain vehicular access across Root Creek resulted in only one of the two culverts being shotcreted in place. Unable to adequately convey the winter flows through one culvert, Root Creek eventually overflowed the culvert crossing and created a new side channel which resulted in erosion and decreased water quality to the creek. Reestablishment of the emergency access road would remove the degraded culvert and allow Root Creek to return to its historic stream channel alignment. A box or bottomless culvert that can accommodate high flows, as well as provide the capacity for larger vehicles would be placed approximately 30 feet upstream of the current location as it would create a smaller footprint and result in less fill than rebuilding in the same location. Vegetation and tree removal would be required to place the new culvert upstream of the current crossing; however, this area already experiences an overstocked forest and thinning of trees would be conducted as part of the management of the forest. The brambles of Himalayan blackberry dominating the existing culvert location would be treated with herbicide to allow native riparian species to repopulate the creek. As previously described, herbicide application would not occur when wind speed exceeds 10 miles per hour or when drift is visually observed to avoid herbicides entering Root Creek. It is anticipated that this culvert replacement work would require a Clean Water Act Section 404 permit, Clean Water Act Section 401 water quality certification, and a Fish and Game Code Section 1602 Lake or Streambed Alteration Agreement, which would be obtained before any in-water work.

## LOWER ROOT CREEK CROSSING

At the lower Root Creek crossing, the existing culvert is well established and would not undergo any structural changes. Up to 50 cubic yards of road base material would be added to road sections prone to wetness in this area to maintain a stable driving surface during and after rainy periods. The road bed improvement would occur over approximately 280 feet of the road on either side of the lower Root Creek crossing. The abandoned road bed in this location is primarily flat and free of vegetation; thus, minimal vegetation removal or grading would be required in this location.

### 2.5.4 Standard Project Requirements and Forest Practice Rules

CSP employs standard project requirements (SPRs), which are State Park System-wide environmental protection measures and features applied to a project’s design, construction process, or operation that are implemented with the objective of avoiding significant environmental impacts or maintaining them at less-than-significant levels. These measures were developed from the Park’s Health and Safety Plans, BMPs, and known regulatory requirements. For example, an SPR addressing how to treat the inadvertent discovery of archeological features is assigned to all projects statewide that include ground disturbing work. SPRs have been developed for General Construction, Cultural Resources (general, historian, and archeologist), Natural Resources (general, plants, and wildlife), Aesthetics, Air Quality, Geology and Soils (erosion), Hazards, Hydrology, Traffic, and Noise. CSP staff also follow the California Forest Practice Rules (FPRs) when implementing forestry projects. FPRs and SPRs that are applicable to this project are presented in Appendix A.

## 2.5.5 Permits and Approvals

Table 2-2 discloses the anticipated permits and approvals that would be required for the proposed project.

<b>Table 2-2      Anticipated Permits and Approvals</b>		
<b>Permit</b>	<b>Agency</b>	<b>Purpose</b>
Section 404 Permit (Nationwide or Regional General Permit)	U.S. Army Corps of Engineers	Minimize and mitigate impacts to wetlands, waters of the U.S. and water quality, generally at stream crossings.
Section 1602 Lake or Streambed Alteration Agreement	California Department of Fish and Wildlife	Minimize and mitigate impacts to stream bed and banks, and riparian habitat, applied at stream crossings.
Section 401 Water Quality Certification	Central Valley Regional Water Quality Control Board	Minimize impacts to water quality in combination with the Section 404 permit and potentially related to other potential sources of sediment or pollutants entering waters of the state.
Section 402 National Pollutant Discharge Elimination System (NPDES) General Construction Stormwater Discharge Permit	State Water Resources Control Board	Minimize impacts to water quality
Burn Permit	Shasta County Air Quality Management District	Reduce risks associated with prescribed burns
Smoke Management Plan	Shasta County Air Quality Management District	Minimize air quality impacts

### 3 ENVIRONMENTAL CHECKLIST

#### PROJECT INFORMATION

1. **Project Title:** Castle Craggs State Park Root Creek Drainage Forest Fuels Management and Public Safety Improvement Project
2. **Lead Agency Name and Address:** California State Parks  
Northern Buttes District  
400 Glen Drive  
Oroville, CA 95966
3. **Contact Person and Phone Number:** Trish Ladd, (530) 532-3087
4. **Project Location:** Next to Interstate 5 (I-5) in Shasta County
5. **Project Sponsor's Name and Address:** Same as Lead Agency
6. **General Plan Designation:** Multiple, see Section 3.10, "Land Use and Planning"
7. **Zoning:** Multiple, see Section 3.10, "Land Use and Planning"
8. **Description of Project:** Refer to Chapter 2, "Project Description"
9. **Surrounding Land Uses and Setting:** Refer to Chapter 2, "Project Description"
10. **Other public agencies whose approval is required:** Refer to Section 2.4.5, "Permits and Approvals"
11. **Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun?**  
Refer to Section 3.17, "Tribal Cultural Resources"

#### 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.

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Aesthetics                         | <input type="checkbox"/> Agriculture and Forest Resources | <input type="checkbox"/> Air Quality                     |
| <input type="checkbox"/> Biological Resources               | <input type="checkbox"/> Cultural Resources               | <input type="checkbox"/> Geology / Soils                 |
| <input type="checkbox"/> Greenhouse Gas Emissions           | <input type="checkbox"/> Hazards & Hazardous Materials    | <input type="checkbox"/> Hydrology / Water Quality       |
| <input type="checkbox"/> Land Use / Planning                | <input type="checkbox"/> Mineral Resources                | <input type="checkbox"/> Noise                           |
| <input type="checkbox"/> Population / Housing               | <input type="checkbox"/> Public Services                  | <input type="checkbox"/> Recreation                      |
| <input type="checkbox"/> Transportation / Traffic           | <input type="checkbox"/> Tribal Cultural Resources        | <input type="checkbox"/> Utilities / Service Systems     |
| <input type="checkbox"/> Mandatory Findings of Significance |   | <input checked="" type="checkbox"/> None with Mitigation |

**DETERMINATION (To be completed by the Lead Agency)**

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** 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** is required.
- ☐ I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at 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 **ENVIRONMENTAL IMPACT REPORT** 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 **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature



Trish Ladd

Printed Name

Date

May 8, 2019

Environmental Scientist

Title

California Department of Parks and  
Recreation

Agency

## EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
4. “Negative Declaration: Less Than Significant with Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from “Earlier Analyses,” as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
  - a) Earlier Analysis Used. Identify and state where they are available for review.
  - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project’s environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
  - a) the significance criteria or threshold, if any, used to evaluate each question; and
  - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

## 3.1 AESTHETICS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>I. Aesthetics. Would the project:</b>				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3.1.1 Environmental Setting

#### VISUAL CHARACTER AND QUALITY

The criteria for describing visual character and quality are vividness, intactness, and unity:

- ▲ **Vividness:** visual power or memorability of landscape components as they combine in striking or distinctive visual patterns.
- ▲ **Intactness:** visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, as well as in natural settings.
- ▲ **Unity:** visual coherence and compositional harmony of the landscape considered as a whole.

Castle Crags State Park (CCSP) comprises approximately 4,352 acres of primarily forest land and abuts portions of the Shasta-Trinity National Forest (Shasta-Trinity NF), including the Castle Crags Wilderness Area. In general, the forest is dense and overstocked, as is described as mixed conifer series, Douglas-fir series, or Douglas-fir – Ponderosa pine series. Interspersed among the forest types are meadows, montane chaparral, and riparian vegetation. The project is in the approximately 435-acre Root Creek Drainage, which encompasses the northern slope of Kettlebelly Ridge, Vista Point Road parking and viewing location, a portion of the Pacific Crest Trail (PCT), and forest land next to I-5 to the east. The primary land uses include dense forest land, with recreation amenities including trails and an associated paved parking area at Vista Point, with considerable continuity of visual character. Vivid views of Castle Crags and Mount Shasta are visible from the Vista Point Trail, and dense forest dominates the immediate viewshed in all directions. Vividness, intactness, and unity are high; therefore, visual quality in the project area is also high.

#### SCENIC HIGHWAYS

There are no eligible or officially designated State or County scenic highways near the project area (Caltrans 2011). In Figure SH-1 of the Scenic Highways Element of the Shasta County General Plan, the portion of the I-5 corridor that is adjacent to the project area is labeled as a “state routes eligible for official scenic highway designation, corridor in which natural environment is dominant.” Views of forest lands immediately adjacent to the I-5 are available to motorists, and although the project area boundary is adjacent to the I-5, because

of the density of the forest, the project area is not visible from I-5 and from surrounding properties in the immediate vicinity.

## VIEWER SENSITIVITY AND VIEWER EXPOSURE

Viewer sensitivity is a measure of public expectation or concern for changes to scenic quality. Numbers of viewers, viewer activity, view duration, distance from seen objects (i.e., foreground versus background), and special planning designations such as scenic routes are used to characterize viewer sensitivity.

Sensitive viewers are people located near the project area who may be affected by visual changes caused by the project. Sensitive viewers are described in terms of exposure to the project and level of sensitivity. Viewer exposure takes into account viewer location, the number of viewers, and duration and frequency of views.

Table 3.1-1 lists viewer groups that would be exposed to the project's visual changes; defines their geographic proximity to the project; qualitatively estimates the volume of viewers, duration of views, and frequency of views; and identifies the viewer sensitivity of each general viewer group. Visual sensitivity associated with views in a particular area is the combination of viewer sensitivity and viewer exposure.

**Table 3.1-1 Sensitive Viewer Groups Near the Project**

Viewer Group	Viewer Exposure				Viewer Sensitivity
	Area	Usage Volume	Duration of Views	Frequency of Views	
Park staff	Throughout the park, including project area	Moderate	Moderate	High	Moderate
Motorists on I-5	Adjacent to the project area	Moderate	Low	Low	Moderate to Low
Recreationists	Using trails, including the PCT, within the project area	Moderate	High	Moderate	High

### 3.1.2 Discussion

#### a) Have a substantial adverse effect on a scenic vista?

**Less than significant.** A scenic vista is defined as a viewpoint that provides expansive views of a highly-valued landscape for the benefit of the general public. The only publicly accessible and established scenic vista with views of the project area is Vista Point. Views from Vista Point are dominated by Mount Shasta, Castle Crags, and densely forested land. Because of the density of the forest, the majority of the project activities would not be visible from Vista Point, including hand and mechanical thinning activities, reestablishment of the emergency access road, and ongoing vegetation management. Furthermore, the majority of project activities would be occurring outside of the peak visitation period (Memorial Day to Labor Day) and thus likely affect fewer park visitors. The following Standard Project Requirement (SPR) would be implemented to reduce visual impacts during construction type activities:

- ▲ Construction personnel will store all project-related materials outside of the viewshed of Vista Point.

Given the density of the forest and incorporation of the SPR to keep project-related materials out of the viewshed of Vista Point, impacts to views at Vista Point from hand and mechanical thinning, reestablishment of the emergency access road, and ongoing vegetation management would be less than significant.

The project would also implement prescribed burning and pile burning to improve the health of the forest and reduce the potential for catastrophic fires. Smoke generated by prescribed burns and pile burning could temporarily reduce visibility of the project area from Vista Point and from other trails leading up to the crags

in the Shasta-Trinity NF. However, the prescribed burns and pile burning would be intermittent and temporary, generally occurring in the winter months (October – March) for up to 24 days per month (as permissible). Burns would also be conducted on a rotational basis, by compartments, that would vary in size from 5 acres up to 50 acres, based on topography and tactical defense locations. Smoke emissions would be minimized by the development of and adherence to a Smoke Management Plan (SMP) as required by the Shasta County Air Quality Management District (Shasta County AQMD). Before obtaining air district permission to burn, a burner must complete the following planning steps: 1) Register their burn with the air district; 2) Obtain an air district burn permit; 3) Submit a SMP to the air district; and 4) Obtain air district approval of the SMP. The SMP specifies the “smoke prescription,” which is a set of air quality, meteorological, and fuel conditions needed before burn ignition may be allowed. This process minimizes smoke emissions during prescribed burns.

The longer-term effects of the prescribed burns and pile burning (i.e., reduced forest density) could be slightly noticeable from Vista Point and other view points along trails in the area; however, these disturbances would represent a return to more natural conditions. Overall, the fuel treatment activities would retain the existing undeveloped and forested visual character of the project area and would not adversely affect any scenic vistas. Additionally, the project is intended to promote large tree development, forest heterogeneity, and overall forest health, which would enhance the visual character of the project area by resulting in more open and diversified views associated with the thinning of the currently overstocked forest. For the reasons described, this impact would be less than significant.

**b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

**No impact.** There are no state scenic highways in the vicinity of the project area; therefore, the project would not damage any scenic resources within a state scenic highway. Furthermore, visual character of the project area would remain intact and the potential for catastrophic fires, which could substantially damage scenic resources, would be reduced. Therefore, no impact would occur.

**c) Substantially degrade the existing visual character or quality of the site and its surroundings?**

**Less than significant.** During forest fuels treatment activities, reestablishment of the emergency access road, and ongoing vegetation management, vehicles and equipment would be located within the project area, which would be inconsistent with the natural forest landscape and degrade the existing visual quality of the immediate project area. Generally, construction and fuel treatment equipment would reduce vividness, unity, and intactness by adding encroaching human elements to the natural landscape. Viewer groups in and adjacent to the project area include park staff, motorists on I-5, and recreationists on the PCT and other trails, which have moderate to high viewer sensitivity. Given the density of the forest in the project area, equipment would only be visible from areas immediately adjacent to where active work is occurring where few viewers are present. Furthermore, reestablishment of the emergency access road would occur over a short duration of a few months. Forest fuel treatment activities would occur intermittently, similar to existing ongoing forest management and maintenance activities. In addition, construction personnel would store all project-related materials outside of the viewshed of Vista Point.

As described above under criterion a), the project would also implement prescribed burns and pile burning, which would result in the generation of smoke. Smoke generated by prescribed burns and pile burning could temporarily degrade the visual quality of the project area and in surrounding areas. However, the prescribed burns would be intermittent and temporary, and generally occurring in the winter months (October – March). Smoke emissions would be minimized by the development of and adherence to the SMP as required by the Shasta County AQMD. Implementation of the SMP would minimize smoke emissions during prescribed burns and pile burning. Given that the prescribed burns and pile burning would be intermittent, limited to winter months, and smoke generation would be minimized through the SMP, the impact to visual quality from prescribed burns and pile burning would be less than significant.

In addition, short-term changes to visual character and quality may result where thinned and burned areas would be visible from trails and other public access points. Fuels treatment activities would have long-term beneficial effects on scenic resources by reducing the risk of a catastrophic wildfire, which would degrade the existing landscape through burning of the forest crown. Additionally, the project is intended to promote large tree development, forest heterogeneity, and overall forest health, which would enhance the visual character and quality of the project area by resulting in more open and diversified views associated with the thinning of the currently overstocked forest. Because the treatments would have long-term beneficial effects on visual character and negative impacts would be short-term and site specific, this impact would be less than significant.

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

**No impact.** The project includes no development of structures or other occupied facilities, and would not include any new lighting or other sources of light or glare. Project activities would occur during daytime hours and would not require the use of nighttime lighting. The project would result in no impact on light and glare.

## 3.2 AGRICULTURE AND FOREST RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>II. Agriculture and Forest Resources.</b>				
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, as updated) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3.2.1 Environmental Setting

The project area is primarily undeveloped forest land within CCSP, and is not in agricultural production. The project area is outside of the area surveyed for the Farmland Mapping and Monitoring Program (FMMP) (DOC 2016). However, the project area does not contain existing agricultural operations nor is it zoned for agricultural use (Shasta County 2017). Additionally, there are no lands under Williamson Act contract within the project area (DOC 2013).

“Forest land” is defined in Public Resources Code (PRC) Section 12220(g) as land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. The majority of the project area is considered forest land.

“Timberland” is defined in PRC Section 4526 as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. As described under Section 3.10, “Land Use and Planning,” the project area contains lands that are in the timberland (TL) zoning district.

### 3.2.2 Discussion

**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?**

**No impact.** The project area has not been surveyed by the FMMP; however, the project area does not contain existing agricultural operations nor is it zoned for agricultural use. Therefore, no impact would occur.

**b) Conflict with existing zoning for agricultural use or a Williamson Act contract?**

**No impact.** The project area is not zoned for agricultural uses and does not contain any lands subject to Williamson Act contracts. No impact would occur.

**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))?**

**No impact.** As described under Section 3.10, “Land Use and Planning,” the project area contains lands that are in the TL zoning district. The project area is managed by CSP and is not planned for timber production. The project would implement forest fuel treatment activities to thin badly overstocked forested areas, improve forest health, and reduce the risk of catastrophic wildfire. The sites would remain undeveloped forest and would allow for existing uses of the land to continue. For these reasons, the project would result in no impact related to conflicts with the zoning of forest land or timberland.

**d) Result in the loss of forest land or conversion of forest land to non-forest use?**

**Less than Significant.** The project would implement forest fuel treatment activities to thin badly overstocked forested areas, improve forest health, and reduce the risk of catastrophic wildfire. Treatment would reduce understory vegetation, restore appropriate forest tree density, support large tree development, and encourage forest heterogeneity. The project also includes the reestablishment of an emergency access road within an existing road bed. While this would result in some tree removal, the road is intended to facilitate staff and emergency access within the park. Tree removal necessary to construct the emergency access road would constitute loss of a small area of forest land, but it would be located on the bed of a previous road and would have a minimal effect on the surrounding forest land within CCSP. Because the project area is within a state park, the land uses would remain unchanged and the proposed project would not result in conversion of forest lands to non-forest use. A less-than-significant impact would occur.

**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?**

**No impact.** Implementation of the project would not involve other changes that could result in conversion of farmland or forest land to non-agricultural or non-forest use. As described under criteria “a” through “d” above, implementation of the project would result in no significant impacts related to conversion of agricultural or forest land. No impact would occur.

### 3.3 AIR QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>III. Air Quality.</b>				
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the following determinations.				
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3.3.1 Environmental Setting

The project area is in the Northern Sacramento Valley Air Basin (NSVAB) which includes Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba counties. The existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

#### CLIMATE AND TOPOGRAPHY

The NSVAB is the northern portion of the Sacramento Valley and is bounded on the north and west by the Coast Range and on the east by the southern portion of the Cascade Range and the northern portion of the Sierra Nevada Mountains (SVAQEEP 2015).

The Mediterranean climate type of the NSVAB is characterized by hot, dry summers and cool, rainy winters. The local meteorology of the project area is represented by measurements recorded at the Dunsmuir Treatment Plant for the Western Regional Climate Center (WRCC). The average annual precipitation is 63.64 inches. More than half the total annual precipitation falls during the winter rainy season (November through February). January temperatures range from an average minimum of 29.9°F to an average maximum of 49.9°F. July temperatures range from an average minimum of 51.2°F to an average maximum of 90.0°F (WRCC 2017).

The mountains surrounding the NSVAB create a barrier to airflow, which leads to the entrapment of air pollutants when meteorological conditions are unfavorable for transport and dilution. The highest frequency of poor air movement occurs in the fall and winter when high-pressure cells are often present over the NSVAB.

## AMBIENT AIR QUALITY

### Air Pollutants

As required by the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (EPA) has identified National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants (CAPs): ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), respirable and fine particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>, which are particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively), and lead. The State of California has also established California Ambient Air Quality Standards (CAAQS) for these six pollutants as well as sulfates, hydrogen sulfide (H<sub>2</sub>S), vinyl chloride, and visibility reducing particles. NAAQS and CAAQS are summarized in Table 3.3-1. A brief description of each CAP's source types and health effects is provided below in Table 3.3-2.

**Table 3.3-1 Summary of Ambient Air Quality Standards**

Pollutant	Averaging Time	California	National Standards <sup>1</sup>	
		Standards <sup>2,3</sup>	Primary <sup>3,4</sup>	Secondary <sup>3,5</sup>
Ozone	1-hour	0.09 ppm (180 µg/m³)	–	–
	8-hour	0.070 ppm (137 µg/m³)	0.075 ppm (147 µg/m³)	
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	–
	8-hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
Nitrogen dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	53 ppb (100 µg/m³)	Same as Primary Standard
	1-hour	0.18 ppm (339 µg/m³)	100 ppb	–
Respirable particulate matter (PM <sub>10</sub> )	Annual Arithmetic Mean	20 µg/m³	–	Same as Primary Standard
	24-hour	50 µg/m³	150 µg/m³	
Fine particulate matter (PM <sub>2.5</sub> )	Annual Arithmetic Mean	12 µg/m³	15.0 µg/m³	Same as Primary Standard
	24-hour	No Separate State Standard	35 µg/m³	
Sulfur dioxide (SO <sub>2</sub> ) <sup>6</sup>	24-hour	0.04 ppm (105 µg/m³)	–	–
	3-hour	–	–	0.5 ppm (1,300 µg/m³)
	1-hour	0.025 ppm (655 µg/m³)	75 ppb (196 µg/m³)	–
Lead <sup>7</sup>	30-day Average	1.5 µg/m³	–	–
	Calendar Quarter	–	1.5 µg/m³	Same as Primary Standard
	Rolling 3-Month Average	–	0.15 µg/m³	
Sulfates	24-hour	25 µg/m³	No National Standards	
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m³)		
Vinyl chloride <sup>7</sup>	24-hour	0.01 ppm (26 µg/m³)		
Visibility-reducing particle matter	8-hour	Extinction coefficient of 0.23 per kilometer—visibility of 10 mi or more		

Notes: ppb = parts per billion; ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter; mg/m<sup>3</sup> = milligrams per cubic meter

<sup>1</sup> National standards (other than ozone, particulate matter, and those standards based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM<sub>10</sub> 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than 1 day. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98% of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. Environmental Protection Agency for further clarification and current federal policies.

<sup>2</sup> California standards for ozone, CO (except Lake Tahoe), NO<sub>2</sub>, and particulate matter are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

**Table 3.3-1 Summary of Ambient Air Quality Standards**

Pollutant	Averaging Time	California	National Standards <sup>1</sup>	
		Standards <sup>2,3</sup>	Primary <sup>3,4</sup>	Secondary <sup>3,5</sup>
<sup>3</sup> Concentrations are expressed first in units in which they were issued (i.e., ppb, ppm or µg/m <sup>3</sup> ). 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.				
<sup>4</sup> National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.				
<sup>5</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.				
<sup>6</sup> The U.S. EPA strengthened the NAAQS for SO <sub>2</sub> on June 2, 2010 by establishing a new 1-hour standard. The U.S. EPA has also revoked the annual and 24-hour standards because they would not add additional public health protection given the new 1-hour standard.				
<sup>7</sup> ARB has identified lead and vinyl chloride as TACs with no threshold of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.				
Source: CARB 2016				

**Table 3.3-2 Air Pollutants**

Pollutant	Sources	Effects
Ozone	Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG), also sometimes referred to as volatile organic compounds by some regulating agencies) and nitrogen oxides (NO <sub>x</sub> ). The main sources of ROG and NO <sub>x</sub> , often referred to as ozone precursors, are products of combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels.	Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.
Carbon monoxide	CO is usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicle engines; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration.	Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.
Particulate matter	Some sources of particulate matter, such as wood burning in fireplaces, demolition, and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect.	Scientific studies have suggested links between fine particulate matter and numerous health problems, including asthma, bronchitis, and acute and chronic respiratory symptoms, such as shortness of breath and painful breathing. Recent studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air.
Nitrogen dioxide	NO <sub>2</sub> is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO <sub>2</sub> .	Aside from its contribution to ozone formation, NO <sub>2</sub> can increase the risk of acute and chronic respiratory disease and reduce visibility.
Sulfur dioxide	SO <sub>2</sub> is a combustion product of sulfur or sulfur-containing fuels such as coal and diesel.	SO <sub>2</sub> is also a precursor to the formation of particulate matter, atmospheric sulfate, and atmospheric sulfuric acid formation that could precipitate downwind as acid rain.
Lead	Leaded gasoline, lead-based paint, smelters (metal refineries), and the manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere, with lead levels in the air decreasing substantially since leaded gasoline was eliminated in the United States.	Lead has a range of adverse neurotoxic health effects.
Sulfates	Emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur.	Exposure to sulfates decreases ventilatory function, aggravates asthmatic symptoms, and an increases risk of cardio-pulmonary disease. Sulfates also degrade visibility, and because of fact that they are usually acidic, can harm ecosystems and damage property.

**Table 3.3-2 Air Pollutants**

Pollutant	Sources	Effects
Hydrogen sulfide	Hydrogen sulfide is a colorless gas with the odor of rotten eggs, formed during bacterial decomposition of sulfur-containing organic substances. It can be present in sewer gas and some natural gas.	Breathing hydrogen sulfide at levels above the standard will result in exposure to a very disagreeable odor.
Visibility reducing particles	Visibility-reducing particles consist of suspended particulate matter that could vary greatly in shape, size and chemical composition; and can be made up of many different materials such as metals, soot, soil, dust, and salt.	Visibility-reducing particles could impair because of regional haze.

### Attainment Area Designations

The CAA and the California Clean Air Act (CCAA) require all areas of California to be classified as attainment, non-attainment, or unclassified as to their status with regard to the NAAQS and CAAQS. Under the CAA and the CCAA, the California Air Resources Board (CARB) is to designate portions of the State based on air quality monitoring data. Attainment statuses for Shasta County are contained in Table 3.3-3. Shasta County is designated as nonattainment for ozone and PM<sub>10</sub> with respect to the CAAQS.

**Table 3.3-3 Attainment Status in Shasta County**

Pollutant	National Ambient Air Quality Standard	California Ambient Air Quality Standard
Ozone	Unclassified/Attainment (8-hour ozone)	Nonattainment
Respirable particulate matter (PM <sub>10</sub> )	Unclassified	Nonattainment
Fine particulate matter (PM <sub>2.5</sub> )	Unclassified/Attainment	Attainment
Carbon monoxide (CO)	Unclassified/Attainment	Unclassified
Nitrogen dioxide (NO <sub>2</sub> )	Unclassified/Attainment	Attainment
Sulfur dioxide (SO <sub>2</sub> ) <sup>5</sup>	Unclassified	Attainment
Lead (Particulate)	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates		Attainment
Visibly Reducing Particles		Unclassified

Sources: CARB 2017a

The Shasta County AQMD has jurisdiction over air quality issues throughout Shasta County. State parks are exempt from Shasta County AQMD's fugitive, indirect, or non-traditional sources rules (Rule 3:16). Shasta County AQMD issues open burning permits for agricultural, forest management, land clearing, and hazard reduction burning projects. A burn plan must be submitted to the Shasta County AQMD for approval which provides information on the acreage, location, distance to populated or sensitive areas, schedule and meteorological conditions under which the burn would take place.

Air pollution control districts prepare and implement air quality plans to ensure attainment of national and State air quality standards. The Air Pollution Control Districts and Air Quality Management Districts for the counties located in the NSVAB together establish the Northern Sacramento Valley Planning Area (NSVPA) and jointly prepare an Air Quality Management Plan. The 2015 triennial update of the NSVPA Air Quality Attainment Plan (SVAQEEP 2015) assesses the progress made in implementing the previous triennial update and proposes modifications to the strategies necessary to attain the CAAQS by the earliest practicable date.

## TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are airborne substances that are capable of causing short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects (i.e., injury or illness). At the federal level, these airborne substances are referred to as Hazardous Air Pollutants. Diesel particulate matter (DPM) is a TAC, based on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and heavy mechanical equipment are among the primary sources of diesel emissions.

Another notable TAC is asbestos, a fibrous mineral that is naturally occurring in ultramafic rock and used as a processed component of building materials. When rock containing asbestos is broken or crushed, asbestos fibers may be released and become airborne. Exposure to asbestos fibers may result in health issues such as lung cancer, mesothelioma (a rare cancer of the thin membranes lining the lungs, chest and abdominal cavity), and asbestosis (a non-cancerous lung disease which causes scarring of the lungs). Sources of asbestos emissions include: unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present (CARB 2017b). The project is in an area that is more likely to contain naturally occurring asbestos (DOC 2000, Van Gosen and Clinkenbeard 2011).

## ODOROUS EMISSIONS

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

## SENSITIVE RECEPTORS

Receptors who are particularly sensitive to the health effects of air pollutants include the elderly and the young, those with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease, and those with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases. Locations that would be considered sensitive receptors include schools, daycare facilities, elderly care establishments, medical facilities, and other areas that are populated with people considered more vulnerable to the effects of poor air quality. Residential areas are considered more sensitive to air quality conditions compared to commercial and industrial areas because people generally spend longer periods of time at their residences, with associated greater exposure to ambient air quality conditions. Workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupational Safety and Health Administration (OSHA) to ensure the health and well-being of their employees. The project area is in a rural and wilderness area where there are few sensitive receptors present. There are five residences on an unnamed dirt road off of Soda Creek Road that are within 0.25 miles of the project area.

## PRESCRIBED FIRE AND WILDFIRE

There are important differences between wildfire and prescribed fire in relation to the emissions that are produced. As discussed by the EPA in *AP 42: Compilation of Air Emissions Factors*, emissions from both wildfire and prescribed fire are driven by the kinds of vegetation consumed, the moisture content of the vegetation, meteorological conditions, and weight of consumable fuel per acre (EPA 1995). The primary difference between wildfire and prescribed fire is that prescribed fire is a planned event and wildfire is an unplanned event. Since a prescribed fire activity is a planned event, emissions impacts can be reduced by burning only when specific fuel conditions and meteorological conditions are present, thereby controlling the quantity and location of smoke, and the time spent in each combustion phase. The local air district takes into account the meteorological conditions, other emissions within the air basin and/or district, and the distribution of burns throughout the air basin on a daily basis when permitting specific prescribed burns within their jurisdiction.

The National Wildlife Coordinating Group's (NWCG) 2001 *Smoke Management Guide for Prescribed and Wildland Fire* states that, "emission reduction techniques may reduce emissions from a given prescribed burn area by as much as about 60 percent to as little as virtually zero" (NWCG 2001). Emission reduction techniques outlined by the NWCG 2001 Smoke Management Guide include reducing the burn area (burn concentrations, isolating fuels, mosaic burning), scheduling burning before new fuel appears (burning before fall litter, burning before green-up), increasing combustion efficiency (burning piles and windrows, backing fires, dry conditions, rapid mop-up, aerial ignition/mass ignition), and redistributing emissions (burn when dispersion is good, sharing the airshed, avoiding sensitive areas, burning smaller units, burning more frequently).

Wildfire events cannot be controlled in the same manner, as the variables affecting fire behavior are not controlled or managed, and resources are typically not available on-site when ignition occurs. However, the amount of emissions from wildfire can be reduced overtime as fuel loads are reduced through vegetation treatment programs. Forest fuel treatment activities have been found to be effective at reducing fire frequency, fire severity, and annual area burned when applied at the landscape scale over an extended period of time. These effects are found to be most effective during extreme weather conditions (i.e., hotter and drier). At these times, there is also a higher likelihood that fires will intersect with treated areas, which contributes to higher effectiveness of those treatments at reducing wildfire behavior and effects (Cassell 2018).

### 3.3.2 Discussion

#### a) Conflict with or obstruct implementation of the applicable air quality plan?

**No impact.** The emission inventories used to develop a region's air quality attainment plans are based primarily on projected population growth and VMT for the region that are determined, in part, based on the planned growth identified in regional and community plans. Therefore, projects that would result in increases in population or employment growth beyond that projected in regional or community plans could result in increases in VMT above that planned in the attainment plan, further resulting in mobile-source emissions that could conflict with a region's air quality planning efforts. Increases in VMT beyond that projected in area plans generally would be considered to have a significant adverse incremental effect on the region's ability to attain or maintain the CAAQS and NAAQS.

The project would not result in any new long-term employment opportunities or new housing, and it would not change the amount of development projected in the NSVAB and; therefore, it would be consistent with the population growth and VMT projections used in the NSVPA Air Quality Attainment Plan (SVAQEEP 2015). Also, the project would not result in any new stationary sources of emissions. Moreover, forest fuels reduction activities in the project area would improve regional air quality by reducing the risk of catastrophic wildfire and the associated emissions of CAPs and precursors generated by a catastrophic wildfire. Thus, implementation of the project would not conflict with or obstruct implementation of the NSVPA Air Quality Attainment Plan. As a result, there would be no impact.

#### b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

**Less than significant with mitigation incorporated.** Shasta County is designated as nonattainment for ozone and PM<sub>10</sub> with respect to the CAAQS (see Table 3.3-3, above). The project would result in temporary emissions of ozone precursors (i.e., ROG and NO<sub>x</sub>) and PM<sub>10</sub>, which are generated by two distinct sources: fire-related activities and non-fire-related activities. Fire-related emissions sources consist of prescribed burns and pile burning and are managed by Shasta County AQMD through their burn authorization program and SMPs. Non-fire-related emissions sources include mechanical equipment, truck trips, and worker commute trips during fuel treatment and thinning activities, ongoing vegetation management, and reestablishment of the emergency access road. Non-fire-related emissions are subject to Shasta County AQMD's daily air pollutant emissions thresholds, shown in Table 3.3-4.

**Table 3.3-4 Shasta County AQMD Air Pollutant Emissions Thresholds**

Level	ROG (lb/day)	NO <sub>x</sub> (lb/day)	PM <sub>10</sub> (lb/day)
Level "A" Thresholds	25	25	80
Level "B" Thresholds	137	137	137

Notes: ROG = reactive organic gases, NO<sub>x</sub> = nitrogen oxides, PM<sub>10</sub> = respirable particulate matter, lb/day = pounds per day

Source: Shasta County 2004

### **Fire-Related Emissions**

Emissions from prescribed fire are fundamentally different from general construction-related emissions and are treated through separate programs by local air districts. Construction emissions are subject to the mass emissions thresholds set forth for construction projects while prescribed fire emissions are managed by the local air districts through burn permits and SMPs.

Prescribed burns and pile burning would emit air quality pollutants such as PM<sub>10</sub> and ROG. However, all burning would be completed under the approved SMP and permits to burn, which are required by Shasta County AQMD and administered through the Prescribed Fire Information Reporting System database. These plans and permits would describe acres by burn type, predominant vegetation, duration of burn, emissions estimates, identification of smoke sensitive areas, alternatives and contingencies, and the responsible parties. Emissions would be minimized through considerations such as weather conditions, wind direction, and burn pile size. The local air district is the ultimate arbiter in whether the activity can occur as proposed, in a limited capacity, or must be postponed based on the predicted transport and placement of pollutants from the activity relative to sensitive receptors that may be impacted by the activity. Prescribed fire treatments need not only an authorization from the local air district, but also must ensure that the conditions set forth in the approved SMP are met before ignition of a prescribed fire. That is, even with authorization from the local district to conduct the prescribed burn, if the conditions and requirements of the SMP are not met onsite, ignition is prohibited (17 California Code of Regulations [CCR] Section 80160). Because the project would be required to meet all Shasta County AQMD air quality requirements, which include measures to reduce PM<sub>10</sub> emissions to the degree feasible, this impact would be less than significant.

### **Non-Fire-Related Emissions**

Non-fire-related emissions were evaluated using Shasta County AQMD's Level "A" air pollutant emissions thresholds, shown in Table 3.3-4 above.

Emissions generated by mechanical equipment used for forest fuels treatment activities and ongoing vegetation management were estimated based on emissions factors from CARB's OFFROAD2007 program. Emissions generated from all vehicle trips associated with the project and from mechanical equipment used during reestablishment of the emergency access road were estimated using the construction module of the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 computer program. This modeling used project-specific data as well as CalEEMod default values that are based on the project's location and equipment horsepower and usage factors.

Table 3.3-5 summarizes the maximum daily emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> from the project's non-fire-related sources, assuming all activities occur concurrently. Refer to Appendix B for a detailed description of all calculations, model runs, and assumptions used to support the modeling.

**Table 3.3-5 Air Pollutant Emissions**

Activity	ROG (lb/day)	NO <sub>x</sub> (lb/day)	PM <sub>10</sub> (lb/day)
Hand Thinning	7.31	0.18	6.10
Mechanical Thinning	3.10	15.39	6.64
Ongoing Vegetation Management	0.04	0.03	1.53

**Table 3.3-5 Air Pollutant Emissions**

Activity	ROG (lb/day)	NO <sub>x</sub> (lb/day)	PM <sub>10</sub> (lb/day)
Reestablishment of the Emergency Access Road	1.55	17.26	7.55
Prescribed Burns and Pile Burning (Equipment and Worker Commute Only)	0.33	2.30	12.17
<b>Total</b>	<b>12.34</b>	<b>35.16</b>	<b>33.98</b>
<b>Shasta County AQMD Thresholds</b>	<b>25</b>	<b>25</b>	<b>80</b>

Notes: ROG = reactive organic gases, NO<sub>x</sub> = nitrogen oxides, PM<sub>10</sub> = respirable particulate matter, lb/day = pounds per day

Source: Appendix B

As shown in Table 3.3-5, if all activities occurred concurrently, maximum daily non-fire-related emissions would reach 12.34 lb/day of ROG, 35.16 lb/day of NO<sub>x</sub>, and 33.98 lb/day of PM<sub>10</sub>. These emissions levels would not exceed Shasta County AQMD's significance thresholds for ROG or PM<sub>10</sub>. However, Shasta County AQMD's NO<sub>x</sub> threshold would be exceeded. Thus, the impact is considered potentially significant.

The following mitigation measure would be implemented to reduce project-related NO<sub>x</sub> emissions to a level below Shasta County AQMD's air pollutant emissions threshold:

- ▲ **Mitigation Measure AQ-1: Phase Project Activities.** Project activities would be phased so that grading of the emergency access road would not occur concurrently with mechanical thinning activities involving the use of a shredder, skidder, or feller/buncher.

Implementation of Mitigation Measure AQ-1 would reduce NO<sub>x</sub> emissions by 15.39 lb/day by not conducting mechanical thinning activities, or by 17.26 lb/day by not grading the emergency access road. Therefore, project-generated NO<sub>x</sub> emissions would remain below Shasta County AQMD's threshold of 25 lb/day. Thus, project-generated emissions of CAPs and precursors would not violate or contribute substantially to an existing or projected air quality violation. This impact would be less than significant with mitigation incorporated.

**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)?**

**Less than significant with mitigation incorporated.** Past, present, and future development projects contribute to adverse air quality in the NSVAB on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of CAAQS or NAAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. Several air districts recommend using their mass emissions thresholds for evaluating whether construction-generated emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> would be cumulatively considerable; that same approach has been adopted here.

Shasta County is designated as nonattainment for ozone and PM<sub>10</sub> with respect to the CAAQS. As shown in Table 3.3-5, project emissions of the ozone precursor, ROG, and PM<sub>10</sub> would not exceed the mass emissions thresholds of 25 and 80 lb/day, respectively. Therefore, the project would not contribute a cumulatively considerable increase of those criteria pollutants. If all non-fire related activities occurred concurrently, emissions of NO<sub>x</sub> would exceed Shasta County AQMD's NO<sub>x</sub> mass emissions threshold of 25 lb/day by 14.87 lb/day. This is a potentially significant cumulative contribution. However, with implementation of Mitigation Measures AQ-1, NO<sub>x</sub> emissions remain below Shasta County AQMD's threshold of 25 lb/day. Therefore, the increase in NO<sub>x</sub> would not be cumulatively considerable. Moreover, over the long term, the project would reduce emissions of CAPs and precursors associated with a large, catastrophic wildfire. This impact would be a less than significant with mitigation incorporated.

**d) Expose sensitive receptors to substantial pollutant concentrations?**

**Less than significant.** Sensitive receptors near the project area include recreational users and five residences on an unnamed dirt road off of Soda Creek Road that are within 0.25-mile of the project area. Pollutants of concern are CO, TACs, and smoke from prescribed fire.

**Carbon Monoxide**

The single largest source of CO is motor vehicle engines. CO concentration near roadways is a direct function of vehicle idling time and, thus, traffic flow conditions. Under specific meteorological conditions, CO concentrations near congested roadways and/or intersections may reach unhealthy levels with respect to local sensitive land-uses such as residential areas, schools, and hospitals. Although there would be a temporary and periodic increase in vehicle trips related to worker commute and equipment delivery, the project would not result in substantial long- or short-term vehicle trip generation at levels that could cause unhealthy concentrations of CO on nearby roadways.

Shasta County AQMD has not established a CO threshold for projects. The Bay Area Air Quality Management District (BAAQMD) has developed a screening threshold for CO, which is used herein as to evaluate whether project impacts would be significant. BAAQMD's preliminary screening methodology states that a project would result in a less-than-significant impact to localized CO concentrations if project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour (BAAQMD 2017). Roadways and intersections in the project area would not experience traffic levels nearly as high as 44,000 vehicles per hour. Thus, the project would not increase traffic on the roadways or intersections within or adjacent to the project area to levels that could result in substantial, unhealthy concentrations of CO.

**Toxic Air Contaminants**

The project would result in short-term diesel exhaust emissions from mechanical equipment and haul truck trips associated with forest fuels treatment activities, reestablishment of the emergency access road, and ongoing vegetation management. DPM was identified as a TAC by CARB in 1998. The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., potential exposure to TAC emission levels that exceed applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. According to the Office of Environmental Health Hazard Assessment, health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70- or 30-year exposure period. However, such assessments should be limited to the period/duration of activities that generate TAC emissions (OEHHA 2015). None of the DPM-emitting activities associated with the project would take place in the same location for more than a week at a time, which is a short exposure period relative to the 30- or 70-year exposure timeframe recommended for health risk assessments. In addition, DPM dissipates rapidly from the source, and exposure concentrations would decline with distance from these activities (Zhu et al. 2002). Given the few number of sensitive receptors in the area, it is unlikely that DPM-emitting activities would be conducted near sensitive receptors. Furthermore, for safety reasons, the public would not be allowed near areas undergoing forest fuels treatment activities, reestablishment of the emergency access road, and ongoing vegetation management. Therefore, project-related activity would not expose sensitive receptors to substantial levels of pollutants and this impact would be less than significant.

**Smoke**

As discussed under criteria "a" above, burning would be conducted in accordance with a SMP that would prescribe weather conditions, such as wind speed and direction, that would minimize smoke effects to sensitive receptors in the immediate area. Other requirements of the SMP and burn permit that would minimize smoke include reducing the burn area, scheduling burning before new fuel appears, increasing combustion efficiency, and redistributing emissions. Therefore, the project would not expose sensitive receptors to substantial levels of pollutants and this impact would be less than significant.

**e) Create objectionable odors affecting a substantial number of people?**

**Less than significant.** Implementation of the project would not result in the introduction of any new permanent sources of odors to the area. Diesel equipment used for forest treatments could result in temporary odorous diesel exhaust emissions. As discussed under criteria “d,” diesel exhaust emissions would not be generated at any one location for an extended period and would dissipate rapidly from the source with an increase in distance. Prescribed burns and pile burning could result in temporary odorous smoke emissions. As discussed under criteria “a” and “d” above, burning would be conducted in accordance with a SMP and burn permit that would prescribe weather conditions to minimize smoke effects in areas in and around the park. Other requirements of the SMP and burn permit that would minimize smoke include reducing the burn area, scheduling burning before new fuel appears, increasing combustion efficiency, and redistributing emissions. Furthermore, the project is in a rural and wilderness area where there are few sensitive receptors. Thus, the project would not create objectionable odors affecting a substantial number or people. This impact would be less than significant.

## 3.4 BIOLOGICAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>IV. Biological Resources. Would the project:</b>				
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 Wildlife or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3.4.1 Environmental Setting

This section describes biological resources in the project area and evaluates potential impacts to such resources as a result of project implementation. Ascent biologists conducted reconnaissance surveys of the project area (on May 12, 2017) and reviewed several existing data sources. The data reviewed includes:

- ▲ *Vegetation Classification, Disturbance History, and Successional Interpretations in Castle Crags State Park* (Stuart et al. 1992);
- ▲ a records search of the California Natural Diversity Database (CNDDB) (CDFW 2019);
- ▲ California Native Plant Society Online Inventory of Rare and Endangered Plants (CNPS 2019);

- ▲ a database search of the U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Conservation System (IPaC) and a list of federally proposed, candidate, threatened, and endangered species that may occur in the project region (USFWS 2017);
- ▲ U.S. Forest Service Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG) land cover data (USFS 2014); and
- ▲ USFWS National Wetlands Inventory (USFWS 2013).

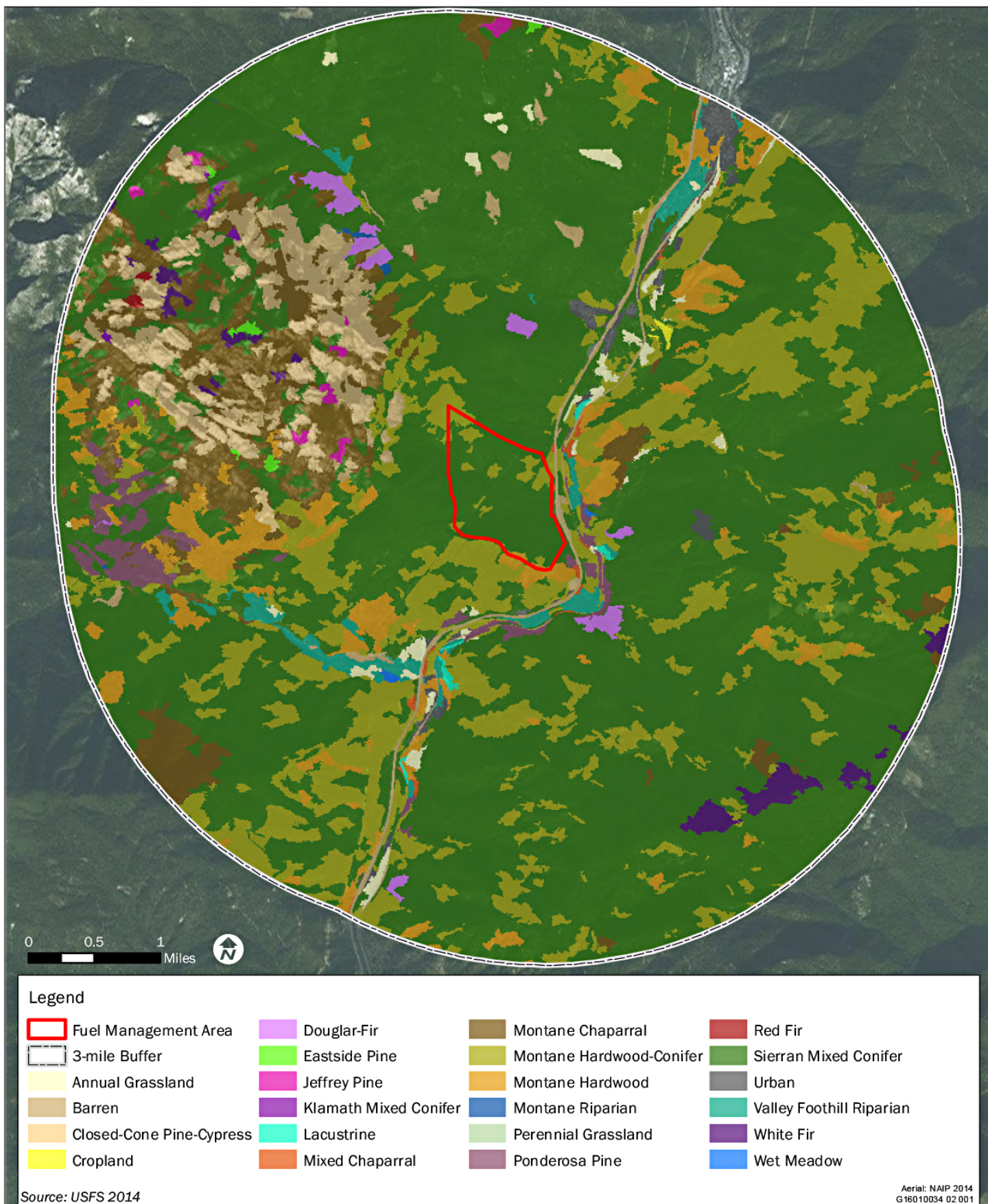
## VEGETATION AND HABITAT TYPES

The project area ranges from approximately 2,157 feet to 3,700 feet in elevation. Land cover types within the project area include approximately 372 acres of dense sierran mixed conifer, 58 acres of montane hardwood-conifer, and 6 acres of montane hardwood (Figure 3.4-1). Sierran mixed conifer stands in the project area consist of Douglas fir (*Pseudotsuga menziesii*), Jeffrey pine (*Pinus jeffreyi*), ponderosa pine (*Pinus ponderosa*), incense cedar (*Calocedrus decurrens*), and a few isolated sugar pines (*Pinus lambertiana*). The stands of montane hardwood-conifer and montane hardwood within the project area are dominated by black oak (*Quercus kelloggii*). The northwestern portion of the project area is more open and contains ceanothus (*Ceanothus* spp.) and canyon live oak (*Quercus chrysolepis*) (Stuart et al. 1992). Root Creek, which flows through the project area, has a well-developed riparian corridor with alder (*Alnus* spp.), mountain dogwood (*Cornus nuttallii*), and bigleaf maple (*Acer macrophyllum*). The project area is bisected by two powerline corridors from which trees have been cleared; these corridors are sparsely vegetated by manzanita (*Arctostaphylos* spp.), ceanothus, and herbaceous species.

## SPECIAL-STATUS SPECIES

Special-status species include botanical species (plants, lichen, and fungi) and animals that are legally protected or otherwise considered sensitive by federal, state, or local resource agencies and conservation organizations. In this document, special-status species are defined as botanical species and animals in the following categories.

- ▲ Listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA).
- ▲ Designated as a candidate for listing as threatened or endangered under ESA.
- ▲ Listed, proposed for listing, or a candidate for listing as threatened or endangered under the California Endangered Species Act (CESA).
- ▲ Listed as fully protected under the California Fish and Game Code.
- ▲ Animals identified by California Department of Fish and Wildlife (CDFW) as species of special concern.
- ▲ Plants considered by CDFW to be “rare, threatened or endangered in California” (California Rare Plant Ranks [CRPR] of 1A, presumed extinct in California; 1B, considered rare or endangered in California and elsewhere; and 2, considered rare or endangered in California but more common elsewhere). The California Rare Plant Ranks correspond with and replace former California Native Plant Society listings. While these rankings do not afford the same type of legal protection as ESA or CESA, the uniqueness of these species requires special consideration under the California Environmental Quality Act (CEQA).
- ▲ Considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA Section 15125 [c]) or is so designated in local or regional plans, policies, or ordinances (State CEQA Guidelines, Appendix G).
- ▲ Otherwise meet the definition of rare or endangered under CEQA Sections 15380(b) and (d).



**Figure 3.4-1**

**Vegetation Types within Three Miles of the Project Area**

A preliminary list of special-status botanical and animal species with potential to occur in the project area was developed based on a reconnaissance survey and a review of the existing data sources described previously. An analysis of special-status animal and plant species was conducted using documentation related to potential to occur in the project region, the presence of suitable habitat in the project area, and other factors. This analysis identified a subset of nine special-status animal species and 34 special-status plant species that could occur within the project area (Appendix C, Biological Resources, Table C-1 and Table C-2).

## SENSITIVE NATURAL COMMUNITIES AND HABITATS

Sensitive natural communities and habitats include those that are of special concern to resource agencies or that are afforded specific consideration. A record search of the CNDDDB did not show any sensitive natural communities within the project area. However, riparian habitat within the project area is considered sensitive for the purpose of this analysis.

### 3.4.2 Discussion

**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 Wildlife or the U.S. Fish and Wildlife Service?**

**Less than significant with mitigation incorporated.** Record searches (CDFW 2019, CNPS 2019) and analysis of suitable habitat resulted in the identification of 34 special-status plant species that could occur within the project area (Appendix C, Biological Resources, Table C-1). The project area also contains suitable habitat for nine special-status wildlife species that have been documented to occur within 3 miles of the project area (Appendix C, Biological Resources, Table C-2), including Cascade frog (*Rana cascadae*), foothill yellow-legged frog (*Rana boylei*), pacific tailed frog (*Ascaphus truei*), American peregrine falcon (*Falco peregrinus anatum*), northern goshawk (*Accipiter gentilis*), California wolverine (*Gulo gulo*), fisher - West Coast Distinct Population Segment (DPS) (*Pekania pennanti*), spotted bat (*Euderma maculatum*), and western mastiff bat (*Eumops perotis californicus*). In addition, the project area provides suitable nesting habitat for common birds and raptors, which are not considered special-status species but project-related loss of active nests is normally addressed in California State Parks (CSP) environmental documents.

#### Special-Status Plants

The 34 special-status plants that could occur in the project area considered rare because of their CRPR rank; however, no federally listed or state listed threatened or endangered plant species are anticipated to occur in the project area (Appendix C, Biological Resources, Table C-1). The majority of the special-status plant species that could occur in the project area (20 species) may occur within forest openings and within sierran mixed conifer, montane hardwood-conifer, and montane hardwood stands. The remaining 14 special-status plants would likely be restricted to seeps, springs, riparian and other more mesic habitats within the project area.

The project would result in long-term benefits to special-status plants and habitats. Tree removal for forest management and fuels reduction activities would include thinning of understory trees less than 16-inches diameter at breast height (dbh), and removal of co-dominant groups or individual overstory trees from 14-inches to 28 inches dbh would to create forest gaps, create large downed woody debris, decrease on-site basal area, pine management, hardwood management, reduce fire behavior, and to enhance overall forest heterogeneity. This tree removal would not change the overall suitability of habitat within the project area in the short-term, and would result in long-term habitat improvements by meeting the desired conditions for the project, such as creating and/or maintaining forest gaps 0.1 to .5 acres at a rate of one every 2 to 10 acres, and preventing the introduction and/or spread of invasive species (refer to Section 2.5.1, Root Creek Drainage Forest Management Plan and Fuels Reduction). In addition, the application of prescribed fire would re-introduce a natural process into the project area, reducing the risk of hotter fires that could result in

destruction of soils and the seed bank, while the treatment and removal of invasive plants would improve special-status plant habitat by reducing potential competition for resources (refer to Section 2.5.2, Ongoing Vegetation Management).

Although the project would result in long-term benefits to special-status plants and habitats, adverse effects on individual plants may occur. The application of low-intensity prescribed fire would generally occur October through March, which is outside of the blooming season for most of the special-status plants that could occur in the project area, and therefore would not interfere with pollination and seed production of these species. In addition, low intensity prescribed burning would benefit some of the special-status plants that could occur in the project area (e.g., Klamath manzanita [*Arctostaphylos klamathensis*]). These species may increase in abundance post-fire as they are likely to recover quickly from low intensity prescribed fire by root sprouting, or germination from the seed bank (Chang 1996, Knapp et al. 2007). However, prescribed fire may result in loss of individual special-status plants and some species may not return to pre-treatment abundance following burning.

Personnel and equipment (e.g., mechanical tree feller, bulldozer) used during forest fuel treatment activities could crush or remove special-status plants. Covering of plants by dust created by these activities could also result in the loss of special-status plant vigor or death. Additionally, forest fuel treatment activities, grading of the emergency access road, and replacement of the upper Root Creek crossing could result in new introductions of invasive plants, which could outcompete special-status plants.

To avoid and minimize impacts to special-status plants from prescribed fire, personnel and equipment, grading of the emergency access road, and replacement of the upper Root Creek crossing, CSP would implement the following SPRs specific to special-status plants:

- ▲ No rare or endangered species will be cut, pruned, pulled back, removed or damaged in any way.
- ▲ Prior to the start of on-site activities and when the plants are in a phenological stage conducive to positive identification (i.e., usually during the blooming period for the species), a CSP-approved biologist will conduct surveys for special-status plant species throughout the project area.
- ▲ If special-status plants are discovered within 50 feet of ground disturbing activities, the area within 10 feet of special-status plants will be flagged by a CSP-approved biologist, fenced off before the start of fuel treatments and construction activities, and completely avoided when feasible.
- ▲ If special-status plants are discovered within the area of prescribed fire activities, the area within 10 feet of special-status plants will be flagged by a CSP-approved biologist, and a hand fire line will be constructed around the flagged area before the start of burning. If a CSP-approved biologist determines that a particular special-status species would benefit from low-intensity prescription burning in consultation with CDFW, then no flagging or fire lines would be required.
- ▲ Best management practices to avoid creation of dust will be employed during all mechanical fuel treatments, and construction activities within 50 feet of special-status plants.
- ▲ To prevent the spread of noxious weeds, all construction vehicles and equipment will enter and leave the project site free of soil, vegetative matter or other debris that could contain weed seeds.
- ▲ All herbicides will be handled, applied, and disposed of in accordance with the material safety data sheet and all local, state, and federal laws.

Implementation of the SPRs listed above would avoid and minimize significant effects on special-status plant species by detecting and avoiding special-status plants in the project area, avoiding creation of dust, and preventing the spread of noxious weeds. However, special-status plants may occur directly within the road bed of the emergency access road or footprint of the upper Root Creek crossing being replaced, and could be trampled or removed. Also, the application of herbicides for ongoing vegetation management could

result in removal of special-status plants if they occur directly adjacent or intermixed with invasive plants undergoing herbicide application. If special-status plants are removed due to reestablishment of the emergency access road, replacement of the upper Root Creek crossing, or herbicide application, it could be considered a significant impact.

### **Mitigation Measure BIO-1: Pre-Construction Surveys**

Pre-construction surveys will be conducted before ground-disturbing project activities. If pre-construction surveys for reestablishment of the emergency access road, or replacement of the upper Root Creek crossing find special-status plants, and it is not feasible to avoid removal of these plants, CSP shall consult with CDFW, as appropriate depending on species status, to determine the appropriate mitigation measures for direct impacts that could occur because of project construction. CSP will implement standard best management practices and the agreed-upon mitigation measures to achieve no net loss of occupied habitat or individuals. Mitigation measures may include, but are not limited to, preserving and enhancing existing populations through seed collection or transplantation, and/or restoring or creating suitable habitat in sufficient quantities to achieve no net loss of occupied habitat and/or individuals. CSP will also develop a mitigation and monitoring plan

If relocation efforts are part of the mitigation plan, the plan shall include details on the methods used, including collection, storage, propagation, receptor site preparation, installation, long-term protection and management, monitoring and reporting requirements, success criteria, and remedial action responsibilities should the initial effort fail to meet long-term monitoring requirements. Success criteria shall include:

- ▲ Preserved populations will be self-producing. Populations will be considered self-producing when:
  - plants reestablish annually for a minimum of five years with no human intervention such as supplemental seeding; and
  - reestablished and preserved habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types near the project.

The implementation of Mitigation Measure BIO-1 would achieve no net loss of special-status plants and occupied habitat. Therefore, impacts from removal of special-status plants due to reestablishment of the emergency access road, replacement of the upper Root Creek crossing, or herbicide application would be reduced to less-than-significant levels.

### **Special Status Animals**

#### **Special-Status Amphibians**

Cascades frog, Foothill yellow-legged frog, and pacific tailed frog use perennial streams and could occur within Root Creek in the project area (Appendix C, Biological Resources, Table C-2), though these species have not been documented within the project area. While foothill yellow-legged frog is rarely found away from water (CWHR 2000a), pacific tailed frog may be found up to 40 feet from streams (CWHR 2000b) and may use more of the riparian corridor of Root Creek. Cascades frog is most often associated with ponds, lakes, and low gradient streams where they reproduce (CDFW 2017) but was detected near the confluence of Root Creek and the Sacramento River and may use Root Creek for dispersal habitat.

The replacement of the upper Root Creek crossing would not result in a substantial loss of potential breeding and foraging habitat for foothill yellow-legged frog and pacific tailed frog or dispersal habitat for Cascades frog within Root Creek and the associated riparian corridor. The replacement of the upper Root Creek crossing would result in loss of riparian habitat; however, the area of the new crossing would be less than the existing crossing, and the removal of the existing crossing would allow Root Creek to return to its historic stream channel alignment. Long-term improvement in the quality of the habitat by allowing Root Creek to return to its natural alignment, and reducing the risk of high intensity fire that would damage riparian habitat would help to offset the small loss of riparian habitat from the road alignment to the new culvert.

Large equipment (e.g., bulldozer) that operates within Root Creek for the replacement of the upper Root Creek Crossing, and modification of the lower Root Creek Crossing, could crush Cascades frogs and foothill yellow-legged frogs, if they are present in project disturbance areas. Similarly, project equipment operating within 40 feet of Root Creek could crush pacific tailed frogs, if they are present. Project activities could also result in sediment, fuel, oil, and other hazardous materials entering runoff that would reduce water quality within the creek and have the potential to kill Cascades frog, foothill yellow-legged frog, and pacific tailed frog. The egg masses of foothill yellow-legged frog and pacific tailed frog may also be killed by the runoff of hazardous materials. In addition, the use of herbicides in ongoing vegetation management within 40 feet of Root Creek could result in the injury or death of Cascades frogs, foothill yellow-legged, and pacific tailed frogs, if frogs are within/under the vegetation where herbicide is applied.

As described in Section 3.8, “Hazards and Hazardous Materials,” and Section 3.9, “Hydrology and Water Quality,” CSP would adhere to multiple SPRs, which would minimize runoff into foothill yellow-legged and pacific tailed frog habitat. These SPRs include preparing a Storm Water Pollution Prevention Plan (SWPPP), preventing the release of hazardous materials into the environment by regularly inspecting equipment for leaks, refueling, and servicing of heavy equipment within designated areas outside of the 100-year floodplain, and preparing a Spill Prevention and Response Plan (SPRP). Furthermore, the following SPRs would be implemented within 50 feet of Root Creek to further minimize impacts to Cascades frog, foothill yellow-legged frog, and pacific tailed frog:

- ▲ Prior to the start of project activities, a CSP-approved biologist will train on-site personnel on the life history of Cascades frog, foothill yellow-legged frog, and pacific tailed frog, provide work constraints, and any other pertinent information related to the species.
- ▲ Prior to the start of project activities, a CSP-approved biologist will conduct surveys for Cascades frog, foothill yellow-legged frog, and pacific tailed frog within suitable habitat in the project area and up to 50 feet outside the project boundaries.
- ▲ Immediately before the start of work each morning within suitable habitat, a CSP-approved biologist will conduct a visual inspection of the construction zone for Cascades frog, foothill yellow-legged frog, and pacific tailed frog.
- ▲ If any Cascades frog, foothill yellow-legged frog, or pacific tailed frog is found within the project area, work in the vicinity of the animal will be delayed until the species moves out of the site on its own accord or is temporarily relocated by a CDFW-permitted/CSP-approved biologist.

The inclusion of the above SPRs into the project would avoid and minimize impacts to Cascades frog, foothill yellow-legged frog, and pacific tailed frog, because they would require surveys before project initiation and require that any frogs within the project area be allowed to leave the area or be relocated. Additionally, as discussed previously, project implementation is expected to maintain or improve habitat quality for these species. Thus, project implementation with incorporation of the SPRs would not substantially affect Cascades frog, foothill yellow-legged frog, and pacific tailed frog population abundance or viability locally or regionally, and the impact would be less than significant.

#### **American Peregrine Falcon**

American peregrine falcon has not been documented to occur within the project area; however, the project area is near the Castle Crags rock formation, which may provide suitable nesting habitat. Therefore, American peregrine falcon may forage within the forested habitats in the project area.

Implementation of fuel reduction, prescribed fire operations, construction of the emergency access road and replacement of the upper Root Creek crossing could temporarily disrupt foraging behavior due to noise and human presence in the area; however, the disruption would not be substantial due to abundance of other forested habitats that are suitable for foraging in the vicinity of Castle Crags (Figure 3.4-1). Implementation of the Forest Management Plan would not reduce suitability of the habitat for American peregrine falcon and may result in long-term benefits, such as increased prey availability by creating and/or maintaining forest

gaps 0.1 to .5 acre at a rate of one every 2 to 10 acres. Therefore, potential impacts to American peregrine falcon from implementation of the project would be less than significant.

### **Northern Goshawk**

Northern goshawk typically nests in large trees in mature conifer stands, with dense cover and open understory for foraging. The project area provides both potentially suitable nesting and foraging habitat for the species; however, the species has not been documented within the project area.

The implementation of forest fuel treatment activities would not adversely affect nesting and foraging habitat for northern goshawk. The desired condition guidelines for the project (Section 2.5.1, Root Creek Drainage Forest Management Plan and Fuels Reduction) provide for retention of all trees, if possible, with active nests. In addition, screen and perch trees would be retained along with trees less than 28 inches dbh. The Forest Management Plan also would include recruitment/retention of snags and large coarse woody debris. These would maintain and improve the nesting and foraging habitat for northern goshawk in the project area.

Implementation of the Forest Management Plan would result in a long-term increase in suitability of the project area for foraging and nesting by reducing understory density, increasing large woody debris, and creating and maintaining forest gaps, which would increase abundance of prey species. Construction of the emergency access road, and replacement of the upper Root Creek crossing is not likely to result in a substantial loss of the foraging habitat of northern goshawks in the project area, because these activities would not remove enough trees to alter the suitability of the habitat for foraging. In addition, project activities could result in a short-term disruption of foraging behavior, due to noise and human presence in the area; however, the disruption would not be substantial due to abundance of other forested habitats that are suitable for foraging in the vicinity of Castle Crags (Figure 3.4-1).

Forest fuel treatment activities may result in disturbance or loss of nesting northern goshawks, should nesting occur in the project area. Prescribed fire and fuels reduction operations would generally occur October through March, which is prior to the breeding (onset of incubation) season for northern goshawk (USFS 2000, CWHR 2005). The timing of these activities is such that it is unlikely that they would cause loss of active nests, eggs or young; however, prescribed fire operations and fuels reduction work that occur after March 15 could interrupt nest establishment. Project activities that occur within 500 feet of a nest site during the nesting season (approximately March 15 to August 15) could cause the disruption of nest establishment, nest abandonment, and loss of eggs or chicks. However, CSP would implement the specific requirements for protection of nest sites found in Article 9 of the California Forest Practice Rules (FPR) and the following SPRs to avoid and minimize impacts to northern goshawk:

- ▲ CSP will schedule work after August 15 or before March 15 to avoid the nesting period for northern goshawk.
- ▲ If work is required during the nesting season (March 15 to August 15), a CSP-approved biologist will conduct a survey to identify northern goshawk nests using the methods found in *Survey Methodology for Northern Goshawks in the Pacific Southwest Region* (USFS 2000).
- ▲ If northern goshawk nests are located within 500 feet of the project area, no construction will occur within 500 feet of the nest during the nesting season or until the young have fledged, as determined by a CSP-approved biologist.

The implementation of forest fuel treatment activities and the Forest Management Plan are anticipated to result in long-term maintenance and/or improvement to northern goshawk in the project area by retaining perch and screening trees and implementing guidelines for fuels treatments, which would increase abundance of prey species. In addition, following the protections within Article 9 of the California Forest Practice Rule and inclusion of the above SPRs into the project would avoid disturbance and reduction in reproductive success to any nesting northern goshawks within the project area. Therefore, any impacts to northern goshawk would be less than significant.

### Common Raptors and Other Nesting Birds

While common raptors and other nesting birds do not fit the criteria for special-status species as defined in this analysis, it is standard for CSP to analyze project impacts to common raptors and other common nesting birds protected under Section 3503 and Section 3503.5 of the California Fish and Game Code. Prescribed fire operations would generally occur during October through March, which is outside the nesting season for common birds and raptors, and as such would not disturb or remove active nests. Other project components (e.g., fuels reduction, emergency access road construction, upper Root Creek crossing) could cause the nests of common birds and raptors to be abandoned or destroyed; however, implementation of the following SPRs would avoid and minimize impacts to raptors and other common nesting birds:

- ▲ CSP will schedule work after August 15 or before March 15 to avoid the nesting period for common raptors and other nesting birds.
- ▲ If work is required during the nesting season (March 15 to August 15), a CSP-approved biologist will conduct a survey to identify nests of common non-raptor nesting birds within 50 feet or common raptor nests within 500 feet of the project area. The survey will be conducted no more than 14 calendar days before the beginning of construction.
- ▲ If common non-raptor bird nests are located within 50 feet of the project area, no construction will occur within 50 feet of the nest during the nesting season or until the young have fledged, as determined by a CSP-approved biologist. If common raptor nests are located within 500 feet of the project area, no construction will occur within 500 feet of the nest during the nesting season or until the young have fledged, as determined by a CSP-approved biologist.

The inclusion of the above SPRs into the project would avoid disturbance to the nests of common raptors and other nesting birds and subsequent loss of reproduction; therefore, any impacts to these species would be less than significant.

### Fisher

Multiple historic records of fisher - West Coast DPS (fisher) occur within 3 miles of the project area (CDFW 2019). Although no recent records of this species have been documented within 3 miles of the project area, the project area contains potentially suitable denning and foraging habitat for this species. Fisher may forage throughout the project area, and suitable structures for maternity denning (e.g., hollow logs, rock outcrops, snags) are likely present within the project area. Fisher young are typically born February through May (CWHR 1990a).

Project activities could temporarily disturb the foraging behavior of fisher if individuals are present due to noise and human presence in the area; however, the disruption would not be substantial due to abundance of other forested habitats that are suitable for foraging in the vicinity of Castle Crag (Figure 3.4-1). The desired condition guidelines for the project (Section 2.5.1, Root Creek Drainage Forest Management Plan and Fuels Reduction) would provide for recruitment/retention of snags and large coarse woody debris, which would increase the availability of prey and habitat structures used for dens by these species (e.g., hollow logs and snags) and may result in a long-term improvement of foraging and denning habitat in the project area.

Implementation of forest fuel treatment activities, construction of the emergency access road, and replacement of the upper Root Creek crossing could result in abandonment of active fisher maternity dens should any occur within the project area.

CSP would implement the following SPRs to avoid impacts to active fisher maternity dens from forest fuel treatment activities, construction of the emergency access road, and replacement of the upper Root Creek crossing:

- ▲ If work is required during the denning season (January 31 to July 1), a CSP-approved biologist will conduct a survey using the techniques in Zielinski and Kucera (1995) or similar, and the recommended survey effort in Slauson et al. (2009) to identify the presence of fisher within the project area. The survey will be conducted annually before the beginning of activities for that year.
- ▲ If any fisher are located within the project area, due to the cryptic nature of maternity dens it will be assumed that a maternity den may exist within the project area, and no construction will occur during the denning season (January 31 to July 1), as determined by a CSP-approved biologist. If no fishers are found to occur, then work may proceed according to schedule without constraint from this species.

Implementation of the Forest Management Plan would result in increased denning and foraging habitat quality for fisher within the project area. In addition, the inclusion of the SPRs described above would avoid abandonment of fisher active maternity dens and avoid impacts on reproductive success should any be present. Therefore, any impacts on fisher would be less than significant.

#### **Spotted Bat and Western Mastiff Bat**

The project area is near the Castle Crag rock formation, which may provide roosts for spotted bat and western mastiff bat (Williams 1986, CWHR 1990b, Brylski et al. 1998, CWHR 2000c). Both species may use the project area for foraging due to its proximity to likely roosts. These bat species forage primarily in the evening and early morning hours, outside the periods when most project activities and ground disturbances would occur. Therefore, project activities are not likely to substantially disrupt foraging behavior. In addition, there is an abundance of foraging habitat surrounding the project area, and the overall foraging habitat quality may improve as a result of fuel reduction activities due to creation of forest gaps that may increase prey availability. Therefore, impacts to spotted bat and western mastiff bat would be less than significant.

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

**Less than significant.** The well-established riparian corridor along Root Creek is a sensitive natural community and is protected under Section 1602 of the California Fish and Game Code. Forest management and fuels reduction activities would occur within riparian habitat along Root Creek, although at a reduced level than in other portions of the project area (Section 2.5.1, Root Creek Drainage Forest Management Plan and Fuels Reduction). Herbicide application would also occur within riparian habitat as part of ongoing vegetation management. The implementation of forest management and fuels reduction activities and application of herbicides could temporarily reduce the quality of riparian habitat along Root Creek by removing native vegetation. The use of mechanical equipment and vehicles for construction and fuels reduction within and adjacent to riparian habitat could result in the discharge of sediments, fuel, oil and other potentially hazardous materials that could degrade habitat quality. The replacement of the upper Root Creek crossing would result in loss of riparian habitat within the footprint of the new crossing and realigned road; however, removing the existing crossing and allowing Root Creek to return to its historic stream channel alignment improving stream and riparian function and therefore riparian habitat conditions would be maintained or improved in the long-term. Furthermore, reducing the risk of high intensity fire that would damage riparian habitat, and reducing competition between invasive plants and native vegetation would improve the long-term health of the riparian community and quality of the riparian habitat in the project area.

CSP would implement the following SPRs to avoid and minimize impacts to riparian habitat from project activities:

- ▲ CSP will employ Best Management Practices (BMPs) for erosion control to avoid runoff of project-related sediments, vehicle fluids, and other liquids into special plant communities.

- ▲ If riparian habitat is located within 50 feet of construction activities, the edge of the riparian habitat will be flagged by a CSP-approved biologist before the start of construction activities and avoided to the extent practicable.
- ▲ All herbicides will be handled, applied, and disposed of in accordance with the Material Safety Data Sheet and all local, State, and federal laws.

In addition to the implementation of the above SPRs, CSP would implement a SWPPP and a SPRP, which would avoid or minimize the discharge of soil, surface water runoff, and pollutants into riparian habitat by use of BMPs (e.g., silt fences, straw bale barriers, fiber rolls, preserving and planting vegetation), and prevent the release of hazardous materials into the environment by regularly inspecting equipment for leaks. CSP would also obtain and adhere to the requirements of a Lake and Streambed Alteration Agreement with CDFW. The Lake and Streambed Alteration Agreement process ensures that adverse effects of proposed activities within the bed and bank of streams and associated riparian areas are minimized or avoided through permit requirements. The long-term improvement of riparian habitat within the project area, together with the implementation of the SPRs above, would reduce the impact to riparian habitat to less than significant.

**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?**

**Less than significant.** Field investigations completed in May 2017 identified four potentially jurisdictional drainages that intersect the proposed access route: Root Creek, an intermittent tributary to Root Creek, and two smaller intermittent drainages. Root Creek and its intermittent tributary are non-navigable tributaries of a traditional navigable water (the Sacramento River) with permanent or relatively permanent flow, and the two smaller drainages are non-navigable relatively permanent drainages with a groundwater connection to Root Creek. Therefore, these features may be considered jurisdictional waters of the United States under section 404 of the Clean Water Act and waters of the state under the Porter-Cologne Act. The project would replace one existing culvert in upper Root Creek and construct three culverts and five washes along the reestablished emergency access road near the intersection of the PCT and the utility easement. These activities could result in dredging and fill of potential waters of the United States and state. CSP would obtain and adhere to the requirements of a Section 404 Nationwide or Regional General Permit, and Section 401 Water Quality Certification. The Section 404 permit process ensures that proposed activities in waters of the United States are reduced to a no-net-loss standard through restoration or compensatory mitigation. The Section 401 Water Quality Certification requires that any person applying for a federal permit or license, which may result in a discharge of pollutants into waters of the United States, must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions.

Grading and other ground disturbing activities that result from the reestablishment of the emergency access road and forest management and fuels reduction activities, could result in indirect impacts to waters of the United States and the state through erosion and siltation. In addition, fuel and other potentially hazardous materials used during construction could enter runoff and be washed into streams during storm events, reducing water quality. As described in Section 3.8, “Hazards and Hazardous Materials” and Section 3.9, “Hydrology and Water Quality,” additional SPRs would be implemented, including preparing a SWPPP and a SPRP. These plans would avoid or minimize the discharge of soil, surface water runoff, and pollutants into waters by use of BMPs (e.g., silt fences, straw bale barriers, fiber rolls, preserving and planting vegetation), and prevent the release of hazardous materials into the environment by regularly inspecting equipment for leaks.

With the implementation of SPRs to avoid and minimize runoff and discharge of hazardous materials, and adherence to the Section 404 Nationwide or Regional General Permit and Section 401 Water Quality Certification requirements, the impact to waters of the United States and state would be less than significant.

**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?**

**Less than significant.** The project area is located within the Bald Hills - Castle Crags Essential Connectivity Area (ECA) as defined in Spencer et al. (2010). Wildlife may avoid portions of the project area during forest fuel treatment activities, vegetation management, and reestablishment of the emergency access road; however, these activities would be temporary in nature and would not create a permanent barrier to wildlife movement through the ECA or along smaller-scale corridors (e.g., riparian zones) and potential movement routes in the project area. While the emergency access road would become a permanent road, the planned use of the road is limited (i.e., for access in the event of an emergency) and would not substantially interfere with wildlife movement. As such, any interference with wildlife movement by the project would not be substantial. Replacing the existing 24-inch culvert for the upper Root Creek crossing with a single box or bottomless culvert would improve passage within Root Creek for aquatic organisms over the existing conditions. There are no known nursery sites (e.g., rookeries) within the project area, and the habitat within the project area makes it unlikely that such sites would occur.

For the reasons described above, any impact on the movement of native resident or migratory fish or wildlife species, or with established wildlife corridors would be less than significant.

**e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?**

**No impact.** As a state agency, CSP is not subject to local land use plans, policies, and ordinances adopted by local agencies. Therefore, the project would not 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?**

**No impact.** There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans for the project area or its vicinity. Therefore, implementation of the project would not conflict with such plans and no impacts would occur.

## 3.5 CULTURAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>V. Cultural Resources. Would the project:</b>				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 3.5.1 Environmental Setting

#### DEFINITIONS

Cultural (including historic and archaeological resources) and paleontological resources may be defined as follows:

- ▲ Historic resources: CEQA defines historic resources as those that are listed on, or determined to be eligible for listing on, the California Register of Historical Resources (CRHR) or a local register, or are otherwise determined to be historical pursuant to CEQA (PRC Section 21084.1) or CEQA Guidelines (CCR Title 14, Section 15064.5). The CRHR also includes properties formally determined eligible or listed in the National Register of Historic Places (NRHP) (PRC Section 5024.1). A historic resource may be an object, building, structure, site, area, place, record, or manuscript that is historically significant or significant in terms of California's architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural records (PRC Section 5020.1(j)). Typically, historic resources are more than 50 years old.
- ▲ Archaeological resources: Archaeological resources may be considered historic resources or, if not, they may be determined to be "unique" as defined by CEQA (PRC Section 21083.2(g)). A "unique archaeological resource" is 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; or (3) is directly associated with a scientifically recognized important prehistoric or historic event or person.
- ▲ Paleontological resources: CEQA does not define paleontological resources. The California Department of Transportation (Caltrans) Standard Environmental Reference (Caltrans 2017) defines a paleontological resource as a locality containing vertebrate, invertebrate, or plant fossils (i.e., fossil location, fossil bearing formation, or a formation with the potential to bear fossils).

## ETHNOGRAPHY

Several native groups inhabited the vast area of northern Shasta County, where the project area is located, including the Okwanuchu Shasta, Modoc, Wintu, and Achumawi (McTavish 2009). The Okwanuchu Shasta territory covered about 700 square miles of forested mountains from the headwaters of the Sacramento River to the McCloud River and from Mount Shasta to Pollard Flat. The Modoc territory covered areas of south-central Oregon to Mount Shasta and areas east of the Okwanchu Shasta territory (McTavish 2009). The abundant local riverine and terrestrial resources ensured their success as hunters and gatherers. Plentiful salmon and other fish in what is now the Sacramento River and its tributaries could be eaten fresh or dried and stored for winter months. Harvested nuts from oaks and pines provided year-round sustenance, and bulbs, roots, greens, berries and grasses were gathered seasonally. Strong trading ties with their neighbors yielded obsidian from the Achumawi to the east and abalone and dentalia shells from their western coastal neighbors, the Karok, Yurok and Hupa (CSP 2014).

The Wintu are the northernmost dialectical groups of the Wintun, whose territory roughly incorporates the western side of the Sacramento Valley from the Carquinez Straits north to include most of the upper Sacramento River drainage, the McCloud River, and the lower reaches of the Pit River. The Wintun, a collective name, were subdivided into three sub-groups with the Southern Central and the Northern dialects known respectively as Patwin, Nomlaki, and Wintu. Although economic subsistence was heavily weighted toward the acorn, the staple of the diet, the rich riverine resources of the Sacramento River supplied a large variety of foodstuffs. Hunting of game and small mammals augmented the diet with protein. Seasonal procurement of vegetable foods and the hunting of game occurred throughout the territory held by villages. Villages were typically situated along rivers and streams or close to springs where reliable water supplies allowed a semi-permanent occupation. Cultural resources surveys in the region have demonstrated that there was heavy use of tributary streams and other areas at a distance from the main river, while early ethnographies had emphasized the concentration of population primarily along the Sacramento River (Shasta County 2009).

## HISTORICAL CONTEXT

European and Euroamerican exploration of the project vicinity occurred relatively late in history, receiving its impetus from the Hudson's Bay Company explorations of the 1820s, in which the British fur company sought a purported all-water route from Snake River country (located between Oregon's portion of the Cascade Range and the Great Salt Lake) to the Pacific Ocean. The territories and lifeways of all native groups were changed by the arrival of European and American explorers and fur trappers. A malaria epidemic brought by European fur trappers wiped out much of the Okwanuchu Shasta populace by 1833. With the 1848 gold discoveries at the Trinity River and Sutter's Mill, sojourners from around the world flocked to California, invading the original homelands and disturbing the life-sustaining resources of the native people (CSP 2014).

During the Gold Rush, relations between the miners and the native tribes in the project area were strained to the breaking point resulting in what was called the 1855 Battle of Castle Crags. The primary location of this battle was at the very northwest end of the Crags between what is now known as Battle Rock and Castle Lake. The site became California Historical Landmark No. 116 in 1984. A plaque near the park entrance commemorates the conflict between Modocs, Wintu, Okwanuchu Shasta, and white settlers (CSP 2014).

With the completion of the Stage Road and Southern Pacific Railroad, mining and lumbering flourished and tourists began to flock to the resorts that sprang up around the highly mineralized springs in the project area. Chromium mines operated in one part of the Crags until the 1950s. The resorts were popular destination points until the advent of the automobile. Little remains of the mining and resort business and most of the mines have disappeared into the wilderness. A few historic buildings dating from the resort era can still be found in the Castella area. In 1933, concerned citizens who wanted to see Castle Crags preserved succeeded in acquiring much of the land that became CCSP (USFS n.d.). That same year, 220 men from the federal Civilian Conservation Corps (CCC) camp in Castella began building the park's roads, trails, infrastructure and buildings in the "park rustic" style of native wood and stone. In 1959, most of the CCC-era structures were

demolished to allow the I-5 freeway to run through the original park. Some local rock “Diablo stoves” in campsites remain, as well as the CCC-built rock surrounding for the park’s mineral spring (CSP 2014).

## PALEONTOLOGICAL RESOURCES

The project area is underlain by granitic rocks, Copley Greenstone, and Trinity peridotite (Wagner and Saucedo 1987). These types of geologic units are composed of igneous and metamorphic rock which are precluded from preservation of paleontological resources due to their genesis within a magmatic environment (NPS 2007). There are no known paleontological resources within the project area (UCMP n.d.).

## KNOWN RESOURCES

Staff members at the Northeast Information Center (NEIC) conducted a confidential records search for the project area on November 27, 2017 (NEIC #D17-180). In addition to site records and survey reports, the following information was reviewed as part of the records search:

- ▲ NRHP and CRHR
- ▲ California Office of Historic Preservation Historic Property Directory
- ▲ California Inventory of Historic Resources
- ▲ California State Historic Landmarks
- ▲ California Points of Historical Interest
- ▲ Directories of Properties in the Historic Property Data File for Shasta County
- ▲ Handbook of North American Indians, Vol. 8, California

Five previously recorded historic sites were identified within the project area; including rock walls, a wagon road, structure foundations, and refuse deposits. None of these sites have been evaluated for NRHP- or CRHR-eligibility. These five sites are described below.

- ▲ P-45-001569 – Root Creek Powder House, structural flat, collapsed structure, and refuse deposit.
- ▲ P-45-001571 – Rock-lined platform, possible stage stop, wagon road, adits, and refuse deposit.
- ▲ P-45-003317 – CCC property, road, culverts, water tanks, and rock walls
- ▲ P-45-003857 – CCC property, road, culverts, and rock walls
- ▲ P-45-004472 – Vista Point Trail and rock walls

Four archaeological reports have covered the southern Kettlebelly Ridge portion of the project area; however, these survey reports are old, having been conducted between 1976 and 2005. No previously recorded archaeological sites were identified within the project area; however, the project is in a region occupied by Shastan populations. Accordingly, unrecorded prehistoric archaeological materials may be located in the project area.

### 3.5.2 Discussion

#### a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

**Less than significant.** The project area contains five known historical resources, as described in Section 3.5.1, Environmental Setting. Project activities that could potentially damage historic resources include prescribed burns and pile burning, use of heavy mechanical equipment during forest fuels treatment activities, and ground disturbance during reestablishment of the emergency access road. Prior to the start of forest fuels treatment activities and emergency access road reestablishment, CSP would consult with the contractor and/or construction personnel to identify all resources that must be protected. It is also possible that previously undiscovered historical resources could be located within the project area, and could be

adversely impacted during project activities if uncovered. The following SPRs would be implemented to minimize and avoid impacts to known and unknown historic resources:

- ▲ Prior to the start of on-site construction work, a Cultural Resource Specialist will flag and/or fence all cultural resources with a buffer of 50 feet for avoidance during on-site project activities. The Cultural Resource Specialist will remove the fencing after project completion.
- ▲ If anyone discovers previously undocumented historical or archaeological resources during project construction, work within 50 feet of the find will be temporarily halted until the Cultural Resources Specialist designs and implements appropriate treatments in accordance with the Secretary of the Interiors Standards and Guidelines for historical or archaeological resource protection.

Implementation of these SPRs would avoid impacts to known historic resources and establish a protocol to halt work upon discovery of unknown historic resources. With implementation of SPRs, this impact would be less than significant.

**b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?**

**Less than significant impact with mitigation incorporated.** No previously recorded archaeological sites were identified within the project area; however, the project is in a region occupied by Shastan populations and therefore, it is possible that unrecorded prehistoric archaeological materials may be located in the project area. The same SPR discussed under criterion “a” would be implemented should undiscovered archaeological resources be encountered during project activities, which would require work to be halted in the event of a discovery. Implementation of this SPR would avoid impacts by establishing a protocol to halt work upon discovery of archaeological resources. However, impacts to undiscovered archaeological resources could still occur from prescribed burns and pile burning, use of heavy mechanical equipment, and ground disturbance during reestablishment of the emergency access road, particularly given the sensitivity of the area. The following mitigation would be implemented to further reduce impacts to any unknown archaeological resources:

**Mitigation Measure CU-1: Pre-Construction Surveys**

A qualified Cultural Resources Specialist will conduct pre-construction surveys before any prescribed burns in areas where cultural resources are likely to be found (e.g., flat areas, near stream-beds). If any archaeological resources are found, a Cultural Resource Specialist will flag and/or fence all cultural resources with a buffer of 50 feet for avoidance during on-site project activities. The Cultural Resource Specialist will remove the fencing after project completion.

Implementation of Mitigation Measure CU-1 would reduce impacts to undiscovered archaeological resources in areas that were not previously surveyed and ensures that SPRs intended to protect cultural resources, such as flagging or fencing off sites, will be implemented. Therefore, this impact would be less than significant with mitigation incorporated.

**c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?**

**No impact.** There are no known paleontological resources within the project area and the closest unique geologic features to the project area are the crags at CCSP. The crags are located approximately 0.5 mile northwest of the project area, and project activities would have no impact on the crags. As discussed in Section 3.5.1, Environmental Setting, the project area is underlain geologic units that do not preserve fossils. Furthermore, project activities would occur in the surficial soils only and would not excavate bedrock. Therefore, no impact would occur.

**d) Disturb any human remains, including those interred outside of formal cemeteries?**

**Less than significant impact.** As previously described, several native groups inhabited the vast area of northern Shasta County, where the project area is located, including the Okwanuchu Shasta, Wintu, Achumawi and Modoc people. Therefore, human remains could be located within the project area. The project includes grading activities during reestablishment of the emergency access road, which could encounter human remains, if present. The following SPRs would be implemented in the case that human remains are discovered during project activities:

- ▲ In the event that human remains are discovered, work will cease immediately in the area of the find and the project manager/site supervisor will notify the appropriate CSP personnel. Any human remains and/or funerary objects will be left in place or returned to the point of discovery and covered with soil. The CSP Sector Superintendent (or authorized representative) will notify the County Coroner, in accordance with §7050.5 of the California Health and Safety Code, and the Native American Heritage Commission (or Tribal Representative). If a Native American monitor is on-site at the time of the discovery, the monitor will be responsible for notifying the appropriate Native American authorities. The local County Coroner will make the determination of whether the human bone is of Native American origin.
- ▲ If the Coroner determines the remains represent Native American interment, the Native American Heritage Commission (NAHC) in Sacramento and/or tribe will be consulted to identify the most likely descendants and appropriate disposition of the remains. Work will not resume in the area of the find until proper disposition is complete (PRC §5097.98). No human remains or funerary objects will be cleaned, photographed, analyzed, or removed from the site before determination.
- ▲ If it is determined the find indicates a sacred or religious site, the site will be avoided to the maximum extent practicable. Formal consultation with the State Historic Preservation Office and review by the Native American Heritage Commission/Tribal Cultural representatives will occur as necessary to define additional site mitigation or future restrictions.

Therefore, with the incorporation of SPRs intended to minimize impacts to human remains should any be discovered, this impact would be less than significant.

## 3.6 GEOLOGY AND SOILS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>VI. Geology and Soils. Would the project:</b>				
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 California Geological Survey Special Publication 42.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3.6.1 Environmental Setting

The project area lies near the eastern boundary of the Klamath Mountains Geomorphic Province, which consist of deep canyons and several rugged mountain ranges that reach elevations of 8,000 feet. The project area occurs at elevations between 2,000 and 3,600 feet, with slopes typically exceeding 40 percent. The geomorphic province is considered to be a northern extension of the Sierra Nevada (CGS 2015a). It occupies about 11,500 square miles and extends from southern Oregon for 130 miles into northwestern California between the Coast Ranges and the Cascade Range geomorphic provinces (DOC 1997). Rocks include metamorphosed Paleozoic and Mesozoic oceanic rocks, abundant serpentinite, and granitic intrusions (CGS 2015a).

### GEOLOGIC CONDITIONS

Rocks immediately surrounding Castle Crags consist mostly of Ordovician-aged (443–490 million-year-old) oceanic crust referred to as the Trinity ultramafic sheet. The oceanic rocks and serpentinite represent accreted terranes (a fragment of crustal material formed on or broken off from one tectonic plate and

accreted to crust lying on another plate) with the latter being interpreted as an ophiolite. Several distinct terranes have been identified. Studies that dated rocks in the province show the terranes are progressively younger from east to west, ranging from Devonian to Late Jurassic Periods, 416 to 190 million years ago. The edifice of Castle Crags resulted from the intrusion of a granitic magma into the ultramafic rock around 160 million years ago. Millions of years of erosion have exposed the rock and shaped the spires and domes of the Castle Crags (CGS 2015b).

## SOILS

The U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) soil surveys (NRCS n.d.) data contains information about soil properties and qualities within the project area. A soil association mapped by the NRCS is made up of two or more geographically associated soils that are grouped together for the practicality of mapping. Table 3.6-1 lists major soil associations within the project area and their characteristics, including the soils' shrink-swell potentials and water and wind erosion potentials.

**Table 3.6-1 Soil Associations within the Project Area**

Soil Association	Percent of Project Area	Shrink-Swell Potential	Water Erosion Potential	Wind Erosion Potential
Atter family, 0 to 20 percent slopes	32.0	Moderate - High	Low	Moderate
Konocti-Olete families complex, 40 to 70 percent slopes	23.6	High	Low	Low
Ishi Pishi-Tamflat families association, 35 to 60 percent slopes	19.7	High	Low	Low
Dunsmuir family, 15 to 40 percent slopes	18.3	High	Low	Low
Holland family, deep, 40 to 60 percent slopes	5.0	High	Low	Low
Ishi Pishi family-Ishi Pishi family, deep complex, 35 to 70 percent slopes	1.0	High	Low	Low
Weitchpec family-Lithic Haploxeralfs-Rock outcrop complex, 60 to 80 percent slopes	0.3	High	Low	Low
Neer gravelly sandy loam, 50 to 75 percent slopes	0.0	High	Low	Moderate

Source: NRCS n.d.

## GEOLOGIC HAZARDS

Geologic hazards include subsidence, expansive soils, and landslides.

Regional subsidence is the settling or sinking of the land surface commonly because of ongoing groundwater extraction from alluvial geologic formations. The project area does not exhibit historic or current reports of subsidence (USGS 2017).

Expansive soils are deposited in a loose, highly porous state, then harden and remain dry after deposition. Upon contact with moisture, the weak cementation between the loose soil particles softens and can result in settlement or collapse. As disclosed in Table 3.6-1, the shrink-swell potential of soils in the project area is generally high.

Landslides are the downhill movements of soil or rock along a shear surface. Landslides are more prevalent in the eastern and northern portions of the County and are commonly related to the sedimentary and volcanic rocks in these vicinities. Landslides in the western portion of the County are not as widespread, but occur in areas of sedimentary and volcanic rocks. Seismically-induced landsliding is not considered a significant hazard in Shasta County (Shasta County 2004).

## PRIMARY SEISMIC HAZARDS

Although not as active as some areas of the State, Shasta County is a seismically active region. Earthquake activity has not been a serious hazard in Shasta County's history, nor is it probable that it will become a serious hazard in the future (Shasta County 2004). The Fault Map of California (Jennings & Bryant 2010) places Quaternary faults in the eastern and southern portion of Shasta County. Quaternary faults are those with the latest movement within the last two to three million years. The State of California (California Division of Mines and Geology) considers Quaternary faults to be potentially active. In the western portion of the County are older, inactive faults from which future movement is considerably unlikely. There are no delineated Alquist-Priolo Earthquake Fault Zones or other potentially active faults that have been mapped in the project area. The nearest mapped Alquist-Priolo Earthquake Fault Zone is located along the Cedar Mountain Fault system, over 25 miles north-east of the project area (Bryant 1990).

Ground shaking can be described as ranging from high to low intensity. Higher magnitude earthquakes generally produce higher shaking intensities over wider areas which may result in greater damage. This is reflected in the Modified Mercalli intensity ratings, which range from a rating of I, Not Felt (not felt except by a very few under especially favorable conditions) to a rating of X, Extreme (some well-built wooden structures destroyed, most masonry and frame structures destroyed with foundations, rails bent). The maximum intensity event expected to occur in eastern Shasta County is Modified Mercalli VIII. In the less seismically active western half of Shasta County, where the project is located, the maximum intensity is expected to be Modified Mercalli VII (Shasta County 2004). The rating of VII, "Very Strong" means that damage is expected to be negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; and some chimneys may be broken.

## SECONDARY SEISMIC HAZARDS

When strong ground shaking results from a nearby or distant earthquake, several secondary seismic hazards can occur. These seismic hazards include liquefaction, seismically induced landslides or slumps. Seismically induced flooding from tsunamis, seiche, and dam failure are discussed in Section 3.9, Hydrology.

Liquefaction is the temporary transformation of a loose, saturated, granular soil from a solid into a semi-liquefied state, usually as a result of earth shaking. Liquefied soil behaves like a fluid. This phenomenon is most likely to occur in alluvial (geologically recent, unconsolidated sediments) and stream channel deposits, especially when the groundwater table is high. Liquefaction poses a hazard to engineered structures. The loss of soil strength can result in bearing capacity insufficient to support foundation loads, increased lateral pressure on retaining or basement walls, and slope instability. Areas of potential liquefaction are located in the South Central Region of Shasta County, which includes the cities of Shasta Lake, Redding, and Anderson. The project area is not considered an area of potential liquefaction (Shasta County 2004).

### 3.6.2 Discussion

- 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 California Geological Survey Special Publication 42.)**

**No impact.** There are no delineated Alquist-Priolo Earthquake Fault Zones in the project area. No impact would occur.

**ii) Strong seismic ground shaking?**

**No impact.** Although the western portion of the county is could experience a maximum intensity event of up to Modified Mercalli VII, there are no delineated Alquist-Priolo Earthquake Fault Zones or other potentially active faults that have been mapped in the project area. Furthermore, the project would not include the construction of habitable structures and would not alter land use or public access to the project area. No impact would occur.

**iii) Seismic-related ground failure, including liquefaction?**

**No impact.** The project area is not considered an area of potential liquefaction. Furthermore, liquefaction and other seismic-related ground failure events primarily affect structures. Because there are currently no structures on-site, and the project would not result in construction of any new structures, no impact would occur.

**iv) Landslides?**

**No impact.** Landslides in the western portion of the County are not widespread and seismically-induced landsliding is not considered a significant hazard in Shasta County. Furthermore, the project would not include the construction of habitable structures or substantial ground disturbance activities that could cause a landslide. No impact would occur.

**b) Result in substantial soil erosion or the loss of topsoil?**

**Less than significant.** Project activities that could cause soil erosion and the loss of topsoil include ground-disturbing activities such as grading of the emergency access road and use of heavy equipment during forest fuels treatment activities. The emergency access road would be graded to maintain adequate drainage and minimize the potential for erosion. The road would include new compacted rock washes, culverts, and replacement of an existing undersized culvert to address erosion issues. Use of heavy equipment during forest fuels treatment activities would adhere to Section 914.2, 934.2, 954.2, Tractor Operations, of the FPRs which specifies slope conditions where heavy equipment would be prohibited (See Appendix A). For instance, heavy equipment is prohibited on slopes steeper than 65 percent, as well as on slopes steeper than 50 percent where the erosion hazard rating is high or extreme. As shown in Table 3.6-1 above, the potential risk of accelerated surface erosion due to project activities would be low as soils in the project area are characterized by low water erosion potential and low to moderate wind erosion potential. Furthermore, the following SPR would be implemented:

- ▲ CSP will employ BMPs for erosion control to avoid runoff of project-related sediments, vehicle fluids, and other liquids into special plant communities.

Project activities such as replacing culverts and installing new washes are intended to decrease erosion during wet periods. Additionally, given the low erosion potential of soil in the project area and implementation of BMPs for soil erosion control, the project would not result in substantial soil erosion or the loss of topsoil. Therefore, the impact would be less than significant.

**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?**

**No impact.** The project area is not located on a geologic unit or soil that is considered unstable. As discussed in Section 3.6.1, Environmental Setting, landslides in the western portion of the County are not widespread, the project area does not exhibit historic or current reports of subsidence, and the project area is not considered to be an area of potential liquefaction. No impact would occur.

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

**No impact.** Although expansive soils exist in the project area, the project would not create buildings or structures that could be affected by soil expansion. No impact would occur.

**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?**

**No impact.** The project would not involve the installation of any septic system or other form of waste water disposal. No impact would occur.

## 3.7 GREENHOUSE GAS EMISSIONS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>VII. Greenhouse Gas Emissions. Would the project:</b>				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 3.7.1 Environmental Setting

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF<sub>6</sub>). GHG emissions contributing to global climate change are attributable, in large part, to human activities associated with on-road and off-road transportation, industrial/manufacturing, electricity generation by utilities and consumption by end users, residential and commercial on-site fuel usage, and agriculture and forestry. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic forcings together (IPCC 2014: 5).

Climate change is a global problem. GHGs are global pollutants because even local GHG emissions contribute to global impacts. GHGs have long atmospheric lifetimes (one to several thousand years) and persist in the atmosphere long enough to be dispersed around the globe. Although the lifetime of any particular GHG molecule is dependent on multiple variables and cannot be determined with any certainty, it is understood that more CO<sub>2</sub> is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration (IPCC 2013:467).

### CLIMATE CHANGE AND WILDFIRE

Wildfire activity is closely related to temperature and drought conditions, both of which dry vegetation and increase wildfire risk. In recent decades, increasing drought frequency and warming temperatures due to climate change have led to an increase in wildfire activity (Westerling et al 2006; Schoennagel et al. 2017). For example, the 2017 California wildfire season was exacerbated by periods of persistent drought, intense winter rains, and the hottest summer in more than 100 years of record keeping. Heavy winter rainfall resulted in an abundance of vegetation, which dried out in the summer, creating hazardous fuel conditions. According to California's Fourth Climate Change Assessment, *Statewide Summary Report* (2018), if GHGs continue to rise, the frequency of extreme wildfires burning over 25,000 acres could increase by 50 percent by 2100 and the average area burned statewide could increase by 77 percent by the end of the century (Bedsworth et al. 2018).

## GHG INVENTORY

A GHG inventory is a quantification of all GHG emissions and sinks within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale (i.e., for global and national entities) or on a small scale (i.e., for a particular building or person). The most recent local GHG inventory for Shasta County is presented in Table 3.7-1 to provide context for the GHG emissions associated with the project.

**Table 3.7-1 2008 Shasta County GHG Emissions Inventory**

Sector	Yearly GHG Emissions (MT CO <sub>2</sub> e)	Percent of Total Emissions
Energy	206,309	7%
Transportation	243,668	8%
Solid Waste	29,233	1%
Water	12,342	<1%
Off-Road and Recreation	79,703	3%
Stationary Sources (Non-jurisdictional)	2,271,027	73%
Agriculture (Non-jurisdictional)	132,234	4%
Forestry (Non-jurisdictional)	156,538	5%
Total	3,131,054	100%

Notes: MT CO<sub>2</sub>e = metric tons of carbon dioxide equivalent

Source: Shasta County 2012

## PRESCRIBED FIRE AND WILDFIRE

As discussed in Section 3.3, Air Quality, there are important differences between wildfire and prescribed fire in relation to the emissions that are produced. The fraction of fuel combusted during a fire event tends to increase with increasing burn severity. Prescribed fires are less severe than wildfires because they are managed to be smaller, implemented when atmospheric conditions are stable and fuel moisture is high enough to maintain flame length, combustion, and spread rates within prescription, combusting less than 50 percent of the available fuel. Additionally, prescribed fire conditions are such that overstory tree mortality rates are low, leaving much of the live-tree carbon pool intact. As a result, the amount of biomass combusted during a prescribed fire is less than what would occur during a wildfire.

Although fuel reduction treatments, such as mechanical thinning and prescribed burning, have direct carbon emissions associated with implementation while reducing carbon stocks, these methods may reduce CO<sub>2</sub> emissions from subsequent wildfires. Studies found that wide-scale prescribed fire application can reduce CO<sub>2</sub> emissions by 18-25 percent in the western U.S., and by as much as 60 percent in specific forest systems. For example, simulated fuel treatments in the Lake Tahoe basin returned the forest to more historic and fire resilient conditions, reduced wildfire risk and severity, controlled wildfire carbon emissions, and in the long run, resulted in a net carbon gain (Loudermilk et al. 2014). While prescribed burns do not eliminate the occurrence of wildfire in these systems, there is evidence that treating fuels limits the severity of wildfire when it does occur because of limited fuel availability (Wiedinmyer and Hurteau 2010).

## 3.7.2 Relevant GHG Plans and Policies

### FEDERAL

On December 7, 2009, the EPA issued findings regarding GHGs under the CAA. The *Final Endangerment and Cause or Contribute Findings for Greenhouse Gases* states that current and projected concentrations of the six key well-mixed GHGs in the atmosphere—CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFC, PFC, and SF<sub>6</sub>—threaten the public health and welfare and that combined emissions of GHGs from new motor vehicles contribute to this issue. This allowed EPA to regulate GHGs under the CAA. For example, EPA and the National Highway Traffic Safety Administration issued two rules (81 Fed. Reg. 73478 and 77 Fed. Reg. 62623) that require substantial improvements in fuel economy for all vehicles sold in the U.S. for model years 2017 through 2025 of passenger cars, light-duty trucks, and medium-duty passenger vehicles. In 2012, EPA issued CARB a waiver that allows California to more strictly regulate pollution from cars than the federal government.

### STATE

California has taken proactive steps to address the issues associated with GHG emissions and climate change. A selection of actions relevant to the project are described below.

#### Mobile Source Controls

CARB has implemented several regulations to reduce GHG emissions from mobile sources. For example, the Advanced Clean Cars program sets GHG control requirements for model years 2015 through 2025. Assembly Bill (AB) 1493 required CARB to develop and implement regulations to reduce automobile and light-truck GHG emissions from model year 2009 through 2016. With Executive Order (EO) S-01-07, Governor Schwarzenegger set forth the 2020 target and low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

#### Statewide GHG Emission Targets and the Climate Change Scoping Plan

Reducing GHG emissions in California has been the focus of the state government for approximately two decades (State of California 2018). GHG emission targets established by the state legislature include reducing statewide GHG emissions to 1990 levels by 2020 (AB 32 of 2006) and reducing them to 40 percent below 1990 levels by 2030 (Senate Bill 32 of 2016). EO S-3-05 calls for statewide GHG emissions to be reduced to 80 percent below 1990 levels by 2050. These targets are in line with the scientifically established levels needed in the United States to limit the rise in global temperature to no more than 2 degrees Celsius, the warming threshold at which major climate disruptions, such as super droughts and rising sea levels, are projected (United Nations 2015).

*California's 2017 Climate Change Scoping Plan* (2017 Scoping Plan), prepared by CARB, outlines the main strategies California will implement to achieve the legislated GHG emission target for 2030 and "substantially advance toward our 2050 climate goals" (CARB 2017:1, 3, 5, 20, 25–26). It identifies the reductions needed by each GHG emission sector (e.g., transportation, industry, electricity generation, agriculture, commercial and residential, pollutants with high global warming potential, and recycling and waste).

The 2017 Scoping Plan recognizes the role of California's natural and working lands in meeting California's GHG reduction goals. These lands include both forests and rangelands and can act as both source and sink. The 2017 Scoping Plan recognizes that some actions taken to address ecosystem health may result in temporary, short-term reductions in sequestration, but are necessary to maintain forest health and reduce losses due to wildfire. The goals set forward for these landscapes include improved forest management such as forest fuel reduction treatments, reforestation, other restoration activities, prescribed fire and managed ignition.

## California 2030 Natural and Working Lands Climate Change Implementation Plan

In January 2019, CNRA released the Draft *California 2030 Natural and Working Lands Climate Change Implementation Plan* (CNRA 2019). The plan recognizes the multiple benefits that California's natural and working lands provide and charts a path for conservation, restoration, and management to leverage these benefits in achieving the State's GHG reduction goals. The plan poses an increase in State-led conservation, restoration, and management activities from two to five times above current levels, to achieve a level of effort commensurate with that invested in other sectors of California's climate change portfolio. The State will, at the least, strive to increase fivefold the acres of cultivated lands and rangelands under State-funded soil conservation practices, double the rate of State-funded forest management or restoration efforts, triple the rate of State-funded oak woodland and riparian restoration, and double the rate of State-funded wetland and seagrass restoration through 2030.

The plan defines four broad pathways of natural climate solutions: conservation, forestry, restoration, and agriculture. Relevant practices within the forestry pathway include improved forest health and reduced wildfire severity. The plan lays out a target annual implementation acreage of 23,800-73,300 acres per year of prescribed fire, 59,000-73,000 acres per year of thinning, and 23,500-25,300 acres per year of understory treatment (CNRA 2019).

## Safeguarding California

California's overall plan for climate adaptation is expressed in *Safeguarding California Plan: 2018 Update* (CNRA 2018). The plan provides policy guidance for state decision-makers, and is part of continuing efforts to reduce impacts and prepare for climate risks. The plan includes 76 policy recommendations across 11 policy sectors. One of the key sectors is forests, where the emphasis is on: restoring and protecting forest ecosystem function by reintroducing fire and improving management, protecting California's forest base, and enhancing watershed health; supporting community resilience by rebuilding California's forest management workforce, expanding the extent and health of California's urban tree canopy, and advancing fire preparedness; and fostering creative solutions to sustainably use biomass from fuels reduction activities and to better understand climate trends in forests via research and monitoring. Goal F-1 of the plan is to restore fire as a core ecological process, complemented by fuels reduction, working forests, and thinning to enhance forest health, resilience, and long-term carbon stability (CNRA 2018).

## California Forest Carbon Plan

The *California Forest Carbon Plan* (Forest Climate Action Team 2017) aims to improve the health and resilience of California's forests, increase their carbon storage potential, and minimize their atmospheric emissions of GHG. While the Forest Carbon Plan primarily targets carbon storage and emissions, it also emphasizes improving and safeguarding interrelated ecosystem services (co-benefits), as well as social and economic considerations (Forest Climate Action Team 2017). The Forest Carbon Plan was developed by the Forest Climate Action Team, which includes the California Department of Forest & Fire Protection, the CNRA, and the California Environmental Protection Agency (Cal EPA).

## LOCAL

The Shasta Regional Climate Action Plan (2012) and the Shasta County General Plan (2004) contain policies aimed at reducing GHG emissions, however, none are applicable to the project.

## 3.7.3 Discussion

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

**Less than significant.** The project would result in GHG emissions generated by prescribed burns and pile burning; worker commute; and the equipment and vehicles used for forest fuels treatment activities, ongoing vegetation management, and reestablishment of the emergency access road. Although it is

unknown whether any individual treatment acreage will be involved in a wildfire during the effective life of the treatment, it is reasonable to assume that forest fuels treatment activities implemented at the landscape level will modify wildland fire behavior by reducing the potential size, frequency, and severity of wildfire in and near treated areas (Finney et. al. 2005). The Shasta County AQMD does not have significance thresholds for GHG emissions nor guidance concerning CEQA evaluation of GHG emissions generated by a prescribed fire project. Thus, to evaluate whether the project would result in significant GHG emissions, this analysis compares the expected avoided GHG emissions from a catastrophic wildfire to the GHG emissions expected from implementation of the project along with a wildfire on the treated land. This will conservatively estimate the project's impacts because carbon sequestration through future vegetative growth on treated acres and the reduction of wildfire risk to the surrounding landscape is not taken into account.

The GHG emissions from forest fuels treatment activities vary depending on site conditions, timing and duration of treatments, treatment approach and equipment, and other factors. Emissions from prescribed fire and wildfire were estimated based on the following sources:

- ▲ diesel and gasoline fuel consumption emissions factors from the California Climate Action Registry General Reporting Protocol, Version 3.1 (CCAR 2009);
- ▲ northwest conifer forest methane and CO<sub>2</sub> emissions from a study on wildland fire emissions (Urbanski 2014);
- ▲ fuel loading for typical California forests from the EPA AP-42: Compilation of Air Emission Factors (EPA 1995);
- ▲ and wildfire emissions factors from a U.S. Forest Service (USFS) Region 5 modeling effort that evaluated a similar forest treatment project in the northern Sierra, just north of Lake Tahoe (USFS 2015).

Emissions for hand thinning, mechanical thinning, herbicide application, and reestablishment of the emergency access road were calculated using CARB's OFFROAD2007 model and CalEEMod. See Appendix B for detailed emissions calculations.

#### **Hand and Mechanical Thinning**

With the exception of certain areas that are too steep to thin, the forest across the 435-acre Root Creek Drainage would be hand and mechanically thinned over time. While it is anticipated that the majority of the project area would undergo hand thinning, it is possible that logging contracts may be set up in the future for large diameter trees of over 13 inches diameter at breast height requiring the use of heavy mechanical equipment. Mechanical thinning is more emissions intensive than hand thinning, thus, it is conservatively assumed that 50 percent of the project area would undergo hand thinning and 50 percent would undergo mechanical thinning (i.e. 217.5-acres would undergo each type of thinning).

Hand thinning activities require large crew sizes and the use of handheld tools such as chainsaws. Equipment usage and worker commute would result in net total estimated emissions of 11.7 MT CO<sub>2</sub>e per year for hand thinning (refer to Appendix B).

Mechanical thinning could involve the use of feller/bunchers, skidders, and shredders. Equipment usage and worker commute would result in net total estimated emissions of 402 MT CO<sub>2</sub>e per year for mechanical thinning (refer to Appendix B).

#### **Ongoing Vegetation Management**

Ongoing vegetation management could involve backpack sprayer and/or all-terrain vehicle (ATV) mounted spray rig. This analysis conservatively assumes that ATV-mounted spray rigs are used in all instances. The herbicides proposed for use are also not expected to generate any GHG emissions and are thus not accounted for in this calculation. Ongoing vegetation management activities would result in estimated emissions of 3.5 MT CO<sub>2</sub>e per year (refer to Appendix B).

### **Reestablishment of the Emergency Access Road**

Reestablishment of the emergency access road would involve several types of emissions-generating equipment. Graders, rubber-tired dozers, and backhoes are typically used for grading unpaved roads. Loaders and excavators are typically used for installing culverts. Haul truck trips would be required to transport up to 50 cubic yards of road fill and 25 cubic yards of rock for constructing washes. Equipment usage and worker commute would result in net total estimated emissions of 4.4 MT CO<sub>2</sub>e (refer to Appendix B).

### **Prescribed Burns and Pile Burning**

Prescribed burning, in the form of pile burning or understory broadcast burning, would be applied on the project area. This analysis conservatively assumes that prescribed fire would be applied to 150 acres per year, in the form of broadcast burning. This would be a conservative estimate because pile burning is less emissions intensive than broadcast burning, as it reduces the amount of fuel on site available for ignition, and because it is likely that actual burn acreage would be less than 150 acres per year. Although CSP aims to complete three burn compartments per year, which range in size from 5 to 50 acres, this would be highly dependent on statewide fire conditions, air quality, personnel availability, and local meteorological conditions.

Prescribed fire activities would involve use of a tractor and drip torches. Two Type 3 Fire Engines and two Type 6 Fire Engines would be on-site for safety. Equipment usage and worker commute would result in net total estimated emissions of 20.6 MT CO<sub>2</sub>e per year. Broadcast burning of 150 acres would result in fire-related emissions of 4211.7 MT CO<sub>2</sub>e per year (refer to Appendix B).

### **Wildfire Emissions**

The project is intended to reduce the risk for wildfire, but it is still possible that wildfires could occur on the project area after treatment. Wildfires that occur after treatment would likely be smaller, of shorter duration, and less intense than under existing conditions, because of the reduction of understory biomass density after prescribed burning. A USFS Region 5 modeling effort that evaluated a similar forest treatment project in the northern Sierra provides expected CO<sub>2</sub>e emissions from wildfires on treated and untreated lands (USFS 2015). This modeling effort used the Forest Vegetation Simulator (FVS) model to produce emission estimates from wildfires occurring on a northern Sierra forest before and after a similar fuel reduction treatment. While emissions would vary based on stand characteristics and treatment type, this modeling effort provides a reasonable approximation of wildfire emissions in the project area. The FVS modeling predicted that an untreated northern Sierra mixed conifer stand would emit 79 MT CO<sub>2</sub>e per acre from a wildfire, and a treated stand would emit 17.6 MT CO<sub>2</sub>e per acre (USFS 2015). For the 150-acre annual project treatment area, this would result in 11,850 MT CO<sub>2</sub>e from a wildfire under existing conditions. After project implementation, the site could be expected to produce approximately 2,640 MT CO<sub>2</sub>e from a smaller and reduced-intensity wildfire.

As shown in Table 3.7-1, in total, project activities are expected to produce approximately 4,653.9 MT CO<sub>2</sub>e per year. In addition, a wildfire occurring after treatment could produce about 2,640 MT CO<sub>2</sub>e, resulting in total emissions of 7,293.9 MT CO<sub>2</sub>e under the project scenario. In contrast, a wildfire occurring without implementation of the project could result in substantially greater emissions at approximately 11,850 MT CO<sub>2</sub>e. Because the project would result in far less GHG emissions than would likely occur without the project, the impact would be less than significant.

**Table 3.7-1 GHG Emissions**

Activity	No Project - Untreated Emissions Scenario (MT CO <sub>2</sub> e)	Project Emissions - Treated Emissions Scenario (MT CO <sub>2</sub> e)
Hand Thinning	N/A	11.7
Mechanical Thinning		402
Ongoing Vegetation Management		3.5
Reestablishment of the Emergency Access Road		4.4
Prescribed Burns and Pile Burning		4232.3

**Table 3.7-1 GHG Emissions**

Activity	No Project - Untreated Emissions Scenario (MT CO <sub>2</sub> e)	Project Emissions - Treated Emissions Scenario (MT CO <sub>2</sub> e)
Subtotal	N/A	4653.9
Wildfire	11,850	2,640
Totals	11,850	7,293.9

Notes: MT CO<sub>2</sub>e = metric tons of carbon dioxide equivalents, N/A = not applicable

Source: Appendix B

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

**Less than significant.** As discussed in Section 3.7.2, “Relevant GHG Plans and Policies,” CARB’s 2017 Scoping Plan (CARB 2017), *California 2030 Natural and Working Lands Climate Change Implementation Plan* (CNRA 2019), *Safeguarding California Plan: 2018 Update* (CNRA 2018), and the *California Forest Carbon Plan* (Forest Climate Action Team 2017) contain policies and recommendations to improve the health and resilience of California’s forests, increase their carbon storage potential, and minimize their atmospheric emissions of GHG. Since the project would reduce vegetative fuels, reduce the risk for a large-scale wildfire, and implement forest management treatments consistent with these policies and recommendations, the impact would be less than significant.

### 3.8 HAZARDS AND HAZARDOUS MATERIALS

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>VIII. Hazards and Hazardous Materials. Would the project:</b>				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### 3.8.1 Environmental Setting

##### HAZARDOUS MATERIALS

There are no hazardous materials cleanup sites in the project area. The closest hazardous materials cleanup site located 0.9 mile southwest of the project area at 20022 Castle Creek Road. The case was opened following an unauthorized petroleum release from an underground storage tank (UST) system at the subject site. The 750-gallon unleaded gasoline tank was removed on January 13, 1998. The UST Removal Report indicates that while the soil in the excavation sidewalls were non-detect for gasoline constituents, the water

in the tank excavation contained petroleum constituents at concentrations above regulatory water quality objectives. Corrective action, which may consist of preliminary site investigation, planning and implementation of remedial action, verification monitoring, or a combination thereof, is underway as directed by the Central Valley Regional Water Quality Control Board. As of the August 25, 2015 site assessment, the case is considered open and ongoing (SWRCB 2017, CVRWQCB 2017).

## **SCHOOLS**

Schools closest to the project area include the Castle Rock Elementary School and Dunsmuir High School. Castle Rock Elementary School is located approximately 1.2 miles to the south of the project area and Dunsmuir High School is located approximately 3 miles to the north of the project area.

## **AIRPORTS**

There are no public airport or private airstrips within the project vicinity. The nearest airport is the Dunsmuir Municipal-Mott Airport, which is located more than 5 miles to the north of the project area.

## **EMERGENCY RESPONSE AND EVACUATION PLANS**

The Shasta County Office of Emergency Services (OES) implements the Shasta County Emergency Operations Plan (Shasta County 2014). This all-hazards plan identifies I-5 and State Route 299 as the primary transportation corridors in the county. OES coordinates information, plans for necessary resources, and supports priorities among county agencies, local governments, and special districts. OES serves as a link between the Federal Emergency Management Agency, California Emergency Management Agency and the counties' cities, towns, villages, and special districts. In the event of an emergency, OES would notify the public of a possible hazardous condition and provide broadcasts of ongoing information and actions the public should take to protect its health and safety.

## **WILDLAND FIRE HAZARDS**

The project area is susceptible to wildfire because of the climate, steep topography, and high level of available fuel and close proximity of I-5. As documented, the Castle Crag area has a recent history of about one fire, usually small, per year. Prior to the 1930's, this area had been subject to larger and more destructive fires (CSP 2009).

The California Department of Forestry and Fire Protection (CAL FIRE) has mapped Fire Hazard Severity Zones (FHSZs) for the entire state. FHSZs are based on an evaluation of fuels, fire history, terrain, housing density, and occurrence of severe fire weather and are intended to identify areas where urban fires could result in catastrophic losses. FHSZs are categorized as: Moderate, High, and Very High. According to CAL FIRE's Fire Resource Assessment Program FHSZ Geographic Information System data, the project area is located within a Very High FHSZ (CAL FIRE 2007).

## **REGULATORY SETTING**

### **Management of Hazardous Materials**

Federal laws require planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and if such materials are accidentally released, to prevent or mitigate injury to health or the environment. The EPA is the agency primarily responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials.

Applicable federal regulations pertaining to hazardous materials are primarily contained in Code of Federal Regulations (CFR) Titles 29, 40, and 49. Hazardous materials, as defined in the CFR, are listed in 49 CFR 172.101. Management of hazardous materials relevant to the project is governed by the following laws.

- ▲ The Resource Conservation and Recovery Act of 1976 (42 United States Code [USC] 6901 et seq.) is the law under which EPA regulates hazardous waste from the time the waste is generated until its final disposal (“cradle to grave”).
- ▲ The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (also called the Superfund Act or CERCLA) (42 USC 9601 et seq.) gives EPA authority to seek out parties responsible for releases of hazardous substances and ensure their cooperation in site remediation.
- ▲ The Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499; USC Title 42, Chapter 116), also known as SARA Title III or the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), imposes hazardous materials planning requirements to help protect local communities in the event of accidental release.

In California, both federal and state community right-to-know laws are coordinated through the Governor’s Office of Emergency Services. The federal law, SARA Title III or EPCRA, described above, encourages and supports emergency planning efforts at the state and local levels and to provide local governments and the public with information about potential chemical hazards in their communities. Because of the community right-to-know laws, information is collected from facilities that handle (e.g., produce, use, store) hazardous materials above certain quantities.

The corresponding state law is Chapter 6.95 of the California Health and Safety Code (Hazardous Materials Release Response Plans and Inventory). Under this law, businesses are required to prepare a Hazardous Materials Business Plan, which would include hazardous materials and hazardous waste management procedures and emergency response procedures, including emergency spill cleanup supplies and equipment. If a contractor uses or plans to use hazardous materials at levels that reach applicable state and/or federal thresholds, the plan is submitted to the administering agency, in this case the Shasta County Resource Management, Environmental Health Division (Certified Unified Program Agency), to implement and enforce.

The California Department of Toxic Substances Control (DTSC), a division of the Cal EPA, has primary regulatory responsibility over hazardous materials in California, working in conjunction with EPA to enforce and implement hazardous materials laws and regulations.

## **Transport of Hazardous Materials**

The U.S. Department of Transportation regulates transport of hazardous materials between states and is responsible for protecting the public from dangers associated with such transport. The federal hazardous materials transportation law, 49 USC 5101 et seq. is the basic statute regulating transport of hazardous materials in the United States.

The State of California has adopted U.S. Department of Transportation regulations for the movement of hazardous materials originating within the state and passing through the state; state regulations are contained in 26 CCR. State agencies with primary responsibility for enforcing state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and the Caltrans. Together, these agencies determine container types used and license hazardous waste haulers to transport hazardous waste on public roads.

## **Worker Safety**

The federal OSHA is the agency responsible for assuring worker safety in the handling and use of chemicals identified in the Occupational Safety and Health Act of 1970 (Public Law 91-596, 9 USC 651 et seq.). OSHA has adopted numerous regulations pertaining to worker safety, contained in CFR Title 29. These regulations

set standards for safe workplaces and work practices, including standards relating to the handling of hazardous materials.

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations within the state. Cal/OSHA standards are typically more stringent than federal OSHA regulations and are presented in Title 8 of the CCR. Cal/OSHA conducts on-site evaluations and issues notices of violation to enforce necessary improvements to health and safety practices.

### Shasta County General Plan

The Shasta County General Plan (2004) includes a number of goals and policies intended to protect life and property from contact with hazardous materials during use, storage, and transportation and in the event of an accidental release of hazardous materials. Specific policies require the county to maintain an emergency preparedness plan for hazardous materials and ensure that projects use, transport, store, and dispose of hazardous materials in compliance with local, state, and federal safety standards (policies HM-a, HM-b, HM-c, HM-d, HM-e).

## 3.8.2 Discussion

### a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

**Less than significant.** Implementation of the project could require the use of limited quantities of hazardous materials, such as fuels, oils, lubricants, or other fluids associated with the operation and maintenance of vehicles or mechanical equipment used in forest fuels treatment activities and reestablishment of the emergency access road. Use of these hazardous materials would be temporary and intermittent over the project implementation period. Ongoing vegetation management includes the use of herbicides and pesticides, as described in Table 2-1. Herbicide applications would occur during fall and/or spring depending upon the type of species treated. Use of herbicides and pesticides would occur on yearly intervals with treatment up to 3 times a year for heavy infestations. A PCA would prescribe the formula for each invasive plant and they would be restricted to chemicals that are registered with Shasta County. All herbicides used would be reported to the Shasta County Department of Agriculture on a monthly basis, as is required by the Shasta County Agricultural Commissioner's Office and the Department of Pesticide Regulation, and records maintained at District Headquarters in Oroville, California. All chemicals would be applied per the label and PCA prescription. Herbicide application using a backpack sprayer would not occur when wind speed exceeds 10 miles per hour or when drift is visually observed.

All hazardous materials would be used, stored, and disposed of in accordance with applicable federal, state, and local laws. However, the transport, use, or disposal of hazardous materials could result in accidents or upset of hazardous materials that could create hazards to the people or the environment. The extent of the hazard would depend in large part on type of material, the volume released, and the mechanism of release (e.g., spill on the ground at the treatment site versus a spill on a road during transport). The forestry contractor would be required to use, store, and transport hazardous materials in accordance with local, state, and federal regulations, as discussed above in Section 3.8.1, "Environmental Setting," including Cal/OSHA and DTSC requirements and manufacturer's instructions. Transportation of hazardous materials on project area roadways is also regulated by CHP and Caltrans. The following SPRs would be implemented to minimize impacts to resources during and after treatment activities

- ▲ Prior to the start of on-site construction activities, CSP will inspect all equipment for leaks and regularly inspect thereafter until equipment is removed from the project site. All contaminated water, sludge, spill residue, or other hazardous compounds will be contained and disposed of outside the boundaries of the site, at a lawfully permitted or authorized destination.

- ▲ Prior to the start of on-site construction activities, CSP will prepare a SPRP as part of the SWPPP to provide protection to on-site workers, the public, and the environment from accidental leaks or spills of vehicle fluids or other potential contaminants. This plan will include (but not be limited to);
  - a map that delineates construction staging areas, where refueling, lubrication, and maintenance of equipment will occur;
  - a list of items required in a spill kit on-site that will be maintained throughout the life of the project;
  - procedures for the proper storage, use, and disposal of any solvents or other chemicals used in the restoration process;
  - and identification of lawfully permitted or authorized disposal destinations outside of the project site.
- ▲ CSP will designate and/or locate staging and stockpile areas within the existing maintenance yard area or existing roads and campsites to prevent leakage of oil, hydraulic fluids, etc. into native vegetation, sensitive wildlife areas, and waterways.

Given compliance with federal, state, and local regulations and implementation of SPRs intended to minimize the risk of a spill or accidental release of hazardous materials during project activities, the impact to the public and the environment from exposure to hazardous materials would be less than significant.

**b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?**

**Less than significant.** As discussed under criteria “a” above, the project would comply with applicable federal, state, and local regulations and would implement SPRs such as inspecting all equipment for leaks and preparation of a SPRP, which would minimize the risk of a spill or accidental release of hazardous materials. This impact would be less than significant.

**c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?**

**No impact.** The project area is not within one-quarter mile of an existing or proposed school. No impact would occur.

**d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

**No impact.** There are no hazardous materials sites compiled pursuant to Government Code Section 65962.5 within the project area. 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.** The project area is not within two miles of a public airport and is not within an airport land use plan. 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 project area is not within two miles of a private airstrip; therefore, implementation of the project would not result in a safety hazard to people residing or working in the area. No impact would occur.

**g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

**Less than significant.** Transport of mechanical equipment and personnel to the project area could occur along I-5, which is a primary transportation corridor and would be used for emergency evacuation. However, the project would not create substantial temporary or permanent population growth such that new traffic would be created on I-5. Transport of forestry equipment along the I-5 would be intermittent and minimal and would comply with any direction provided by OES. This impact would be less than significant.

**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?**

**Less than significant.** As described in Section 3.8.1, “Environmental Setting,” the project area is located within a Very High FHSZ. Implementation of the project would require the temporary and periodic use of off-road vehicles and mechanical equipment within vegetated and forested areas. Heat or sparks from vehicles or equipment activity (e.g., chainsaws and chippers) could ignite dry vegetation and cause a fire, exposing people or structures in the vicinity to risk. The following SPRs would be implemented to reduce the risk of fire hazards from off-road equipment:

- ▲ All heavy equipment will be required to include spark arrestors or turbo chargers (which eliminate sparks in exhaust) and have fire extinguishers on-site.
- ▲ Construction crews will park vehicles 50 feet from flammable material, such as dry grass or brush. At the end of each workday, construction crews will park heavy equipment over a non-combustible surface to reduce the chance of fire.
- ▲ Prior to the start of on-site construction activities, construction personnel will clean and repair (other than emergency repairs) all equipment outside the project site boundaries.

Prescribed burns and pile burning are also proposed in the project area. A Prescribed Fire Plan would be developed prior to burning that details control lines, contingency lines, burn compartments, types of firing operations, hours of the burn, and safety zones. In the long-term, all of the forest fuels treatment activities would result in benefits related to exposure of people or structures to a substantial risk of loss, injury, or death involving wildland fire due to reductions of existing fuel accumulations in the project area. The following SPRs would be implemented to reduce the risk of fire hazards from prescribed burns and pile burning:

- ▲ Prior to the start of incineration or prescription burning, CSP will develop a Fire Safety Plan for all personnel on the fire. The plan will include the emergency calling procedures for the USFS as the park falls within the USFS Responsibility Area, as well as the CAL FIRE and local fire department(s).
- ▲ CSP personnel will have a State Park radio at the Park, which allows direct contact with CAL FIRE and a centralized dispatch center, to facilitate the rapid dispatch of control crews and equipment in case of a fire.
- ▲ Under dry conditions, a filled water truck and/or fire engine crew will be on-site during activities with the potential to start a fire.

Implementation of resource protection measures as part of the project would reduce fire hazards from operation of vehicles and mechanical equipment during forestry treatments as well as prescribed burns and pile burning. Because the project would reduce forest fuels and improve forest health within the project area, the project would reduce the potential for people and structures to be exposed to wildfire. The impact would be less than significant.

### 3.9 HYDROLOGY AND WATER QUALITY

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>IX. Hydrology and Water Quality. Would the project:</b>				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 on- or off-site erosion or siltation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 on- or off-site flooding?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Result in inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.9.1 Environmental Setting

CCSP is located within the 600-square mile Upper Sacramento River Watershed. Springs from the volcanic geology of Mount Shasta plus numerous tributary streams fed by rainfall and snowmelt provide a consistent year-round flow of cold water to the Upper Sacramento River. There are no defined groundwater basins in this watershed; however, individual domestic wells are located throughout the region, and larger wells supply water to bottling plants in Mount Shasta and Dunsmuir (Sacramento River Watershed Program 2017). CCSP has two wells in the park, one in the campground area and one up a maintenance service road.

Average annual precipitation in the project area, as recorded by the Dunsmuir Treatment Plant for the WRCC, is 63.64 inches. More than half the total annual precipitation falls between November and February. Topography in the project area consists primarily of steep slopes exceeding 40 percent; accordingly, stormwater runoff in the project area flows down natural drainages and into local creeks and streams. Two culverts are located within Root Creek near where the existing access road crosses the creek; at upper Root Creek and lower Root Creek. During a recent high-flow storm event, the culvert at the upper Root Creek crossing was damaged. Because of this, the culvert was repaired in place without authorization by CSP using shotcrete to rebuild a vehicle crossing structure. In its repaired form, the culvert is extremely undersized to handle high water flows and has resulted in a channel diversion of Root Creek around the culvert, which has caused substantial erosion and a decrease in stream water quality.

## 3.9.2 Discussion

### a) Violate any water quality standards or waste discharge requirements?

**Less than significant.** The project would not involve discharging any waste or involve the production of wastewater; therefore, no violation of waste discharge requirements would occur.

The project would replace one existing culvert in upper Root Creek, and construct three culverts and five washes along the new dirt road near the intersection of the PCT, the utility easement, and a natural drainage. The use of equipment and vehicles in and around these waterways could impact water quality. Furthermore, the project would involve activities that could indirectly impact water quality, such as prescribed burning, removal of vegetation, use of fuels, grading activities, and application of conventional and formulated organic herbicides. Prescribed burning, grading, and vegetation removal could result in increased erosion which could enter runoff and increase siltation in waterways. Fuels and herbicides could also enter waterways when used near such features or after a large storm event. As described in Section 3.8, "Hazards and Hazardous Materials," CSP will adhere to several SPRs, which would minimize the release of hazardous materials into the environment by regularly inspecting equipment for leaks and preparing a SPRP. As described in Section 3.6, "Geology and Soils," the use of heavy equipment during forest fuels treatment activities would adhere to Section 914.2, 934.2, 954.2, Tractor Operations, of the FPRs which specifies slope conditions where heavy equipment would be prohibited (See Appendix A). The following SPRs specific to hydrology would also be implemented:

- ▲ Prior to the start of construction involving ground-disturbing activities, construction personnel will prepare and submit a SWPPP for CSP approval that identifies temporary BMPs (e.g., tarping of any stockpiled materials or soil; use of silt fences, straw bale barriers, fiber rolls, etc.) and permanent (e.g., structural containment, preserving or planting of vegetation) for use in all construction areas to reduce or eliminate the discharge of soil, surface water runoff, and pollutants during all excavation, grading, trenching, repaving, or other ground-disturbing activities. The SWPPP will include BMPs for hazardous waste and contaminated soils management and a Spill Prevention and Control Plan (SPCP), as appropriate.
- ▲ All heavy equipment parking, refueling, and service will be conducted within designated areas outside of the 100-year floodplain to avoid water course contamination.
- ▲ The project will comply with all applicable water quality standards as specified in the Central Valley Water Board Basin Plan.
- ▲ All construction activities will be suspended during heavy precipitation events (i.e., at least 1/2-inch of precipitation in a 24-hour period) or when heavy precipitation events are forecast.
- ▲ If construction activities extend into the rainy season (November through February) or if an un-seasonal storm is anticipated, CSP will properly winterize the site by covering (tarping) any stockpiled materials or soils and by constructing silt fences, straw bale barriers, fiber rolls, or other structures around stockpiles and graded areas.

In addition, CSP would obtain and adhere to the requirements of the following permits for Root Creek:

- ▲ Section 404 Nationwide or Regional General Permit
- ▲ Section 1602 Lake or Streambed Alteration Agreement (LSAA)
- ▲ Section 401 Water Quality Certification
- ▲ Section 402 National Pollutant Discharge Elimination System (NPDES) General Construction Stormwater Discharge Permit

The Section 404 permit process ensures that proposed activities in waters of the U.S. are regulated through the permit review process. The LSAA includes measures to protect fish and wildlife resources during project activities. The Section 401 Water Quality Certification requires that any person applying for a federal permit or license, which may result in a discharge of pollutants into waters of the United States, must obtain a state water quality certification that the activity complies with all applicable water quality standards, limitations, and restrictions. The Section 402 NPDES General Construction Stormwater Discharge Permit involves issuance of a Notice of Intent to the Regional Water Quality Control Board, and development of a SWPPP. Specific BMPs would be incorporated into the SWPPP, including implementation of controls for soil erosion, waste containments, as well as design measures to prevent on- or off-site contamination. Adherence to permit requirements and associated measures and BMPs would reduce the potential for pollutant discharges to enter local streams and drainages, and safeguard against water quality degradation. With the implementation of SPRs and adherence to permit requirements, the impact would be less than significant.

- 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 that would not support existing land uses or planned uses for which permits have been granted)?**

**Less than Significant.** The project consists of forest management and fuels reduction activities, reestablishment of the emergency access road, and ongoing vegetation management. Water would be used, as needed, during grading activities for dust abatement, and for compaction of switch backs and where cut and fill have occurred, as needed via a water truck. These activities would be temporary and intermittent, and would not involve the substantial use of groundwater or otherwise affect recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. Furthermore, no new permanent increase in water demand would result from the project. Thus, the impact would be less than significant.

- 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 on- or off-site erosion or siltation?**

**Less than significant.** The project would replace one existing culvert in upper Root Creek, and construct three culverts and five washes along the new dirt access road to allow for proper road drainage. The existing culvert in upper Root Creek is damaged and was shotcreted as an unauthorized repair to maintain vehicular access across Root Creek. Establishment of the emergency access road would remove the degraded culvert and restore Root Creek to allow it to return to its historic stream channel alignment. CSP staff and Caltrans identified a more appropriate location for the relocated culvert approximately 30 feet upstream of the existing culvert. A box or bottomless culvert that can accommodate high flows, as well as provide the capacity for larger vehicles would be placed further upstream.

Implementation of the washes and culverts at the intersection of the PCT and the utility easement, would improve drainage from the reestablished road. The new and replaced culverts and washes would have beneficial impacts to drainage patterns and would not result in substantial on- or off-site erosion or siltation. The impact would be less than significant.

- 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 on- or off-site flooding?**

**Less than significant.** See discussion under criteria “c” above. The project would result in beneficial impacts to drainage patterns in the area and would not substantially increase the rate or amount of surface runoff. Therefore, the impact would be less than significant.

- 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?**

**Less than significant.** Implementation of the project would not substantially alter runoff volumes such that stormwater drainage would be affected.

As discussed under criteria “a” above, prescribed burning, grading, and vegetation removal could result in increased erosion, which may cause increased siltation in waterways. Fuels and herbicides could also enter waterways when used near such features, or after a large storm event. Any potential water quality impacts, such as changes in dissolved oxygen, water temperature, and turbidity would be minimized through SPRs, FPRs, and permit requirements (see discussion under criteria “a” above). These include preparing a SWPPP for CSP approval that identifies temporary BMPs for use in all construction areas to reduce or eliminate the discharge of soil, surface water runoff, and pollutants during all excavation, grading, trenching, repaving, or other ground-disturbing activities; as well as prohibitions on the use of heavy equipment at certain slope conditions. Through implementation of these protections as part of the project, this impact would be less than significant.

- f) **Otherwise substantially degrade water quality?**

**Less than significant.** Discussions of potential water quality degradation are provided in “a” and “e” above. Although the potential exists for polluted runoff to enter waterways, SPRs and permit requirements include design features and BMPs to prevent the substantial degradation of water quality. Therefore, this impact would be less than significant.

- 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?**

**No impact.** The project would not include construction of housing. No impact would occur.

- h) **Place within a 100-year flood hazard area structures that would impede or redirect flood flows?**

**No impact.** The only 100-year flood hazard areas near the project area follow the alignments of the Sacramento River, Castle Creek, and Indian Creek (FEMA 2011). The project would not place any structures in or adjacent to these natural waterways. The only permanent structures proposed as part of the project are culverts; one replacement of a damaged culvert at the upper Root Creek crossing and three culverts along the new unpaved access road. None of these areas are within 100-year flood hazard areas. No other new structures are proposed and no impact would occur.

- 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?**

**No impact.** The project consists of forest management and fuels reduction activities, reestablishment of the emergency access road, and ongoing vegetation management and would not include structures or alterations to levees or dams. No impact would occur.

- j) **Result in inundation by seiche, tsunami, or mudflow?**

**No impact.** The project consists of forest management and fuels reduction activities, reestablishment of the emergency access road, and ongoing vegetation management and would not affect the potential for seiche, tsunami, or mudflow; nor would it introduce new people or structures into an area subject to inundation. No impact would occur.

### 3.10 LAND USE AND PLANNING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>X. Land Use and Planning. Would the project:</b>				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.10.1 Environmental Setting

The majority of CCSP is located in Shasta County and consists of undeveloped park lands. A small area in the northernmost portion of the park is within Siskiyou County. Because the project area is wholly within Shasta County, Siskiyou County land use and zoning is not discussed further in this section. Developed land uses within the vicinity of the project area, such as residences and commercial uses, are limited to the areas along the I-5 transportation corridor. The remainder of the surrounding area is undeveloped forest land that supports preservation of natural resources and recreation uses, including hiking, mountain biking, cross-country skiing, and snowshoeing on publicly-owned land.

#### SHASTA COUNTY GENERAL PLAN

The Shasta County General Plan (2004) contains policies relating to open space and recreation, and timberlands. Although State Park System land is outside the jurisdiction of local government General Plans, the plan objectives are useful information. Relevant land use objectives are listed below:

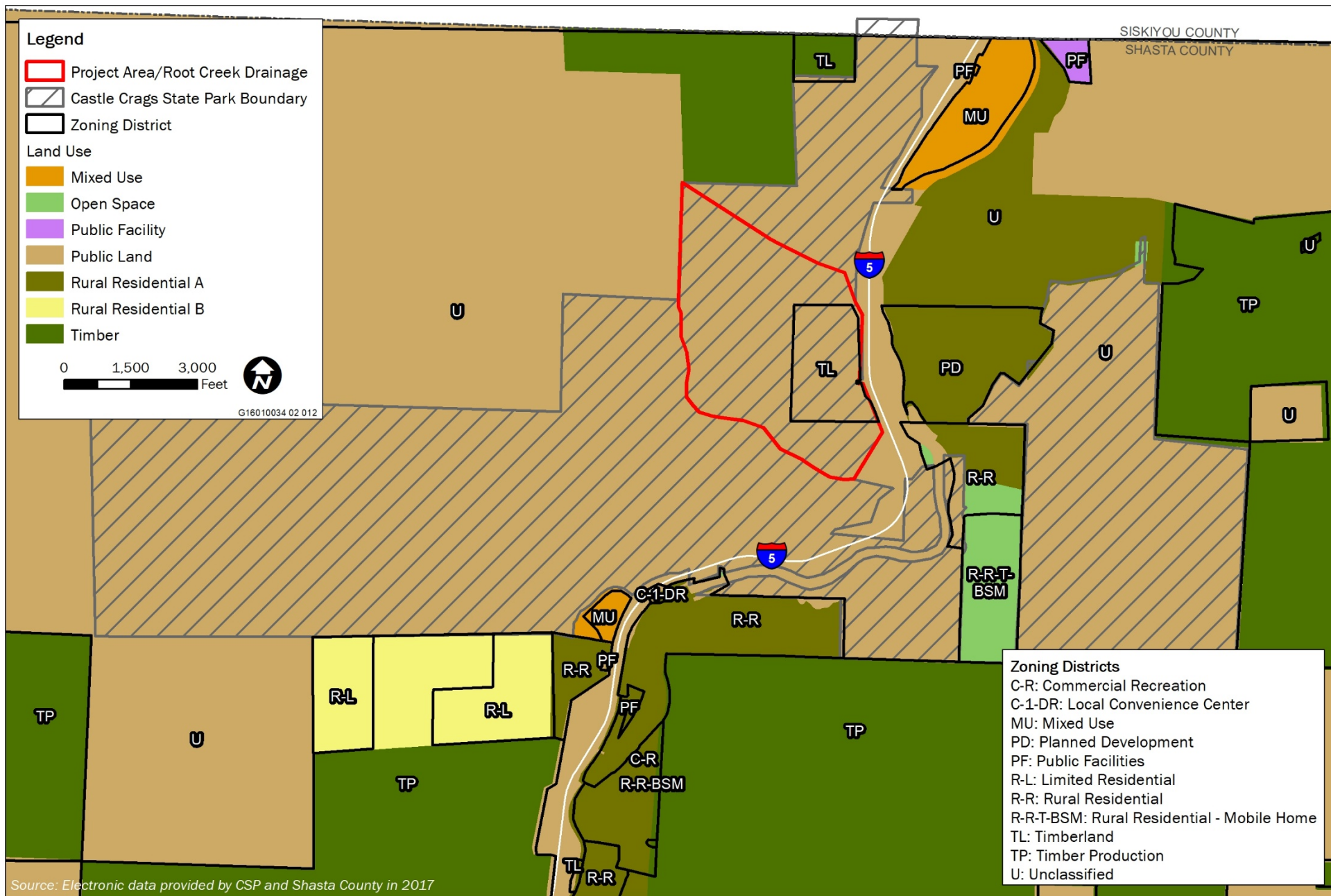
**Objective OSR-1.** Protection of the open space and recreation resources of Shasta County for the use and enjoyment by County residents both now and in the future.

**Objective OSR-2.** Provision of public access to open space and recreation resources consistent with the need to protect these resources and the rights of private property owners.

▲ **Policy T-g.** The County should encourage and promote biomass thinning programs in timbered areas with extensive rural residential development for purposes of improving both tree vigor and wildland fire safety.

#### LAND USE DESIGNATIONS

As identified in the Shasta County General Plan Land Use Map and shown on Figure 3.10-1, the project area, as well as lands immediately adjacent to the project area, are designated as Public Land. Nearby land uses include Public Land to the west; Mixed Use, Rural Residential, Open Space to the south and east; and Timberland to the north.



**Figure 3.10-1**

**Land Use and Zoning in the Project Area**

## ZONING

As shown in Figure 3.10-1, the project area contains lands that are in the unclassified (U) and TL zoning districts (Shasta County 2017). The purpose of the TL district is to preserve lands suitable for forest management, but which are not in a timber production (TP) district. The U district is intended to be applied as a holding district until a precise principal zone district has been adopted for the property. State Park System land is outside the jurisdiction of local zoning districts, but the designations are useful information.

### 3.10.2 Discussion

**a) Physically divide an established community?**

**No impact.** The project area is not within an established community. Therefore, no impact would occur.

**b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?**

**No impact.** The project, which consists of forest management and fuels reduction activities, reestablishment of the emergency access road, and ongoing vegetation management, would not affect land uses in the project area. If the project was subject to the County's land use jurisdiction, it would be consistent with Shasta County General Plan policies to protect open space and recreation resources, preserve public access to open space, and encourage biomass thinning for wildland fire safety (Objective OSR-1, 2, and Policy T-g). Therefore, no impact would occur.

**c) Conflict with any applicable habitat conservation plan or natural community conservation plan?**

**No impact.** There are no adopted Habitat Conservation Plans, Natural Community Conservation Plans, or other approved local, regional, or state habitat conservation plans for the project area or its vicinity. Therefore, implementation of the project would not conflict with such plans and no impacts would occur.

### 3.11 MINERAL RESOURCES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XI. Mineral Resources. Would the project:</b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.11.1 Environmental Setting

Historically, mining has been an important industry in Shasta County since gold was discovered in Clear Creek in 1848. Currently, there are six different mineral resources under production in Shasta County: alluvial sand and gravel, crushed stone, volcanic cinders, limestone, diatomite, and gold (Shasta County 2004). A total of 43 areas have been classified as MRZ-2a, mineral resource zones (MRZ) that are known to contain significant mineral deposits, and a total of 29 areas have been classified as MRZ-2b (MRZs that contain inferred significant mineral deposits). Four Aggregate Resource Areas (ARAs) covering a total of 10,728 acres (16.8 square miles) have also been identified. These four ARAs are estimated to contain 259,077,000 tons of concrete-grade alluvial aggregate (DOC 1997).

According to Plate 9A of DMG Open-File Report 97-03, the project area is not classified as an MRZ (Dupras 1997). In addition, the Shasta County General Plan relies on the DOC's Mineral Land Classification report (1997) and does not identify any additional mineral resource recovery sites (Shasta County 2004).

#### 3.11.2 Discussion

**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?**

**No impact.** No known mineral resources are identified in the project area. Therefore, no impact would occur.

**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?**

**No impact.** There are no locally important mineral resource recovery sites delineated in the Shasta County General Plan and the project area is not classified as a Mineral Resource (MR) zone district by Shasta County. Therefore, implementation of the project would have no effect on the availability of known mineral resources, and no impact would occur.

## 3.12 NOISE

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XII. Noise. Would the project result in:</b>				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3.12.1 Environmental Setting

#### ACOUSTIC FUNDAMENTALS

Acoustics is the scientific study that evaluates perception, propagation, absorption, and reflection of sound waves. Sound is a mechanical form of radiant energy, transmitted by a pressure wave through a solid, liquid, or gaseous medium. Sound that is loud, disagreeable, unexpected, or unwanted is generally defined as noise. Noise is typically expressed in decibels (dB), which is a common measurement of sound energy. Definitions of acoustical terms used in this section are provided in Table 3.12-1.

**Table 3.12-1 Acoustic Term Definitions**

Term	Definition
Noise	Noise is generally defined as sound that is loud, disagreeable, unexpected, or unwanted.
Decibel (dB)	Sound levels are measured using the decibel scale, developed to relate to the range of human hearing. A decibel is logarithmic; it does not follow normal algebraic methods and cannot be directly summed. For example, a 65-dB source of sound, such as a truck, when joined by another 65-dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by 3 dB). A sound level increase of 10 dB corresponds to 10 times the acoustical energy, and an increase of 20 dB equates to a 100-fold increase in acoustical energy.
A-weighted decibel (dBA)	The human ear is not equally sensitive to loudness at all frequencies in the audible spectrum. To better relate overall sound levels and loudness to human perception, frequency-dependent weighting networks were developed, identified as A through E. There is a strong correlation between the way humans perceive sound and A-weighted sound levels. For this reason, the A-weighted sound levels are used to predict community response to noise from the environment, including noise from transportation and stationary sources, and are expressed as A-weighted decibels. All sound levels discussed in this section are A-weighted decibels unless otherwise noted.
Equivalent Noise Level ( $L_{eq}$ )	The average noise level during a specified time period; that is, the equivalent steady-state noise level in a stated period of time that would contain the same acoustic energy as the time-varying noise level during the same period (i.e., average noise level).
Maximum Noise Level ( $L_{max}$ )	The highest instantaneous noise level during a specified time period.
Day-Night Noise Level ( $L_{dn}$ )	The 24-hour $L_{eq}$ with a 10-dB penalty applied during the noise-sensitive hours from 10 p.m. to 7 a.m., which are typically reserved for sleeping.

Source: Caltrans 2013

## Noise Generation and Attenuation

Noise can be generated by many sources, including mobile sources such as automobiles, trucks, and airplanes and stationary sources such as activity at construction sites, machinery, and commercial and industrial operations. As sound travels through the atmosphere from the source to the receiver, noise levels attenuate (i.e., decrease) depending on ground absorption characteristics, atmospheric conditions, and the presence of physical barriers. Sound from a localized source (i.e., a point source) propagates uniformly outward in a spherical pattern. The sound level attenuates at a rate of 6 dB for each doubling of distance from a point source. Noise from a line source, such as a road or highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. Noise attenuation from ground absorption and reflective-wave canceling provides additional attenuation associated with geometric spreading. For acoustically absorptive sites such as soft dirt, grass, or scattered bushes and trees, additional ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the attenuation rate associated with cylindrical spreading, the additional ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance. This would hold true for point sources, resulting in an overall drop-off rate of up to 7.5 dB per doubling of distance.

Atmospheric conditions such as wind speed, wind direction, turbulence, temperature gradients, and humidity also alter the propagation of noise and affect levels at a receiver. Furthermore, the presence of a barrier (e.g., topographic feature, intervening building, and dense vegetation) between the source and the receptor can provide substantial attenuation of noise levels at the receiver. Natural (e.g., berms, hills, and dense vegetation) and human-made features (e.g., buildings and walls) may function as noise barriers.

To provide some context to noise levels described throughout this section, common sources of environmental noise and associated noise levels are presented in Table 3.12-2.

**Table 3.12-2 Typical Noise Levels**

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet	100	
Gas lawnmower at 3 feet	90	
Diesel truck moving at 50 mph at 50 feet	80	Food blender at 3 feet, Garbage disposal at 3 feet
Noisy urban area, Gas lawnmower at 100 feet	70	Vacuum cleaner at 10 feet, Normal speech at 3 feet
Commercial area, Heavy traffic at 300 feet	60	
Quiet urban daytime	50	Large business office, Dishwasher in next room
Quiet urban nighttime	40	Theater, Large conference room (background)
Quiet suburban nighttime	30	Library, Bedroom at night, Concert hall (background)
Quiet rural nighttime	20	Broadcast/Recording Studio
	10	
Threshold of Human Hearing	0	Threshold of Human Hearing

Notes: dB = A-weighted decibels; mph = miles per hour

Source: Caltrans 2013

## Effects of Noise on Humans

Exposure to noise may result in physical damage to the auditory system, which may lead to gradual or traumatic hearing loss. Gradual hearing loss is caused by sustained exposure to moderately high noise levels over a period of time; traumatic hearing loss is caused by sudden exposure to extremely high noise levels over a short period. Non-auditory behavioral effects of noise on humans are primarily subjective effects such as annoyance, nuisance, and dissatisfaction, which lead to interference with activities such as communications, sleep, and learning.

## EXISTING NOISE SOURCES AND LEVELS

The project is located within two distinct noise environments: wilderness areas and the transportation corridor along I-5 and a Union Pacific Railroad (UPRR) line, as shown on Figure 2-2. In the wilderness areas, ambient noise is primarily generated by wind and water flow in creeks. Ambient noise levels could be as low as 30 to 40 dB in wilderness areas (EPA 1978). Areas along the transportation corridors in the vicinity of the park experience elevated ambient noise from traffic along I-5 and freight and passenger trains traveling along the UPRR tracks. Portions of the park within 678 feet and 315 feet of I-5 are within the 60 dB and 65 dB noise contours, respectively (Shasta County 2004).

## NOISE- AND VIBRATION-SENSITIVE LAND USES AND RECEPTORS

Noise- and vibration-sensitive land uses generally include those uses where noise exposure could result in health-related risks to individuals, places where a quiet setting is an essential element of the intended purpose (e.g., schools and libraries), and historic buildings that could sustain structural damage due to vibration. The project is in a sparsely populated area where land is generally forested. Noise- and vibration-sensitive receptors include recreational users (e.g., hikers) in the project area and nearby residents. Five residences are within 0.25 mile of the project area, the nearest of which is 1,000 feet to the east.

## LOCAL NOISE REGULATIONS

Shasta County does not have a noise ordinance; however, the County uses the standards set forth in the General Plan Noise Element to assess noise impacts, and imposes conditions on projects using those

standards as thresholds. The Shasta County General Plan does not have specific policies or standards regarding construction noise or other temporary noise sources (Walker, pers. comm., 2017).

## GROUND VIBRATION

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, (e.g., operating factory machinery or transient in nature, explosions).

The existing ambient vibration environment in the project vicinity is extremely low, as the project area and vicinity are primarily wilderness area and park lands. The only appreciable source of vibration near the project area is trains, which cause vibration immediately adjacent to the UPRR tracks during brief train passages.

## AIRPORTS AND PRIVATE AIRSTRIPS

There are no public airports or private airstrips within the project vicinity. The nearest airport is the Dunsmuir Municipal-Mott Airport, which is located over 5 miles to the north of the project area.

### 3.12.2 Discussion

**a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?**

**No impact.** Noise-generating project activities include forest management and fuels reduction activities, reestablishment of the emergency access road, and ongoing vegetation management. All work would occur during daytime hours. As discussed in Section 3.12.1, Environmental Setting, Shasta County does not have a noise ordinance nor are there relevant policies or standards regarding construction or other temporary noise impacts within the Shasta County General Plan. Project activities would not introduce new permanent noise sources within the project area. Given that there are no applicable standards, the project would not result in exceedances of standards established within the local general plan or ordinances. No impact would occur.

**b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

**Less than significant.** The project would not result in the long-term operation of a source of ground vibration. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. The project's maximum ground vibration levels would be associated with the potential use of a large bulldozer during reestablishment of the emergency access road. According to the Federal Transit Administration (FTA), vibration levels associated with pile driving are 0.089 in/sec peak particle velocity (PPV) and 87 vibration decibels (VdB) at 25 feet. Based on FTA's recommended procedure for applying a propagation adjustment to these reference levels, vibration levels from large bulldozers could exceed the Caltrans recommended level of 0.2 in/sec PPV with respect to the structural damage within 15 feet of project activities and could exceed FTA's maximum acceptable level of 80 VdB with respect to human response within 43 feet of project activities (FTA 2006, Caltrans 2013). No residences or sensitive receptors would be located within 43 feet of project activities. Therefore, this impact would be less than significant.

**c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?**

**No impact.** The project would not result in the long-term operation of any stationary noise sources or result in a long-term increase in noise-generating motor vehicle trips. Heavy equipment would be used during forest fuels treatment activities and reestablishment of the emergency access road. Ongoing vegetation management, which could involve the use of an ATV-mounted spray rig, would occur on yearly intervals with more intensive activities early on to get invasive populations under control followed less frequent monitoring and treatment on an as needed basis. Given the temporary and intermittent nature of project activities, the project would not result in a substantial permanent increase in ambient noise levels. No impact would occur.

**d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?**

**Less than significant.** Noise-generating project activities include forest fuels treatment activities, reestablishment of the emergency access road, and ongoing vegetation management practices. All work would occur during daytime hours. The most noise intensive activity would be forest fuel treatment activities which include the use of off-road heavy-duty equipment, such chain saws, shredders, skidders and feller-bunchers. Typical noise levels generated by this equipment is listed in Table 3.12-3.

**Table 3.12-3 Noise Emission Levels from Forest Fuel Treatment Equipment**

Equipment Type	Typical Noise Level (dB L <sub>max</sub> ) @ 50 Feet
Chain Saw	85 <sup>a</sup>
Shredder	81.3 <sup>b</sup>
Rubber Tired Skidder	88 <sup>c</sup>
Feller/Buncher	82 <sup>c</sup>

dB = A-weighted decibels

Sources: a) FTA 2006 b) Mannarino et al. 2015 c) de Hoop C.F. & Lalonde N.J. 2003

If all equipment is in operation simultaneously, they would generate a combined noise level of 90.9 dB L<sub>max</sub> at 50 feet (See Appendix D for noise calculations). This would be a temporary increase over ambient noise levels in the project vicinity. However, a substantial temporary or periodic increase in noise levels is a function of two factors: the temporary or periodic change in ambient noise levels and the characteristics of the specific noise receptors. The nearest noise-sensitive receptor to the project area is a residence 1,000 feet to the east of the project area. Through distance alone, the combined noise level of the loudest pieces of equipment would attenuate to 64.9 dB L<sub>max</sub>. Approximately 10 dB of noise protection would be provided by the stand of forest between the treatment site and the receptor, as 100 feet of dense woods can provide up to 2 dB of additional attenuation (Caltrans 2013). This would result in a noise exposure level of 54.9 dB L<sub>max</sub> at the nearest residence. The residence is located within the 60-dB noise contour of I-5. Therefore, forest fuels treatment activities would not generate noise levels in excess of existing ambient noise levels at the nearest residential receptor. Recreational users (e.g., hikers) may be present within the project area, but due to the mobile nature of these receptors, would not experience prolonged exposure to elevated noise levels. Furthermore, for safety reasons, the public would not be allowed to access portions of the project area during forest fuels treatment activities, increasing the distance between potential recreational users and noise-generating activities.

The project would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity. 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 project is not located within an airport land use plan nor is it within two miles of a public airport. 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.** There are no private airstrips within the project vicinity. No impact would occur.

### 3.13 POPULATION AND HOUSING

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XIII. Population and Housing. Would the project:</b>				
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.13.1 Environmental Setting

The communities closest to the project area include Castella (a small unincorporated community) and the City of Dunsmuir. According to the 2012-2016 American Community Survey 5-year estimates, the City of Dunsmuir had a population of 1,631 in 2016. There are 1,151 total housing units in the area with a 66.5 percent occupancy rate (U.S. Census Bureau 2016a, 2016b). There are eight residences within the park for use by park staff: four are occupied year-round, two are periodically occupied by seasonal staff, and two are currently vacant and unused. Aside from CCSP housing, none of the residences are within the boundaries of the project area.

#### 3.13.2 Discussion

- 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)?**

**No Impact.** The project does not include construction of new housing or commercial businesses. Therefore, no direct population growth would result from implementation of the project. Employment needs for the project would be met by existing CSP staff, forestry contractors, CAL FIRE inmate crews, or CCCs that work in Shasta County. This would be short-term and temporary employment and would not be considered to result in a substantial increase in employment nor would it result in employees permanently relocating to the area. No additional permanent staff would be needed for project activities.

Although reestablishment of the emergency access road is proposed, the road is intended to accommodate park staff, and provide access in the event of an emergency; it would not be available for regular public use. The emergency access road would not result in additional park visitors nor would it induce population growth in the area. For these reasons, the project would neither directly nor indirectly induce population growth in the area. No impact would occur.

**b) Displace substantial numbers of existing homes, necessitating the construction of replacement housing elsewhere?**

**No impact.** There are no residences within the project area. The project would not include removal of any homes. Therefore, the project would have no impact on displacement of homes.

**c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?**

**No impact.** As described under criteria “b” above, no homes would be displaced as a result of the project. Therefore, no people or existing residences would be displaced, and no impact would occur.

### 3.14 PUBLIC SERVICES

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XIV. Public Services. Would the project:</b>				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.14.1 Environmental Setting

##### FIRE PROTECTION

All areas of CCSP fall into the Direct Protection Area of the USFS, Shasta-McCloud Management Unit. However, several other agencies may be involved in fire suppression efforts within the area including CAL FIRE units from McCloud or Weed, the Mount Shasta Fire Protection District and the Dunsmuir – Castella Fire Department under mutual aid response (CSP 2009).

##### United States Forest Service

The USFS McCloud Ranger Station is located approximately 11 miles northeast of the project area at 2019 Forest Rd, McCloud, CA. The Sims Fire Station is located approximately 7 miles south of the project area at 19111 Mears Ridge Road, Castella, CA.

##### California Department of Fire and Forestry Protection

The project area is within State Responsibility Areas, which are identified by the State Board of Forestry as areas for which CAL FIRE has the primary duty for wildland fire prevention and suppression (CAL FIRE 2007). The CAL FIRE Siskiyou Unit has jurisdiction in the project area. The McCloud Station is located approximately 10 miles northeast of the project area at 1509 Squaw Valley Road, McCloud, CA. The Weed Station, located approximately 17 miles north of the project area at 300 Highway 97, Weed, CA, would also respond in the case of emergency.

##### Mount Shasta Fire Protection District

The Mount Shasta Fire Protection District is located approximately 8.5 miles north of the project area at 600 Michelle Drive, Mount Shasta, CA.

## Dunsmuir-Castella Fire Department

The Dunsmuir – Castella Fire Department is comprised of three different governmental entities; City of Dunsmuir, Dunsmuir Fire Protection District, and Castella Fire Protection District. It has a mutual aid agreement with the Mt. Shasta City Fire Department. The Dunsmuir - Castella Fire Department has a response area of over 30 square miles and operates out of four stations. Responders go as far North to Mott Road, on I-5, and as far South as Slate Creek on I-5. Station 4 is the nearest station to the project area and is located approximately 1 mile northeast of the project area at 30816 Crag View Drive, Dunsmuir, CA (City of Dunsmuir 2016).

## LAW ENFORCEMENT

Within CCSP, CSP rangers are qualified as peace officers and are responsible for law enforcement on state land. CHP, Shasta County Sheriff's Office and Siskiyou County Sheriff's Office are the nearby law enforcement agencies that provide law enforcement service to the vicinity of CCSP. The nearest CHP office is located approximately 10 miles north of the project area at 618 W. Jessie Street, Mt. Shasta, CA. The Shasta Lake Sheriff Substation located approximately 33 miles south of the project area at 4442-4498 Red Bluff Street, Shasta Lake, CA, is the closest Shasta County Sheriff's substation. The closest Siskiyou County Sheriff's Substation is located approximately 3 miles to the northeast of the project area at 5902 Dunsmuir Avenue, Dunsmuir, CA.

## SCHOOLS

The project area is located within the Castle Rock Union Elementary School District and the Dunsmuir Joint Union High School District. Schools in the project area include the Castle Rock Elementary School and Dunsmuir High School. Castle Rock Elementary School is located approximately 1.2 miles south of the project area at 29373 Main St., Castella, CA and Dunsmuir High School is located approximately 3 miles north of the project area at 5805 High School Way, Dunsmuir, CA.

### 3.14.2 Discussion

- a) **Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:**

#### **Fire protection?**

**No impact.** The project is not growth inducing, and does not include the development of new residences nor the creation of permanent jobs requiring increased fire protection. The project is intended to reduce the threat of wildfire after completion of forest fuels treatment activities and to facilitate emergency access within the park. Therefore, the project may reduce the long-term demand for fire protection resources. As discussed in Section 3.8, "Hazards and Hazardous Materials," implementation of SPRs would reduce potential fire hazards during forest fuels treatment activities, which would reduce the project's potential short-term demand for fire protection services should a fire occur. Therefore, implementation of the project would not result in an increased need for fire protection services such that new or physically altered fire protection facilities would be necessary to maintain current service levels. Development of the proposed emergency access road would facilitate access by fire fighters and other responders. No impact would occur.

### Police protection?

**No impact.** The project is not growth inducing, and does not include the development of new residences nor the creation of permanent jobs requiring increased police protection. Although the project would temporarily displace recreation users and introduce staff and equipment into the project area, this would not result in an increased demand for police protection over existing conditions such that new or expanded facilities would be necessary to maintain current service levels. Development of the proposed emergency access road would facilitate access by park rangers and other responders. No impact would occur.

### Schools?

**No impact.** The project is not growth inducing, and does not include the development of new residences nor the creation of permanent jobs. Because the project would not induce population growth, the project would not result in an increase in demand for educational services such that new or physically altered schools would be necessary to maintain current service levels. No impact would occur.

### Parks?

**No impact.** The project is not growth inducing, and does not include the development of new residences nor the creation of permanent jobs. Although the project would temporarily displace recreation users during fuels treatment activities and reestablishment of the emergency access road, as described in Section 3.15, "Recreation," there are many parks and wilderness areas that are available to recreational users near the project area. Temporary project activities would not result in increased demand for park facilities such that new or physically altered park facilities would be necessary to maintain current service levels. No impact would occur.

### Other public facilities?

**No impact.** The project is not growth inducing, and does not include the development of new residences nor the creation of permanent jobs. Because the project would not induce population growth, the project would not result in an increase in demand for other public facilities, such as libraries and community centers. No impact would occur.

## 3.15 RECREATION

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XV. Recreation. Would the project:</b>				
a) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 3.15.1 Environmental Setting

The project area is within CCSP and abuts portions of the Shasta-Trinity NF, including the Castle Crags Wilderness Area. The park contains multiple campgrounds, picnic areas, hiking trails, a portion of the PCT, and several water features, including Castle Creek, Indian Creek, Root Creek, Fall Creek, and the Sacramento River. Recreation opportunities in the vicinity of the project area are abundant and include the Shasta-Trinity NF, Shasta Lake, the Whiskeytown National Recreation Area, Lassen Volcanic National Park, and the McArthur-Burney Falls Memorial State Park.

### 3.15.2 Discussion

#### a) 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.** To protect public safety, the project would temporarily prohibit public access to portions of the project area when active forest fuels treatments are occurring; however, the majority of the Root Creek Drainage is not open for public use. Forest fuel treatment activities could affect small sections of the PCT when occurring in close proximity; however, pedestrian traffic would be diverted around the section where active work is occurring so through access is maintained. The proposed emergency access road would also run along a small portion of the PCT, which would be graded to be 16 feet wide and free of vegetation. During active road reestablishment activities, the PCT would be temporarily rerouted to allow hikers to continue through. Once construction is complete, the trail would return to its original location.

Reestablishment of the emergency access road may require a short-term and partial closure of the parking lot at Vista Point during construction of the upper part of the road. This could displace recreation activities in the project area, such as trail use, that would have otherwise occurred. The project area is surrounded by National Forest lands, which would provide adequate capacity for dispersed recreational uses that are temporarily displaced during treatment activities. Any displacement of recreational users would be temporary and would generally occur over the winter season (typically October – March). Because this period is the off-season for the park, attendance figures for these months are at least 50 percent below the average monthly attendance of 5,505 park visitors (DPR 2017). Although some trail users may use surrounding parks and trails while portions of the project area are closed to the public, the numbers would be small and not expected to result in the substantial acceleration of the physical deterioration of any facilities.

Project activities would have a long-term beneficial effect on recreation opportunities by helping to maintain and preserve the landscape of existing recreation sites and areas and improving overall forest health and resilience. Given the long-term benefits of the project, temporary nature of the closures, and the ability of surrounding National Forest Lands to provide adequate capacity for the small numbers of temporarily dispersed recreational uses, this impact would be less than significant.

**b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?**

**No impact.** No new recreational facilities would be constructed as part of the project. The project would have a long-term beneficial effect on recreation opportunities by helping to maintain and preserve the landscape of existing recreation sites and areas, thus no new or expanded facilities be required. No impact would occur.

### 3.16 TRANSPORTATION/TRAFFIC

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XVI. Transportation/Traffic. Would the project:</b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.16.1 Environmental Setting

Access to the project area is provided by Castle Creek Road and Soda Creek Road (See Figure 2-2). Several private service roads are located throughout CCSP for park staff use only. With the exception of a small portion of Vista Point Road and the associated parking area, there are no public roads within the project area. I-5 is the only major highway within the vicinity of the project area. No public transit, bike or pedestrian facilities serve the project area.

#### REGIONAL TRANSPORTATION PLAN

Shasta Regional Transportation Agency (SRTA) is the federally-designated metropolitan planning organization and state-designated regional transportation planning agency for the Shasta County region. SRTA is in the process of adopting the 2018 Regional Transportation Plan (RTP) to encourage and promote the safe and efficient management, operations, and development of a regional intermodal transportation system (SRTA 2018). The RTP contains long-range and short-range strategies for achieving transportation goals. Shasta County does not have a Congestion Management Plan (Wayne, pers. comm., 2017).

## SHASTA COUNTY GENERAL PLAN

The Circulation Element of the Shasta County General Plan (2004) provides guidance to develop a balanced, integrated, and diversified transportation system that addresses urban and rural regional needs for a convenient, affordable, safe, and efficient multimodal transportation system to move goods and people. Objective C-6 of the Shasta County General Plan is to formulate and adopt circulation design standards that are uniformly applied on a Countywide basis according to development type; respond to public safety and health considerations; address all modes of transportation; and will not result in substantial deterioration of air quality.

## SHASTA COUNTY BICYCLE TRANSPORTATION PLAN

The Shasta County Bicycle Transportation Plan (Shasta County 2010) provides the long-term framework to improve and encourage bicycle transportation throughout the County. It contains policies aimed at increasing bicycle commuting by 5 percent, developing a continuous county bicycle system, and encouraging recreational bicycling.

### 3.16.2 Discussion

- 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?**

**No impact.** The project consists of forest management and fuels reduction activities, reestablishment of the emergency access road, and ongoing vegetation management. All of these activities would require new vehicle trips associated with worker commute and equipment delivery, which would be expected to use I-5 to access the project area. Forest management and fuels reduction activities would generally take place October through March, depending on weather conditions. Vehicle trips would mainly consist of worker commute trips but there may be a few potential equipment delivery trips. Construction of the emergency access road would occur over several months during a single construction season, resulting in a few equipment delivery trips, haul truck trips, and daily worker commute trips for a small crew of workers. Ongoing vegetation management would occur on yearly intervals with treatment up to 3 times a year for heavy infestations, resulting in a daily commute trip for one herbicide application professional.

The Shasta County General Plan and Shasta County RTP do not contain relevant policies or measures of effectiveness for the performance of the circulation system or for traffic access to CCSP. Given the minimal number of additional project-generated trips, the remote nature of the project area where background traffic levels are low, and the lack of applicable performance measures, the project would not affect the performance of the circulation system and would not conflict with any applicable transportation plans, ordinances, or policies. No impact would occur.

- 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?**

**No impact.** There are no applicable congestion management programs in Shasta County, therefore, the project would not conflict with such programs. As described under criteria "a," the project would not result in substantial new traffic such that the performance of I-5 would be reduced below acceptable levels. No impact would occur.

**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?**

**No Impact.** The nearest airport to the project area is the Dunsmuir Municipal-Mott Airport, which is located more than 5 miles to the north. Implementation of the project would not involve development of any tall structures which could alter air traffic patterns or cause safety risks. Prescribed burns and pile burning would produce visible smoke. However, a SMP would be developed prior to burning as required by Shasta County AQMD and would include measures to minimize smoke generated in the area. Measures in a SMP require the evaluation of smoke dispersion conditions to minimize smoke impacts, and notification prior to burning to sensitive areas downwind of burn areas, including airports. Furthermore, burn compartments would be relatively small scale and vary in size from 5 acres up to 50 acres. Therefore, smoke from prescribed burns and pile burning would not be substantial enough to cause a change in air traffic patterns or substantial safety risks. Therefore, the impact would be less than significant.

**d) 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 project includes the reestablishment of an emergency access road. The road would be unpaved and climb steep sections of the project area. However, the road would not be open to the public nor would it include dangerous intersections with public roadways. A section of the emergency access road would run along a small portion of the PCT. During reestablishment activities, the PCT would be temporarily rerouted to allow hikers to continue to use this important interstate trail and avoid active equipment. Once the road is complete, the trail would return to its original location and share a 670-foot (0.12-mile) portion with the road. There would be a small potential for PCT hikers to encounter park vehicles on the emergency access road. However, the road would not be open to the public, would be used infrequently by park staff, and the section where the road and PCT intersect is short (less than a quarter mile). Therefore, the project would not substantially increase in hazards due to a design feature or incompatible use. No impact would occur.

**e) Result in inadequate emergency access?**

**No impact.** During project activities, the presence of slow-moving construction equipment and vehicles on local roads could have a limited, temporary impact on access for emergency vehicles. However, equipment transportation would occur during a brief period of time and would not substantially affect access to roadways surrounding the project area. Fuels treatment activities could require temporary closure of Vista Point Road if prescribed burns or pile burning were to take place adjacent to the road. However, emergency equipment and personnel would be on-site to monitor the activity, and the public would be notified of the closure and alternate routes within the park. Development of the proposed emergency access road would facilitate emergency access and visitor evacuation from Vista Point and surrounding trails. Overall, the project is intended to facilitate staff and emergency access, improving long-term emergency access within the park. Therefore, no impact would occur.

**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?**

**No Impact.** No public transit, bike or pedestrian facilities serve the project area. Project implementation would not result in the removal of, or need for, alternative transportation facilities, such as bus turnouts or bicycle racks. Furthermore, there are no policies, plans, or programs supporting alternative transportation that apply to this project. No impact would occur.

### 3.17 TRIBAL CULTURAL RESOURCES

ENVIRONMENTAL ISSUES		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XVII.</b>	<b>Tribal Cultural Resources. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</b>				
a)	Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b)	A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.17.1 Environmental Setting

AB 52 became law on January 1, 2015. It establishes a formal consultation process for California Indian tribes as part of CEQA and equates significant impacts on tribal cultural resources (TCRs) with significant environmental impacts. Several new PRC sections have been written to codify the law's requirements. Cal. Public Res. Code Section 21074 defines a California Native American Tribe as a tribe located in California that is on the contact list maintained by the NAHC. It also defines what types of resources are to be considered TCRs. Cal. Public Res. Code Section 21080.3.1 describes formal tribal consultation requirements; Cal. Public Res. Code Section 21080.3.2 provides that if the California tribe requests consultation to include project alternatives and mitigation measures, such consultation would be required; Cal. Public Res. Code Section 21082.3 provides that any mitigation measures agreed upon during consultation shall be recommended for inclusion in the environmental document and affirms the lead agency's obligation to keep confidential any information obtained from a Native American tribe during the consultation process; and, Cal. Public Res. Code Section 21083.4 provides examples of mitigation measures for impacts to TCRs.

#### OUTREACH TO TRIBAL REPRESENTATIVES

There are no tribes on CSP's AB 52 list that are affiliated with the CCSP area. A Sacred Sites/Lands File Search was conducted by NAHC for the project area, which was received by CSP on 12/4/2017. The search did not yield any traditional cultural properties or sacred tribal sites, but a list of those tribes potentially interested in the project were provided (none of which are included on CSP's AB 52 list). CSP provided notification of the project on 12/11/2017 with an invitation for consultation. Letters were sent to the following California Native American tribes that were listed by NAHC:

- ▲ Greenville Rancheria, Chairperson Kyle Self;
- ▲ Wintu, Cultural Resource Program Manager James Hayward;
- ▲ Wintu Tribe of Northern California, Kelli Hayward;

- ▲ Medesi, Cultural Representative Brandon Harrison;
- ▲ Nor-Rel-Muk, Chairperson John Hayward;
- ▲ Ahjumawi, Cultural Resource Representative Marv Mike;
- ▲ Aporige Band, Representative Everado Delo Torre;
- ▲ Atsuge Band, Representative Bill George;
- ▲ Pit River Tribe of California, Chairperson Mickev Gemmil;
- ▲ Interim Pit River Tribe of California, Brenda Heard;
- ▲ Quartz Valley Indian Community, Chairperson Frieda Bennett;
- ▲ Redding Rancheria, Chairperson Jack Potter Jr.;
- ▲ Shasta Nation, Roy Hall; and
- ▲ Winnemum Wintu, Caleen Sisk Chief;

Follow-up calls were made between January and April 2018. No communication or request for consultation has been received from any of the notified tribes to date.

### 3.17.2 Discussion

**Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:**

- a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?**

**No impact.** There are no TCRs as defined in PRC Section 21074 known to CSP within the project area. Project activities could result in impacts to historical resources, which is addressed in Section 3.5, criterion (a). Therefore, because no TCRs were identified in the project area and none are expected to be affected by the project, no impact would occur.

- b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?**

**No impact.** There are no TCRs as defined in PR Section 21074 known to CSP within the project area. Refer to the discussion under criterion (a). No impact would occur.

### 3.18 UTILITIES AND SERVICE SYSTEMS

ENVIRONMENTAL ISSUES		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XVIII.</b>	<b>Utilities and Service Systems. Would the project:</b>				
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e)	Result in a determination by the wastewater treatment provider that 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 3.18.1 Environmental Setting

The project area is primarily undeveloped forest land with no major utility services, including water supply, wastewater treatment, electricity, and natural gas, and stormwater drainage facilities. Few flushing toilets, showers, and drinking fountains are located near the campgrounds in the park. One vault toilet is located in the Vista Point parking lot where waste is held in an underground tank, which are typically between 750 and 1,000 gallons in size. The tank is pumped out periodically, and the waste is hauled out to a municipal wastewater treatment plant. Stormwater runoff in the project area drains naturally into nearby streams, which is described in more detail in Section 3.9, "Hydrology and Water Quality." There is no municipal or other formal drainage system.

The closest solid waste facility to the project area is the Black Butte Transfer Station in Mount Shasta. It's a medium volume transfer and processing facility that accepts construction demolition materials, green waste, metals, and mixed municipal wastes. It's maximum permitted throughput is 100 tons per day (CalRecycle 2017).

### 3.18.2 Discussion

**a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?**

**No impact.** No restrooms would be constructed as part of the project and no wastewater would be generated. The project would result in no impact related to wastewater treatment requirements.

**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?**

**No impact.** See discussion under criteria “a” above. The project would require water for the purposes of watering dirt roads and washing off-road equipment. Water used for these purposes would not require treatment. The project would result in no impact related to construction of new or expanded water or wastewater treatment facilities.

**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?**

**No impact.** As described in Section 3.9, “Hydrology and Water Quality,” drainage of stormwater runoff occurs naturally in the project area. The project would not require the construction of new stormwater facilities that could have a significant impact on the environment. No impact would occur.

**d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?**

**Less than significant.** Implementation of the project includes forest fuels treatment activities to thin badly overstocked forested areas, and reestablishment of the emergency access road. The project could require use of water for emergency use (if needed) during prescribed burns and pile burning, dust abatement during grading (as needed), and for compaction of switch back areas and areas where cut and fill occur along the emergency access road. Groundwater is used to supply the park and would likely be used for the project. The amount of water needed for the project would be negligible and temporary and no new permanent demand would be created; therefore, no new or expanded resources would be needed. The impact would be less than significant.

**e) Result in a determination by the wastewater treatment provider that 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 discussion under criteria “a” above. The project would result in no impact related to wastewater treatment capacity.

**f) Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?**

**No impact.** The project would involve thinning trees and other woody vegetation and debris from overstocked forested areas. Following hand and mechanical thinning, wood utilization within the park (i.e., firewood, bio-energy, dimensional lumber, whole logs) and biomass disposition would occur. In most cases, park staff would use a mobile incinerator called the Burn Boss to dispose of a portion of the biomass from previously treated areas. Other methods of biomass disposition would include stacking of larger wood for in-forest storage pile burning. The project would not result in an increase in solid waste requiring disposal in a landfill. Therefore, no impact would occur.

**g) Comply with federal, state, and local statutes and regulations related to solid waste?**

**No impact.** As described under criteria “f” above, the project involves very limited solid waste generation and would not conflict with federal, state, and local statutes or regulations related to solid waste. The project would have no impact related to federal, state, and local solid waste regulations.

### 3.19 MANDATORY FINDINGS OF SIGNIFICANCE

ENVIRONMENTAL ISSUES		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XVIII. Mandatory Findings of Significance.</b>					
a)	Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c)	Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Authority: Public Resources Code Sections 21083, 21083.5.					
Reference: Government Code Sections 65088.4.					
Public Resources Code Sections 21080, 21083.5, 21095; <i>Eureka Citizens for Responsible Govt. v. City of Eureka</i> (2007) 147 Cal.App.4th 357; <i>Protect the Historic Amador Waterways v. Amador Water Agency</i> (2004) 116 Cal.App.4th at 1109; <i>San Franciscans Upholding the Downtown Plan v. City and County of San Francisco</i> (2002) 102 Cal.App.4th 656.					

#### 3.19.1 Discussion

- a) **Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?**

**Less than significant with mitigation incorporated.** As described in Section 3.4 "Biological Resources," tree removal, ground disturbing activities, and prescribed burns would have the potential to impact biological resources. Mitigation Measure BIO-1 would require pre-construction surveys prior to ground-disturbing activities; and the applicable SPRs and FPRs would require measures such as identifying and avoiding biological resources, preventing the spread of noxious weeds, training on-site personnel, avoiding the nesting season for various species, and employing BMPs for erosion control. Furthermore, implementation of the forest management and fuels reduction activities would reduce wildfire risk while enhancing the long-term forest health and habitat values of the sites for several species. With implementation of Mitigation Measure BIO-1, SPRs, and FPRs the project does not have the potential to substantially degrade fish or wildlife habitat, adversely affect wildlife populations, or restrict the range of special-status species. Impacts would be less than significant with mitigation incorporated.

As described in Section 3.5 “Cultural Resources,” ground disturbance activities and prescribed burns would have the potential to damage cultural resources, if present. Mitigation Measure CU-1 would require pre-construction surveys prior to prescribed burns in areas where cultural resources are likely to be found; and SPRs would require measures to flag and/or fence cultural resources, halt work if necessary, and include protocol for potential discovery of human remains. With implementation of Mitigation Measure CU-1 and SPRs, the project would not eliminate important examples of the major periods of California history or prehistory. Impacts 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.** In accordance with CEQA (CEQA Guidelines Section 15130) this Initial Study analyzes the cumulative impacts of the proposed project. A cumulative impact is when “two or more individual effects which, when considered together, are considerable or which compound or increase environmental impacts” (CEQA Guidelines Section 15355).

### Methods

#### **Cumulative Scenario**

To comply with CEQA, a cumulative scenario has been developed that identifies and evaluates past, present, and reasonably foreseeable future projects within the defined cumulative study area that would be constructed or commence operation during the timeframe of activity associated with the proposed project. In discussing cumulative impacts, the CEQA Guidelines outline two approaches for characterizing the projects that may occur in the vicinity of a project:

- ▲ **Project list:** A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, projects outside the control of the agency (CEQA Guidelines Section 15130(b)(1)(A)).
- ▲ **Summary of Projections:** A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect (CEQA Guidelines Section 15130(b)(1)(B)). This summary can be supplemented with additional information, including a regional modeling program.

This document uses both approaches, depending on which one is more appropriate for the resource area being analyzed. The rationale for selecting an approach is provided in the cumulative impacts discussion for each resource area. Because the area within which a cumulative effect can occur varies by resource area, for the purposes of this analysis, the geographic boundary also varies by the resource being evaluated. For example, traffic and noise impacts tend to be localized, while air quality and GHG impacts can be more widespread.

#### **Projects Considered**

Projects considered include past projects, projects under construction and approved, pending projects that are anticipated to be either under construction or operational by the time of the completion of the proposed project, and reasonably foreseeable future projects. Given the localized nature of most of the impacts associated with the proposed project, the cumulative project list considers all types of projects within one mile of the project area. Because smoke from prescription burns can travel longer distances (depending on weather conditions), other forest fuels management projects where burning would be implemented were queried within 10 miles of the project area. Projects within this area that could cause impacts that would combine with the impact of the proposed project to result in a cumulative impact are presented in Table 3.19-1. Information was gathered about projects undertaken or under review by other agencies, such as the USFS and local county planning departments. Information pertaining to past, present, and reasonably foreseeable future projects was obtained from reviewing the following:

- ▲ Shasta County Capital Project List;
- ▲ Shasta County Public Works Project List;
- ▲ RTP;
- ▲ Air Quality and GHG Plans;
- ▲ USFS Project List;
- ▲ CSP Project List;
- ▲ California Office of Planning and Research, CEQAnet; and
- ▲ Caltrans District 2 Project List.

As shown in Table 3.19-1, two projects are within the cumulative study area and included in the cumulative scenario for impacts evaluated using the project list approach.

**Table 3.19-1 Cumulative Projects List**

Project Name	Description	Status/Timing	Location	Included in Cumulative Analysis (Y/N)
Lower McCloud Fuels Management Project (USFS)	With the Lower McCloud Fuels Management Project (project), the Shasta-Trinity National Forest (Shasta-Trinity NF) is proposing to create fuel management zones (FMZs), burn using prescribed fire, and remove designated hazard trees. The project area covers approximately 12,071 acres on National Forest System lands. A combination of treatments would be used across the project area, resulting in some acres being treated with multiple prescriptions to achieve stated objectives. This proposed project would comply with the Shasta Trinity Land and Resource Management Plan (LRMP) and other relevant management direction, laws, policies and regulations as they relate to proposed activities within the project area.	Environmental analysis is currently underway. Expected to begin in August 2019.	7 miles southeast of the project area.	Yes. Prescription burning in Castle Craggs may begin as early as 2019 and be ongoing, some overlap may occur.
Highway 89 Safety Enhancement and Forest Ecosystem Project (USFS)	The project will treat vegetation in the vicinity of Hwy 89 between I-5 and Cattle Camp Campground. Project design will include: public safety improvement, forest health, fire restoration, construction of infrastructure, and wildlife habitat enhancement.	The Record of Decision was signed on May 9, 2018. According to the USFS Schedule of Proposed Actions, the project began in June 2018.	8 miles north/northeast of the project area.	Yes. Prescription burning in Castle Craggs may begin as early as 2019 and be ongoing, some overlap may occur.

Source: USFS 2018, USFS 2019

## **Cumulative Impact Analysis**

### **Resource Areas with No Impacts**

As summarized above in this initial study, the project would have no impact on the following resources areas:

- ▲ Agricultural and Forestry Resources,
- ▲ Land Use and Planning,
- ▲ Mineral Resources,
- ▲ Population/Housing,
- ▲ Public Services,
- ▲ Transportation/Traffic, and
- ▲ Tribal Cultural Resources.

Therefore, the project would not cause or contribute to any cumulative impact to these resources areas, and no corresponding cumulative analysis is provided.

### **Aesthetics**

The project would not damage scenic resources within a state scenic highway (significance criterion “b”); or create a substantial new source of light or glare (significance criterion “d”); therefore, the project would not contribute to corresponding cumulative impacts. These impacts are not discussed further.

For other impacts, the list approach was used to evaluate potential cumulative impacts because aesthetics and visual resource impacts are highly localized. The geographic extent for considering cumulative impacts to scenic vistas (significance criterion “a”) and to visual character and quality (significance criterion “d”) includes all projects within the same viewshed (i.e., area visible from a viewer’s location) and other smoke generating projects within 10 miles of the project area because smoke effects can be more widespread. There are no projects within the same viewshed as the project, therefore, there would be no cumulative impacts related to the presence construction-type equipment or vehicles. The projects listed in Table 3.19-1 include prescription burning and are located within 10 miles of the project area. Should all burn activities occur simultaneously, significant cumulative effects could result.

The project includes prescription burning to improve the health of the forest and reduce the potential for catastrophic fires. Smoke generated by prescribed burns could temporarily reduce visibility of the project area from Vista Point and from other trails leading up to the crags in the Shasta-Trinity NF. However, the prescribed burns would be intermittent, temporary, and generally occur in the winter months (October – March) for up to 24 days per month over the course of 2 years. Burns would also be conducted on a rotational basis, by compartments, that would vary in size from 5 acres up to 50 acres, based on topography and tactical defense locations. Smoke emissions would be minimized by the development of and adherence to a SMP as required by the Shasta County AQMD. The SMP specifies the “smoke prescription,” which is a set of air quality, meteorological, and fuel conditions needed before burn ignition may be allowed. This process minimizes smoke emissions during prescribed burns. Local air districts also consider other emissions within the air basin and/or district and the distribution of burns throughout the air basin on a daily basis when permitting specific prescribed burns within their jurisdiction. Given these strict burn requirements and measures to minimize smoke, and that both projects are located over seven miles from the project area, it is unlikely that they would combine to cause cumulative effects to a scenic vista or degrade the scenic quality or character of a site. Therefore, the projects contribution to smoke related visual impacts would not be cumulatively considerable.

### **Air Quality**

The project would not conflict with or obstruct implementation of applicable air quality plans (significance criterion (a)) and therefore would not contribute to a cumulative impact and is not discussed further.

To assess basin-wide impacts related to air quality standards, this analysis evaluates emissions compared to significance thresholds adopted by Shasta County AQMD, per the projections approach. Past, present, and future development projects contribute to a region’s adverse air quality on a cumulative basis. A project’s

individual emissions contribute to existing cumulatively significant adverse air quality impacts. The project is in the NSVAB. As shown in Table 3.3-3 in Section 3.3, Air Quality, Shasta County is in nonattainment under state ozone and PM<sub>10</sub> standards. Therefore, for these criteria pollutants, there is a significant cumulative impact in the air basin. The Shasta County AQMD relies on its identified thresholds of significance and has determined that if project-related emissions exceed the identified significance thresholds, emissions would be cumulatively considerable and would result in significant adverse air quality impacts. As disclosed in Table 3.3-5, assuming all project activities would occur simultaneously, NO<sub>x</sub> emissions (an ozone precursor) would be above Shasta County's significance threshold for daily NO<sub>x</sub>. Mitigation Measure AQ-1 would be implemented to reduce project-related NO<sub>x</sub> emissions to a level below Shasta County AQMD's air pollutant emissions threshold by requiring phasing of project activities to reduce emissions below the threshold of 25 lb/day. Therefore, the project's contribution to nonattainment (significance criteria "b" and "c") would not be cumulatively considerable. Impacts would be less than significant.

The list approach was used to determine localized air quality impacts, such as odor and exposure of sensitive receptors to substantial air pollutants. The geographic extent for exposure of receptors to substantial pollutant concentrations and odors is conservatively set at 5 miles to adequately cover impacts associated with smoke from prescription burning. There are no projects located within 5 miles of the project area. Therefore, there would be no cumulative odor impacts or impacts to sensitive receptors (significance criteria "d" and "e").

### **Biological Resources**

The project would not conflict with any local policies or ordinances protecting biological species (significance criterion "e"); or conflict with the provision of an adopted Habitat Conservation Plan (significance criterion "f"); therefore, the project would not contribute to corresponding cumulative impacts. These impacts are not discussed further.

The project list approach is used for the analysis of federally protected wetlands and waters, and wildlife movement corridors and native wildlife nursery sites because the impacts of the project on these resources would be localized rather than regional. The geographic scope for cumulative impacts is 1 mile to include the drainages that could be impacted by the project, and to include other localized impacts on wildlife movement and nursery sites. There are no projects located within 1 mile; therefore, there would be no cumulative impact (significance criterion "c" and "d").

### **Special-Status Species**

The projection approach is used for the analysis of regional cumulative effects to special-status species (including riparian habitat) because habitats and species found at a given project site are typically found throughout the adjacent region. The 1994 Shasta-Trinity NF Land and Resource Management Plan Environmental Impact Statement (LRMP EIS) is relied upon to evaluate the cumulative scenario because CCSP abuts portions of the Shasta-Trinity NF, including the Castle Crags Wilderness Area, and has similar biological resources present, including special status plant and animal species and riparian habitats.

### **Special-Status Plant Species**

According to the LRMP EIS, loss or degradation of sensitive plant habitats could occur as a result of road building, livestock grazing, off-highway vehicle use, fire suppression, and timber harvest. Although the LRMP EIS concludes that it's difficult to predict the consequences of habitat loss and disturbance, permanent loss or degradation of habitat is assumed to have negative effects (USFS 1994). Therefore, the cumulative scenario related to special-status plants is considered cumulatively significant.

Special-status plants may occur directly within the road bed of the emergency access road or footprint of the upper Root Creek crossing being replaced, and could be trampled or removed. Also, the application of herbicides for ongoing vegetation management could result in damage to special-status plants if they occur directly adjacent or intermixed with invasive plants undergoing herbicide application. However, CSP would implement SPRs specific to special-status plant protection, and implement Mitigation Measure BIO-1, which requires pre-construction surveys for special-status plants prior to ground-disturbing activities, and would achieve no net loss of special-status plants and habitats should they be present and disturbed. Furthermore, the project would result

in long-term benefits to special-status plants and habitats. Tree removal for forest management and fuels reduction activities would include thinning of understory trees and removal of co-dominant groups or individual overstory trees would create forest gaps, create large downed woody debris, decrease on-site basal area, reduce fire behavior, and enhance overall forest heterogeneity. Tree removal would not change the overall suitability of habitat within the project area in the short-term, and would result in long-term habitat improvements by meeting the desired conditions for the project, such as creating and/or maintaining forest gaps 0.1 to .5 acres at a rate of one every 2 to 10 acres, and preventing the introduction and/or spread of invasive species. In addition, the application of prescribed fire would re-introduce a natural process into the project area, reducing the risk of hotter fires that could result in destruction of soils and the seed bank, while the treatment and removal of invasive plants would improve special-status plant habitat by reducing potential competition for resources. Therefore, the project's contribution to impacts to special-status plants (significance criterion "a") would not be cumulatively considerable. Impacts would be less than significant.

### **Special-Status Wildlife Species**

According to the LRMP EIS, timber management activities could result in the temporary disturbance and displacement of animals, and mortality of animals during implementation of projects due to crushing, site preparation, and burning. Specific to American peregrine falcon and bald eagle, the EIS concludes that the LRMP would exceed recovery targets for both species, thus beneficial impacts would result. Further, fisher and goshawk habitat would be maintained such that viability would remain (USFS 1994). Therefore, the cumulative scenario related to these species is not considered cumulatively considerable. However, given the potential impacts related to the temporary disturbance and displacement of animals, and mortality due to crushing and site preparation during project implementation, the cumulative scenario related to Cascade frog, foothill yellow-legged frog and pacific tailed frog, common raptors and other nesting birds, and spotted bat and western mastiff bat is considered cumulatively significant.

Cascades frog, foothill yellow-legged frog and pacific tailed frog use perennial streams and could occur within Root Creek in the project area, and could be temporarily affected by ground disturbing project activities. SPRs included in the project would avoid and minimize impacts to Cascades frog, foothill yellow-legged frog, and pacific tailed frog because they would require surveys prior to project initiation and require that any frogs within the project area be allowed to leave the area or be relocated prior to project activities that could impact them. Additionally, project implementation is expected to maintain or improve long-term habitat quality for these species. Therefore, the project's contribution to impacts to Cascades frog, foothill yellow-legged frog, and pacific tailed frog (significance criterion "a") would not be cumulatively considerable. Impacts would be less than significant.

Common raptors and other nesting birds may be present within the project area, which could be disturbing during project activities. However, inclusion of SPRs into the project would avoid disturbance to the nests of common raptors and other nesting birds by requiring all work be conducted outside of the nesting season, or conducting surveys if work is required during the nesting season. If common non-raptor or raptor bird nests are located, no construction would occur within an appropriate distance away from the nest during the nesting season or until the young have fledged, as determined by a CSP-approved biologist. Therefore, the project's contribution to impacts to common raptors and other nesting birds (significance criterion "a") would not be cumulatively considerable. Impacts would be less than significant.

The project area is near the Castle Crags rock formation, which may provide roosts for spotted bat and western mastiff bat, and both species may use the project area for foraging due to its proximity to potential roosts. These bat species forage primarily in the evening and early morning hours, outside the periods when project activities and ground disturbances would occur. Therefore, project activities are not likely to substantially disrupt foraging behavior. In addition, there is an abundance of foraging habitat surrounding the project area, and the overall foraging habitat quality may improve as a result of fuel reduction activities due to creation of forest gaps that may increase prey availability. Therefore, the project's contribution to impacts to spotted bat and western mastiff bat (significance criterion "a") would not be cumulatively considerable. Impacts would be less than significant.

### **Riparian Habitat**

According to the LRMP EIS, direct effects, such as the degradation of stream channels and riparian habitat would be minimal. In addition, USFS standards and guidelines, land allocation constraints (e.g., riparian reserves), BMPs, and supplemental management area direction would assure that the LRMP would protect riparian areas and stream courses within the forests (USFS 1994). Therefore, the cumulative scenario related to riparian habitat is not considered cumulatively significant, and no cumulative impacts would occur (significance criterion “b”).

### **Cultural Resources**

Cultural and paleontological resource impacts are highly localized in that they impact resources in discrete areas; therefore, the cumulative cultural resources analysis uses the list approach. The geographic scope of cumulative impacts to cultural resources includes ground-disturbing projects within 100 feet of the project area because cultural resource impacts are so localized. No other projects are located within 100 feet of the project; therefore, there would be no cumulative impact (significance criteria (a), (b), (c), and (d)).

### **Geology and Soils**

The project would not expose people or structures to potential substantial adverse effects (significance criterion “a”); be located on a geologic unit or soil that is or could become unstable (significance criterion “c”); be located on expansive soil creating substantial risks to life or property (significance criterion “d”); or have soils incapable of supporting the use of septic tanks (significance criterion “e”). Therefore, the project would not contribute to corresponding cumulative impacts and these impacts are not discussed further.

For impacts associated with soil erosion and loss of topsoil (significance criterion “b”), the list approach was used to evaluate potential cumulative impacts because soil erosion impacts are highly localized. Thus, the geographic extent for considering cumulative impacts related to soil erosion and loss of top soil is a 0.1-mile radius from the project area. There are no projects located within 0.1-mile of the project area; therefore, there would be no impact.

### **Greenhouse Gas Emissions**

The CEQA Guidelines address how a lead agency can assess cumulative impacts of projects that emit GHGs (CEQA Guidelines Section 15064(h)(3)):

A lead agency may determine that a project’s incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including, but not limited to...regulations for the reduction of GHG emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located.

For this analysis, compliance with state-level policies is used to assess cumulative impacts, given that a substantial amount of GHG reduction programs and policies are undertaken or spearheaded at the state level. The cumulative scenario includes all GHG emission sources in California, which includes sources such as transportation, manufacturing, energy production, and agriculture.

Regional and global development patterns continue to rely on methods and practices that contribute large volumes of GHGs to the atmosphere, and impacts related to GHGs have widespread and potentially harmful consequences. The increase in GHGs in the atmosphere, caused in large part by human activity, is now considered one of the key causes of global climate change. Current scientific research indicates that potential effects of climate change include variations in temperature and precipitation, sea-level rise, impacts on biodiversity and habitat, impacts on agriculture and forestry, and human health and social impacts. As described in the state’s Climate Change Scoping Plan of 2014, GHG sources in the state collectively result in emissions that are higher than the targets established by AB 32, which indicates that GHG emissions in the state continue to contribute to a total significant state-wide cumulative impact.

The project would contribute to a cumulative GHG impact because it would result in emission of GHGs. As discussed in Section 3.7.2, Relevant GHG Plans and Policies, CARB's 2017 Scoping Plan (CARB 2017), *California 2030 Natural and Working Lands Climate Change Implementation Plan* (CNRA 2019), *Safeguarding California Plan: 2018 Update* (CNRA 2018), and the *California Forest Carbon Plan* (Forest Climate Action Team 2017) contain policies and recommendations to improve the health and resilience of California's forests, increase their carbon storage potential, and minimize their atmospheric emissions of GHG. The project would reduce vegetative fuels, reduce the risk for a large-scale wildfire, and implement forest management treatments consistent with these policies and recommendations. In addition, as shown in Table 3.7-1, total project-related GHG emissions would be well below that of a large-scale wildfire consuming the project area. Therefore, the project's contribution to the cumulative significant impact would not be cumulatively considerable.

### **Hazards and Hazardous Materials**

The project would not emit hazardous emissions or handle hazardous materials within 0.25 mile of an existing or proposed school (significance criterion "c"); be located on a site which is included on a list of hazardous materials sites (significance criterion "d"); or be located within an airport land use plan or within two miles of a public or private airport/airstrip (significance criteria "e" and "f"). Therefore, the project would not contribute to corresponding cumulative impacts and these impacts are not discussed further.

Hazards and hazardous materials impacts are project-specific and highly localized. Therefore, the cumulative hazards and hazardous materials analysis uses the list approach. The geographic scope of hazardous material cumulative impacts would be the area within 0.25 mile of the project area because there is low risk for a geographically large and dispersed hazardous material spill or release, uncontrolled and widespread wildland fire, or regional effects to implementation of an emergency response or evacuation plan as a result of the project. The greatest risk includes spillage of gasoline, diesel fuel, oil, and lubricants during grading and thinning activities. In the event of an accident, none of the aforementioned substances would be expected to be released in large quantities or to travel long distances. There are no projects located within ¼ mile of the project; therefore, there would be no cumulative impact (significance criteria "a"–"b" and "g"–"h").

### **Hydrology and Water Quality**

The project would not place housing or structures within a 100-year flood hazard area (significance criteria "g" and "h"); expose people or structures to a significant risk of loss, injury, or death involving flooding, including as a result of the failure of a levee or dam (significance criterion "i"); or result in the inundation by seiche, tsunami, or mudflow (significance criterion "j"). Therefore, the project would not contribute to corresponding cumulative impacts and these impacts are not discussed further.

For other impacts, the cumulative hydrology and water quality analysis uses the list approach because project-related hydrology and water quality impacts are project specific and highly localized, including water quality and supply, drainage impacts, runoff. The geographic extent for considering project-related cumulative impacts on hydrology and water quality includes projects within 1 mile of project components because this distance encompasses the nearest drainages where local impacts to hydrology and water quality could combine, and because water on-site is provided by local water wells.

There are no projects located within 1 mile of the project area. As a result, there would be no cumulative impact related to local hydrology impacts, including violation of water quality standards or waste discharge requirements (significance criterion "a"); substantially depleting groundwater (significance criterion "b"); alteration of drainages (significance criteria "c" and "d"); creation of runoff (significance criterion "e"); or other avenues of water quality degradation (significance criterion "f").

### **Noise and Vibration**

The project would not expose people to the generation of noise levels in excess of standards established in the local general plan or noise ordinance (significance criterion "a"); result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project (significance criterion "c"); be located within an airport land use plan or within two miles of a public or private

airport/airstrip (significance criteria “e” and “f”); or have soils incapable of supporting the use of septic tanks (significance criterion “e”). Therefore, the project would not contribute to corresponding cumulative impacts and these impacts are not discussed further.

For noise and vibration generation impacts, the cumulative noise and vibration analysis uses the project list approach because noise and vibration impacts are highly localized. The geographic extent for considering cumulative noise impacts is any project within 3.5 mile of the project area, because that is the distance at which the loudest project activities would not be perceptible over ambient noise levels in wilderness areas (refer to Appendix D for specific noise calculations). For vibration, the scope is even smaller because of the rapid attenuation of vibration over distance. As discussed in Section 3.12 “Noise and Vibration” above, vibration levels from project equipment could exceed the Caltrans recommended level of 0.2 in/sec PPV with respect to the structural damage within 15 feet of project activities and could exceed FTA’s maximum acceptable level of 80 VdB with respect to human response within 43 feet of project activities (FTA 2006, Caltrans 2013). Therefore, the geographic extent for considering cumulative vibration impacts is 50 feet from the project area. There are no projects located within 3.5 miles of the project area; therefore, there would be no cumulative noise or vibration impacts (significance criteria “b” and “d”).

### Recreation

The project would not include recreational facilities or require the construction or expansion of recreational facilities (significance criterion “b”); therefore, the project would not contribute to corresponding cumulative impacts. This impact is not discussed further.

For impacts related to the increased use of existing recreational facilities (significance criterion “a”), the list approach was used to analyze potential cumulative effects. The geographic extent for considering cumulative recreation impacts is any project within 5 miles of the project area, because people who use recreation facilities frequently would be unlikely to travel long distances for recreational purposes, and several trails and campsites are in the immediate vicinity of the project area within the Castle Crags Wilderness and Shasta-Trinity NF, which could be used while project activities are occurring. There are no projects located within 5 miles of the project area; therefore, there would be no cumulative recreation impacts (significant criterion “a”).

### Utilities and Service Systems

The project would not result in impacts related to wastewater or water treatment facilities (significance criteria “a,” “b,” and “e”), stormwater drainage facilities (significance criterion “c”), or regulations or capacity related to solid waste (significance criterion “f” and “g”) and therefore would not contribute to cumulative impacts. Therefore, the project would not cause or contribute to any cumulative impact regarding these utilities and no cumulative analysis is provided. These impacts are not discussed further.

For water supply impacts, the project list approach was used to analyze cumulative impacts because water is managed at a local level. The geographic extent for considering project-related cumulative impacts on water supply includes projects within 0.25 mile of project components because water on-site is provided by local water wells.

There are no projects located within 0.25 mile of the project area. As a result, there would be no cumulative impact related to water supply (significance criterion “d”).

## c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

**Less than significant.** Based on the nature and scope of the project (i.e., temporary, dispersed project activities) and the analysis herein, the project would not result in any direct or indirect substantial adverse effects on human beings. The project would result in temporary impacts to human health during project implementation, including:

- ▲ changes to air quality as a result of smoke and NO<sub>x</sub> emissions (discussed in Section 3.3, Air Quality);

- ▲ exposure to wildfire risk and hazardous materials associated with their transport, use, and disposal (discussed in Section 3.8, Hazards and Hazardous Materials); and
- ▲ exposure of sensitive receptors to noise impacts from forest fuel treatment equipment (discussed in Section 3.12, Noise).

All the identified potential impacts to human beings would be temporary and intermittent. Each of the impacts that may cause substantial adverse effects on human beings has been evaluated and found to be less than significant. Therefore, effects on human beings would be less than significant.

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