NOTICE OF EXEMPTION

TO: County Clerk County of Shasta 1643 Market St. Redding, CA 96002

Office of Planning and Research P.O. Box 3044, Room 113 Sacramento, CA 95812-3044

FROM: City of Shasta Lake
4477 Main Street
Shasta Lake, CA 96019

PROJECT TITLE: **City of Shasta Lake Fire Fuels Reduction**

PROJECT LOCATION: City of Shasta Lake and Sphere of Influence
APN(s): See attached Project Map in Exhibit B.

COUNTY: Shasta

NAME OF PUBLIC AGENCY APPROVING PROJECT: City of Shasta Lake

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT: City of Shasta Lake

SETTING

The City of Shasta Lake area lies at an elevation of 600 to 1,800 feet and has dry summers where little rain falls from early June through late October. Most precipitation falls between October and March; however, this seasonality of rainfall has been changing in recent years. Depending on the location, elevation, and weather patterns, the declared fire season in the City typically lasts from early June to mid or late October and is a period of increased risk to development within the city and neighboring areas. The mountainous terrain on the north and west side of the city contain major wildland fire hazard risks for residential structures and other development, characterized by steep slopes, poor fire suppression delivery access, inadequate water supply, and highly flammable vegetation.

This scenario creates a high threat to life and property from wildfire, specifically in areas that were developed before 1982 that have narrow, one-lane roads with single access points.

Generally, the City of Shasta Lake faces a wildland fire threat annually. Fire conditions arise from a combination of hot weather, an accumulation of vegetation, and low moisture content in the air. These conditions, when combined with high winds and years of drought, increase the potential for a wildfire to occur. Urban Wildfires often occur in those areas where development has expanded into the rural areas. A fire along this urban/rural interface can result in major losses of property and structures.

Past wildfire events in the City of Shasta Lake have occurred in summer months (typically June through October) and are expected to increase in frequency of wildfire events due to increasingly drier conditions caused by climate change. Fire risk will also continue to grow as more people build in WUI areas, which increases fuel loads and the risk of human-caused fires.

As seen in Exhibits C and E, fire occurrences are the most common in mountainous areas in the western region near the City of Shasta Lake. However, in 2021 the Fawn Fire erupted northeast of the city boundary, east of I-5, entering the city boundary on the east side of I-5. The probability of a wildfire occurring in the City of Shasta Lake is highly likely (100% annual chance).

DESCRIPTION OF PROJECT:

The City of Shasta Lake has been awarded a CalFire Wildfire Prevention Grant to complete a fire fuel reduction project. This project proposes to remove dead and dying trees, understory shrubs, and heavy accumulations of downed material to reduce hazardous fuel loading. Fuel breaks will be constructed up to 300 feet in width from roadsides, property boundaries, and locations with strategic value to the California Department of Forestry and Fire Protection (Cal Fire) for fire prevention and fighting. Implementation methods will include hand cutting using power saws, piling using ground personnel, burning of piles on-site, and mastication. Mechanical equipment may also be used to remove and pile vegetation. Vegetation to be removed or modified will include standing or fallen dead vegetation, selective thinning of overstocked live shrubs and trees less than 8 inches diameter at breast height (4.5 feet above ground) (DBH) and mowing or weed eating ground fuels.

For parts of the project that require burning, material will be gathered into piles, built outside of remaining canopy drip lines, and will be free of dirt or non-organic materials. Piles will typically be burnt on site and outside of fire season from October to May but may be implemented when environmental conditions or parameters are appropriate.

The general process for projects that require mastication is as follows:

1. The location and scale of these projects are determined in coordination with Cal Fire and Shasta Lake Fire Protection District. After concurrence on location, projects are prioritized based on the threat posed to the community. This is determined by considering several factors, such as topography, fuel load (verified by pedestrian surveys), and proximity to structures.

2. Before project work begins, the Shasta Lake Fire Fuel Reduction Coordinator (FFRC) flags the extent of and sensitive habitats within the treatment area.

3. After steps 1 and 2 have been completed, a pre-construction meeting is held where standard operating procedures, such as restricting clearing operations between the hours of 6am and 10am are addressed. During this meeting, the FFRC also verifies there is sufficient fire suppression equipment onsite. Before the mechanical treatment begins, the FFRC notifies Cal Fire and Shasta Lake Fire Protection District that clearing is about to

commence. At this time, the FFRC performs a "conditions check" to verify weather, humidity, and fuel moisture levels. If these conditions are not favorable for mechanical treatment, projects will not proceed. Once projects begin, the FFRC, equipped with fire suppression equipment, continuously monitors the operation. At the conclusion of a project, the FFRC performs a final site inspection to ensure all requirements have been met.

4. At the conclusion of a project, the FFRC performs a final site inspection to ensure all project requirements have been met.

The purpose of the project is to prevent wildfire emergencies, reduce fuel loads and wildfire risk in areas that protect structures, enhance security along evacuation routes, provide improved opportunity and safety for fire suppression, and improve overall forest resilience to wildfire.

Fuel reduction activities will avoid:

- Sensitive habitat, including riparian areas or wetlands.
- Cultural and historic sites.
- Disturbance to individual specimens of rare, threatened, or endangered species.
- Ground disturbance that could result in sediment delivery to watercourses.

See Exhibits A-G for more information on standard conditions to avoid sensitive habitats/resources and supporting information.

EXEMPT STATUS:

Emergency Exemption - 14CCR 15269 (c) - Specific actions necessary to prevent or mitigate an emergency. This does not include long term projects undertaken for the purpose of preventing or mitigating a situation that has a low probability of occurrence in the short-term, but this exclusion does not apply (i) if the anticipated period of time to conduct an environmental review of such a long-term project would create a risk to public health, safety or welfare, or (ii) if activities (such as fire or catastrophic risk mitigation or modifications to improve facility integrity) are proposed for existing facilities in response to an emergency at a similar existing facility.

REASONS WHY PROJECT IS EXEMPT:

This fire fuel reduction project focuses on management of the excessive fuel loads around the Wildland Urban Interface and Very High Fire Hazard Severity Zone within the City of Shasta Lake and sphere of influence. The project is directly related to several catastrophic wildfires that the City of Shasta Lake and Shasta County have endured and were declared emergencies. The SHU Lightning-Motion Fire was declared an emergency on June 28, 2008, the Carr Fire was declared an emergency on July 26, 2018, the Zogg Fire was declared an emergency on September 27, 2020, and the Fawn Fire was declared an emergency on September 27th, 2021. Although smaller in scale and not declared an emergency, the Lake Fire, which occurred in a

vulnerable area in the western portion of the city, forced the evacuation of approximately 1,000 residents and destroyed several homes and outbuildings.

In addition to the emergency declarations related directly to fires, the existing and prolonged drought conditions in the State have contributed to the increased risk of catastrophic wildfires and increased risk of loss of life and property. Several Proclamations of State of Emergency related to extreme drought conditions and increased risk of catastrophic wildfire have been issued by Governor Gavin Newsom and his predecessors.

The project meets the criteria for emergency exemptions because it will maintain and repair property damaged by wildfire, protect public facilities essential to public health and safety, and will prevent or mitigate future and imminent wildfire emergencies. The City of Shasta Lake Development Services Department finds that this project complies with the intent and overall direction of the State Proclamations of Emergency and is thereby exempt from the provisions of CEQA.

CONTACT PERSON: Peter Bird TELEPHONE NUMBER: 530-275-7416

Signature: 

Title: Senior Planner

Date: July 5, 2023

References:

City of Shasta Lake Local Hazard Mitigation Plan

https://www.cityofshastalake.org/DocumentCenter/View/3366/Local-Hazard-Mitigation-Plan-LHMP-for-the-City-of-Shasta-Lake?bidId=

2008 June Fire Siege

https://www.yumpu.com/en/document/read/20950923/2008-june-cal-fire-state-of-california

Executive Department State of California – Proclamation of a State of Emergency (Fawn Fire)

https://www.gov.ca.gov/wp-content/uploads/2021/09/9.27.21-SOE-Fawn-Fire.pdf

Executive Department State of California – Proclamation of a State of Emergency (Carr Fire)

https://www.ca.gov/archive/gov39/wp-content/uploads/2018/07/7.27.18-Request-for-Presidential-Emergency.pdf

Executive Department State of California – Proclamation of a State of Emergency (Zogg Fire)

https://www.gov.ca.gov/wp-content/uploads/2020/09/9.28.20-Emergency-Proclamation-signed.pdf

Exhibits

A – Initial Study

B – Project Map

C – Wildfire perimeters

D – Very High Fire Hazard Severity Zones

E – Fire Return Interval

F – Bio

G – Standard Conditions

Exhibit A – Initial Study

POTENTIAL IMPACT ANALYSIS

The proposed project will not result in any new significant impact to the physical environment not already identified and analyzed in the City of Shasta Lake 2040 General Plan PEIR.

Issues:	Less Than Significant Impact	No Impact
1. AESTHETICS, LIGHT AND GLARE Except as provided in Public Resources Code Section 21099, would the project: A) Have a substantial adverse effect on a scenic vista?	X	
B) Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	X	
C) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	X	
D) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		X

DISCUSSION:

ENVIRONMENTAL SETTING

Aesthetics

The City of Shasta Lake is a community characterized by varied and hilly terrain. Views across the city to the west include views of the foothills and mountains. Scenic vistas include public areas that provide expansive views of natural features such as mountains, hills, valleys, water courses, rock outcrops, and natural vegetation, as well as man-made scenic structures (e.g., public art, historic buildings, etc.).

Significant scenic vistas in the Planning Area include the Interstate 5 (I-5) corridor and other public streets throughout the city, and public areas such as parks and recreational facilities that provide views of surrounding scenic resources. Important natural scenic resources in or visible from various locations in the Planning Area include Mount Shasta to the north, Lassen Peak to the east, creeks and streams throughout the Planning Area (i.e., Churn Creek, Little

Churn Creek, Salt Creek, Moody Creek, Rancheria Creek, Nelson Creek, Newtown Creek, and numerous unnamed streams), open space areas throughout the City, and forested hillsides in and north, east, and west of the Planning Area. Creeks and streams, scenic mature trees, steep hillsides, and other natural features shape development patterns and provide attractive natural features among urban land uses in the city.

Although no portion of the designated Scenic Highway is within the City limits, the segment of Shasta Dam Boulevard between I-5 and the western City limit line is identified as an Eligible State Scenic Highway. In addition, the segment of I-5 that bisects the City is identified as an Eligible Scenic Highway. For the eligible routes to become officially designated Scenic Highways, the City would need to apply to Caltrans for approval and adopt a Corridor Protection Program.

Light and Glare

The City of Shasta Lake includes a wide variety of visual features that include various light and glare levels. The downtown area has a higher concentration than the outlying residential areas of artificial light and reflective surfaces that produce glare. Sources of light in urbanized areas of the city include streetlights, interior lighting, security lights and other exterior lights on buildings/structures and in landscaped areas, lighting in parking lots, lights for sign/billboard illumination, and field lighting at parks and schools. Some rural areas of the city lack streetlights; thus, lower ambient light levels are present. Additional sources of light and glare include headlights from vehicles on public streets throughout the community.

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, aesthetics impacts may be considered significant if the proposed project would result in one or more of the following:

Glare. Glare is considered to be significant if it would cast in such a way as to cause public hazard or annoyance for a sustained period of time.

Light. Light is considered significant if it would be cast onto oncoming traffic or residential uses.

Scenic Vistas. An adverse impact to a scenic vista is considered significant if it would cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a designated State Scenic Highway

SUMMARY OF ANALYSIS UNDER THE 2040 GENERAL PLAN EIR, INCLUDING CUMULATIVE IMPACTS, GROWTH INDUCING IMPACTS, AND IRREVERSIBLE SIGNIFICANT EFFECTS

The EIR described the existing visual conditions in the general plan area, and the potential changes to those conditions that could result from development consistent with the 2040 General Plan. The EIR identified and discussed potential impacts to scenic resources and aesthetics, including impacts from light and glare resulting from future development. See DPEIR, Chapter 4.1, Aesthetics/Visual Resources. (See PEIR discussion for Impact 4.1-1; 4.1-2; 4.1-3; 4.1- 4 below)

Impact 4.1-1 Implementation of the 2040 General Plan could have an adverse effect on a scenic vista. Less-than-Significant Impact

Impact 4.1-2 Implementation of the 2040 General Plan would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway. Less-than-Significant Impact

Impact 4.1-3 Implementation of the 2040 General Plan would not substantially degrade the existing visual character or quality of public views of development sites and their surroundings and would not conflict with applicable zoning and other regulations governing scenic quality. Less-than-Significant Impact

Impact 4.1-4 Implementation of the 2040 General Plan would create new sources of light and glare that could affect day or nighttime views in the area. Less-than-Significant Impact

ANSWERS TO CHECKLIST QUESTIONS

Questions A–D

The proposed Project would not result in any new impacts to aesthetics, light and glare that were not anticipated in the General Plan 2040 PEIR. All fire fuel reduction projects are required to comply with applicable standards, including the City of Shasta Lake Tree Conservation Ordinance, California Department of Forestry's General Guidelines for Creating Defensible Space for shaded fuel breaks, and Shasta Lake Fire Protection District Ordinance 19-01.

The proposed project will not implement clear cutting but will comply with Cal Fire guidance for completion of shaded fuel breaks. This strategy will mitigate any visual impacts from areas that may be visible from the I-5 corridor, Scenic Highway, or other public spaces. Additionally, the City of Shasta Lake Tree Conservation Ordinance requires preservation of heritage trees (oaks over 24 inches DBH or other species over 36 inches DBH).

Therefore, because the project is not prominently visible from the designated Scenic Highway, I-5 corridor, and implements strategies to mask any potential effects, impacts on scenic resources within the designated Scenic Highway would be less than significant.

MITIGATION MEASURES

No mitigation measures are required for this project.

FINDINGS

The proposed Project would have no additional project-specific environmental effects relating to Aesthetics, Light and Glare.

Issues:	Less Than Significant Impact	No Impact
2. AIR QUALITY *Would the proposal:* A) Result in construction emissions of NO_x above 85 pounds per day?	X	
B) Result in operational emissions of NO_x or ROG above 65 pounds per day?	X	
C) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	X	
C) Result in PM_{10} concentrations equal to or greater than five percent of the State ambient air quality standard (i.e., 50 micrograms/cubic meter for 24 hours) in areas where there is evidence of existing or projected violations of this standard?	X	
E) Result in CO concentrations that exceed the 1-hour State ambient air quality standard (i.e., 20.0 ppm) or the 8-hour State ambient standard (i.e., 9.0 ppm)?	X	
F) Result in exposure of sensitive receptors to substantial pollutant concentrations?	X	
G) Result in TAC exposures create a risk of 10 in 1 million for stationary sources, or substantially increase the risk of exposure to TACs from mobile sources?	X	
H) Impede the City or State efforts to meet AB32 standards for the reduction of greenhouse gas emissions?	X	

***Discussion**:*

ENVIRONMENTAL SETTING

Regional and Local Climate

The City of Shasta Lake is located at the northernmost end of the Northern Sacramento Valley Air Basin (NSVAB), also known as the Northern Sacramento Valley Planning Area (NSVPA). The NSVPA consists of a total of seven counties: Butte, Colusa, Glenn, Shasta, Tehama, Sutter, and Yuba. These counties are bounded on the north and west by the North

Coast Mountain Range and on the east by the southern portion of the Cascade Mountain Range and the northern portion of the Sierra Nevada Mountains.

The surrounding mountains provide a substantial barrier to the horizontal dispersion of air contaminants for both locally created pollution and pollution that has been transported northward on prevailing winds from areas south of the NSVAB. Extremely stable atmospheric conditions, referred to as "inversions," also act as barriers to pollutant dispersion. In areas below 1,000 feet mean sea level, inversions act as "lids" and may cause dust and pollutants to be trapped until atmospheric conditions become more unstable (Shasta County, 2004). Therefore, the mountains prevent pollutants from being dispersed horizontally, while inversions prevent pollutants from dispersing vertically.

In Shasta County, due to high temperatures, stagnant atmospheric conditions, and temperature inversions, the main air quality concern in the summer is ozone pollution generated by vehicles and industrial activities. Ozone precursors (NOX and ROG) from these sources react to form ozone. Particulate matter (PM10 and PM2.5) resulting from wildfires throughout the region, and often beyond, have become a major concern, especially in recent years. In the winter, cold-weather inversion layers can trap pollutants generated by fireplaces, wood stoves, and open burning (Shasta County, 2004).

Stationary and Mobile Sources

Air pollutant emissions within the SVAB are generated by stationary, area-wide, and mobile sources. Stationary sources are usually subject to a permit to operate from the local air district, occur at specific identified locations, and are usually associated with manufacturing and industry. Examples of major stationary sources include refineries, concrete batch plants, and other industrial operations. Minor stationary sources include smaller-scale equipment such as diesel fueled emergency backup generators and natural gas boilers.

Area sources are emissions-generating activities that are distributed over an area and do not require permits to operate from any air agency. Examples of area sources include natural gas combustion for residential or commercial space and water heating, landscaping equipment such as lawn mowers, and consumer products such as barbeque lighter fluid and hairspray.

Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources are those that are legally operated on roadways and highways. Off-road sources include aircraft, trains, and construction vehicles. Mobile sources account for most of the air pollutant emissions within the SVAB.

Ambient Air Quality Standards

Both the Federal and State governments have established ambient air quality standards for outdoor concentrations of various pollutants to protect public health and welfare with a margin of safety.

The air pollutants for which Federal and State standards have been promulgated include ozone, nitrogen dioxide (NO2), carbon monoxide (CO), suspended particulate matter, sulfur dioxide (SO2), and lead. Each of these pollutants is briefly described below.

- Ozone is a gas that is formed when reactive organic gases (ROG) and nitrogen

oxides (NOX), both byproducts of internal combustion engine exhaust and other processes, undergo photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.

- NO2 is a brownish, highly reactive gas that is present in all urban environments. The major human-made sources of NO2 are combustion devices, such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines.

- CO is a colorless, odorless gas produced by the incomplete combustion of fossil fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections, but the SVAB has not experienced a violation of ambient air quality standards for CO in 20 years (ARB 2013a).
- Respirable Particulate Matter (PM10) and Fine Particulate Matter (PM2.5) consist of extremely small, suspended particles 10 microns and 2.5 microns or smaller in diameter. Some sources of suspended particulate matter (e.g., pollen and windblown dust), occur naturally. However, in populated areas, most fine suspended particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.

- SO2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly because of the burning of high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries.

Regional Air Quality

Shasta County is currently designated a non-attainment-transitional area for State ozone standards, which indicates that pollution concentrations violate the State standard, but air quality is nearing attainment; the County is designated as an attainment or unclassified area for all other Federal and State ambient air quality standards (CARB, 2021). Due to the regional nature of the ozone problem, the air pollution control districts and air quality management districts of the seven counties located in the NSVPA originally prepared an Air Quality Attainment Plan (AQAP) in 1991 and have updated the plan triennially since then. Most recently, the Sacramento Valley Air Quality Engineering and Enforcement Professionals (SVAQEEP) prepared the NSVPA 2021 Triennial Air Quality Attainment Plan (2021 AQAP). The 2021 AQAP constitutes the region's State implementation Plan (SIP).

The 2021 AQAP confirms that air pollution transport studies have demonstrated that a significant number of the ozone violations occurring in Shasta County are caused when pollutants from urban areas are transported aloft throughout the air basin. Shasta County's primary emphasis in implementing the AQAP is to attempt to reduce emissions from mobile sources through public education and grant programs.

Local Air Quality

The Shasta County Air Quality Management District (SCAQMD) maintains air quality monitoring stations in Shasta County that monitor ozone and particulate matter. There is presently one ozone monitoring station in the City, at 13791 Lake Boulevard. There was

previously a station at 4066 La Mesa Avenue in the City that monitored PM10, but this station was removed in 2020. Shasta County AQMD has deployed experimental particulate matter (smoke) sensors throughout Shasta County, including two sensors in Shasta Lake. These sensors are not official monitors but can be helpful in gauging smoke levels in particular locations (reported on Purple Air website).

The County maintains air quality monitoring stations for ozone and PM2.5 on North Street in Anderson and at the County Health Department on Breslauer Way. The nearest PM2.5 monitoring station to the General Plan Planning Area is located at the County Health Department building which is approximately 9 miles south of the Planning Area. No other pollutant monitoring information is available for Shasta County.

Table 4.3-1 of the DPEIR includes monitoring data for the area from 2016 through 2020, including dates with the highest reported average for 8-hour ozone, and highest concentrations of PM10 and PM2.5. The highest 8-hour ozone averages occurred in June, July, and August, which would be expected given that ozone occurs in higher concentrations during warmer times of the year. The highest concentrations of particulate matter occurred primarily in the summer and early fall, although the highest concentrations in 2019 were reported in January, November, and December. Table 4.3-2 of the DPEIR identifies 2020 Estimated Annual Average Emissions from stationary sources, areawide sources, mobile sources, and natural (non-anthropogenic) sources for Shasta County.

Toxic Air Contaminant Emissions

Toxic air contaminants (TACs) are airborne substances that, even in small quantities, can cause chronic (i.e., of long duration) and acute (i.e., severe, but of short duration) adverse effects on human health. They include both organic and inorganic chemical substances that may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different than the criteria air pollutants discussed previously in that ambient air quality standards have not been established for them. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to the California Almanac of Emissions and Air Quality (ARB 2009), most of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being diesel PM. Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel- fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emissions control system is being used. Based on receptor modeling techniques, ARB estimated diesel PM health risk to be 360 excess cancer cases per million people in the SVAB in the year 2000. Since 1990, the health risk associated with diesel PM has been reduced by 52%. Overall, levels of most TACs, except para-dichlorobenzene and formaldehyde, have decreased since 1990 (ARB 2009).

Sensitive Receptors

As discussed previously, the Federal and State ambient air quality standards have been set at levels to protect the most sensitive persons from illness or discomfort with a

margin of safety. Air pollution regulatory agencies typically define sensitive receptors to include residences, schools, playgrounds, childcare centers, athletic facilities, hospitals, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Each of these land use types is present in the city of Shasta Lake.

Standards of Significance

For purposes of this Initial Study, air quality impacts may be considered significant if construction and/or implementation of the Proposed Project would result in the following impacts that remain significant after implementation of General Plan policies or mitigation from the General Plan FPEIR:

- construction emissions of NO_x above 85 pounds per day;
- operational emissions of NO_x or ROG above 65 pounds per day;
- violation of any air quality standard or contribute substantially to an existing or projected air quality violation;
- Any increase in PM10 concentrations, unless all feasible Best Available Control Technology (BACT) and Best Management Practices (BMPs) have been applied, then increases above 80 pounds per day or 14.6 tons per year;
- CO concentrations that exceed the 1-hour State ambient air quality standard (i.e., 20.0 ppm) or the 8-hour State ambient standard (i.e., 9.0 ppm); or
- exposure of sensitive receptors to substantial pollutant concentrations.

Ambient air quality standards have not been established for toxic air contaminants (TAC). TAC exposure is deemed to be significant if:

- TAC exposures create a risk of 10 in 1 million for stationary sources, or substantially increase the risk of exposure to TACs from mobile sources.

SUMMARY OF ANALYSIS UNDER THE 2040 GENERAL PLAN PEIR, INCLUDING CUMULATIVE IMPACTS, GROWTH INDUCING IMPACTS, AND IRREVERSIBLE SIGNIFICANT EFFECTS

The EIR addressed the potential effects of the 2040 General Plan on ambient air quality and the potential for exposure of people, especially sensitive receptors such as children or the elderly, to unhealthful pollutant concentrations. See PDEIR, Chapter 4.3.

Policies in the 2040 General Plan were identified as mitigating potential effects of development that could occur under the 2040 General Plan. The proposed Project does not alter or increase potential impacts. Development under the 2040 General Plan would be analyzed on a case-by-case basis when detailed information regarding construction and operational activities is known. Future projects would be subject to the General Plan policies and implementation actions identified in Section 4.3.4, as well as SCAQMD and State rules and regulations, including, but not limited to those identified in Section 4.3.3 (Regulatory Framework) of the PEIR.

Based on Appendix G of the CEQA Guidelines, the City concludes that implementation of the 2040 General Plan would have a significant impact on air quality if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which

the project region is non-attainment under an applicable federal or State ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

The PEIR included the following potential impact analysis and determinations:

Impact 4.3-1: Implementation of the 2040 General Plan could conflict with or obstruct implementation of the applicable air quality plan. Significant and Unavoidable Impact

Impact 4.3-2: Implementation of the 2040 General Plan could result in a cumulatively considerable net increase of criteria pollutants for which the project region is in non-attainment under an applicable federal or State ambient air quality standard. Significant and Unavoidable Impact

Impact 4.3-3: Implementation of the 2040 General Plan could expose sensitive receptors to substantial pollutant concentrations. Less-than-Significant Impact.

Impact 4.3-4: Implementation of the 2040 General Plan could result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Less-Than-Significant Impact.

GREENHOUSE GAS EMMISSIONS

Section 4.7 of the PEIR addresses greenhouse gas (GHG) emissions, climate change, and energy in relation to future development and other physical changes that could occur due to implementation of the 2040 General Plan. The analysis in this section focused on the General Plan's consistency with local, regional, State, and federal climate change and energy conservation planning efforts. Energy has been combined with GHG and climate change because one of the primary sources of GHG emissions in the city is energy consumption. The PEIR found that greenhouse gas emissions that would be generated by development consistent with the 2040 General Plan would be a significant and unavoidable cumulative impact. The proposed project would not increase or significantly impact the potential for these emissions. The discussion of greenhouse gas emissions and climate change in the 2040 General Plan PEIR is incorporated by reference in this Initial Study. (CEQA Guidelines Section 15150). The EIR identified numerous policies included in the 2040 General Plan that address greenhouse gas emissions and climate change. See PEIR, Chapter 4.7.4, and pages 4.7-26 et seq. Policies identified in the 2040 General Plan include directives relating to sustainable development patterns and practices, and increasing the viability of pedestrian, bicycle, and public transit modes. A complete list of policies addressing climate change is included in the EIR as identified above.

ANSWERS TO CHECKLIST QUESTIONS

Questions A–H

The proposed Project would not result in any new air quality impacts that were not previously anticipated in the General Plan 2040 EIR. All new development projects would be required to comply with all applicable standards, including the interim zoning and General Plan land use standards. As part of the development review process, City

reviews each project independently and provides applicable comments regarding air quality. Ozone precursor emissions and emissions of particulate matter would be evaluated using the Air Quality District's Operational Screening Levels on a per project basis. Additionally, all development would be required to comply with the City's goals and policies of the General Plan for reducing greenhouse gas emissions. The proposed Project would not result in impacts relating to air quality or greenhouse gas emissions beyond those analyzed and contemplated in the 2040 General Plan FPEIR.

Impact Analysis and Mitigation Measures

The typical fire fuel reduction project includes operation of one piece of heavy equipment fitted with a masticator, and one passenger vehicle for the operator. Transport of the equipment occurs at the beginning and conclusion of the project. Operations this minor in nature do not represent an impact on air quality.

If burning of piles is implemented, it will be completed In compliance with applicable AQMD standards, thus ensuring the impact is less than significant.

MITIGATION MEASURES
No additional mitigation measures are required.

Findings

The proposed Project would have no additional project-specific environmental effects relating to Air Quality, Climate Change, or Greenhouse Gases.

Issues:	Less Than Significant Impact	No Impact
3. BIOLOGICAL RESOURCES Would the proposal: A) Create a potential health hazard, or use, production or disposal of materials that would pose a hazard to plant or animal populations in the area affected.		X
B) Result in substantial degradation of the quality of the environment, reduction of the habitat, reduction of population below self-sustaining levels of threatened or endangered species of plant or animal	X	
C) Affect other species of special concern to agencies or natural resource organizations (such as regulatory waters and wetlands)?	X	

DISCUSSION:

ENVIRONMENTAL SETTING

The City of Shasta Lake is located at the northern end of the Sacramento Valley in Shasta County. This region of California is characterized as a dissected plain located between the Klamath Range and Trinity Mountains to the north and west, and the northernmost extent of the Sierra Nevada foothills and the southernmost extent of the Cascade Range to the east. The plain is highly dissected by streams that drain toward the Sacramento River.

The Planning Area is part of the Sacramento River ecosystem and is located within the Stillwater-Churn Creek watershed, which encompasses ±77,735 acres. The headwaters of both Stillwater Creek and Churn Creek originate in the hills between Redding and Lake Shasta and flow in a north to south direction, entering the Sacramento River south of Redding. The steep, hilly headwaters constitute a heavy precipitation zone that typically receives over 60 inches of rain annually in non-drought years.

Much of the native vegetation and wildlife habitat in the city has been disturbed or fragmented by previous urban development. In recent years, wildfires in and adjacent to the Planning Area have greatly influenced aquatic and terrestrial habitats. Although frequent low-intensity fires can be beneficial because they prevent woody debris and brush from accumulating, help to preserve mature trees, and help to maintain diverse, multi-story forests with a minimal grass understory, high-intensity fires can be devastating to sensitive species and sensitive natural communities due to direct habitat loss, soil disturbance, increased erosion, increased volumes of runoff, and other effects. However, there are large expanses of undisturbed land and aquatic features that provide suitable habitat for a wide range of plant and wildlife species, including special-status species.

City of Shasta Lake Municipal Code (SLMC) The SLMC includes regulations that are intended to avoid/minimize potential direct and indirect impacts on biological resources that could result from new development. These regulations include, but are not limited to: SLMC Chapter 12.36 (Tree Conservation) SLMC Chapter 12.36 states that trees are recognized as important to the general well-being of the citizens of the City for their shade, cooling, noise and wind reduction, soil stabilization, greenhouse gas reduction, protection of surface water quality, aesthetic value, air filtering and release of oxygen, benefits to wildlife and the area's ecology, and their economic enhancement to property.

The intent of SLMC Chapter 12.36 is to promote the conservation of a healthy tree population and to maintain and enhance tree canopy throughout the community where feasible and appropriate. This is to be accomplished through: 1. The preservation of existing native trees; 2. The replacement or transplanting of trees that are removed; 3. The phasing of development to reduce impacts when tree removal is required; and 4. The planting of new trees in locations, number, and type that is compatible with local conditions.

For any project that involves land disturbance of more than 20,000 square feet, a pre-development review is required to ensure that tree conservation is considered early in the planning process with respect to placement of buildings, roads, driveways, parking areas, utilities, and other site improvements (SLMC §12.36.062).

STANDARDS OF SIGNIFICANCE

For purposes of this environmental document, an impact would be significant if any of the following conditions or potential thereof, would result with implementation of the proposed project:

1. 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 U.S. Fish and Wildlife Service.

2. 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 U.S. Fish and Wildlife Service.

3. Have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means.

4. 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.

5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan. Listed as endangered or threatened under the Federal Endangered Species Act (or formally proposed for, or candidates for, listing);

- Listed as endangered or threatened under the California Endangered Species Act (or proposed for listing);
- Designated as endangered or rare, pursuant to California Fish and Game Code (Section 1901);
- Designated as fully protected, pursuant to California Fish and Game Code (Section 3511, 4700, or 5050);
- Designated as species of concern by U.S. Fish and Wildlife Service (USFWS), or as species of special concern to California Department of Fish and Game (CDFG);
- Plants or animals that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA).

SUMMARY OF ANALYSIS UNDER THE 2040 GENERAL PLAN EIR, INCLUDING CUMULATIVE IMPACTS, GROWTH INDUCING IMPACTS, AND IRREVERSIBLE SIGNIFICANT EFFECTS

Chapter 4.4 of the PEIR evaluated the effects of implementation of the 2040 General Plan (which includes those measures needed for implementation of the proposed project on biological resources within the General Plan policy area). The PEIR identified potential impacts in terms of degradation of the quality of the environment or reduction

of habitat or population of species below self-sustaining levels of special-status species, through the loss of habitat.

The Policies in the 2040 General Plan were identified as mitigating the effects of development that could occur under the provisions of the 2040 General Plan (See Section 4.4.4 of Chapter 4.4 of the PDEIR).

Impact Analysis

Future development under the 2040 General Plan would include earth disturbance, vegetation removal, and other construction activities that could directly impact special-status plant and wildlife species. Indirect impacts could include loss of habitat and degradation of surface waters in the area and downstream. As identified in Section 4.4.4, the 2040 General Plan includes policies and implementation actions that would minimize impacts to natural habitats in the City. The proposed Project supports implementation of these plan policies. Utilizing Appendix G of the CEQA Guidelines, the City concludes that implementation of the 2040 General Plan would have a significant impact on biological resources if it would:

1. 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 U.S. Fish and Wildlife Service.

2. 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 U.S. Fish and Wildlife Service.

3. Have a substantial adverse effect on state or federally protected wetlands through direct removal, filling, hydrological interruption, or other means.

4. 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.

5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan.

MITIGATION MEASURES FROM 2040 GENERAL PLAN EIR THAT APPLY TO THE PROJECT
All where applicable.

ANSWERS TO CHECKLIST QUESTIONS

Questions A–C

The proposed Project will not result in the creation of hazards, nor will it result in the degradation of the environment. The proposed Project does not permit any work in

environmentally sensitive areas. This project was evaluated for potential effects on protected species or habitat for protected species; wetlands; and land identified for conservation or protected by a conservation easement. A biological constraints report was completed by ICF for this project and pedestrian surveys were completed to ensure that any wetlands, sensitive habitats, or occurrences of protected species were identified and flagged for avoidance.

The General Plan policies and implementation actions identified in Section 4.4.4 of the PEIR specifically address the protection of riparian habitat and natural resource areas. The City has consulted with a professional biologist to determine appropriate riparian and wetland buffers for the project to preserve existing riparian vegetation.

Impact 4.4-1: Implementation of the 2040 General Plan could have a substantial adverse effect, either directly or through habitat modifications, on a species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS. Significant and Unavoidable Impact.

Impact 4.4-2: Implementation of the 2040 General Plan could have a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. Less-than-Significant Impact.

Impact 4.4-3: Implementation of the 2040 General Plan could have an adverse effect on State or federally protected wetlands, (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.), through direct removal, filling, hydrological interruption, or other means. Less-than-Significant Impact.

MITIGATION MEASURES

No additional mitigation measures are required.

FINDINGS

The proposed project would have no additional environmental effects relating to Biological Resources not already analyzed in the General Plan PEIR.

Issues:	Less Than Significant Impact	No Impact
4. CULTURAL RESOURCES Would the project: A) Cause a substantial adverse change in the significance of a historical pursuant to § 15064.5?	X	
B) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	X	

C) Disturb any human remains, including those interred outside of formal cemeteries?	X	

ENVIRONMENTAL SETTING

Prehistoric Context

The City of Shasta Lake lies in what is generally described as the Cascade subregion of the North-eastern California Archaeological Region. The Cascade subregion extends southward from the Oregon border to the Central Valley, between the crest of the Klamath Mountains on the west and the Modoc Plateau on the east. California prehistory is divided into three broad temporal periods that reflect similar cultural characteristics throughout the State: The Paleoindian Period (ca. 9,000 to 6,000 BCE), the Archaic Period (6,000 BCE to CE 500), and the Emergent Period (CE 500 to Historic Contact).

The Archaic Period is divided further into the Lower (6,000 to 3,000 BCE), the Middle (3,000 to 1,000 BCE), and the Upper (1,000 BCE and CE 500) Periods, generally governed by climatic and environmental variables, such as the drying of pluvial lakes at the transition from the Paleoindian to the Lower Archaic Periods (Moratto 1984). Evidence of human occupation in the Cascade subregion dates as early as 10,000 years ago during the Paleoindian Period, although human occupation apparently experienced a hiatus after the Mazama ash fall approximately 7,600 years ago (Moratto 1984).

Ethnographic Context

The City of Shasta Lake lies within the ethnographic territory claimed by the Wintu (Kroeber 1976). The earliest archaeological evidence of human occupation in north central California is from a site located north of the City of Shasta Lake on Squaw Creek, where evidence suggests initial Native American presence around 6,500 years ago (Jensen, 1993). Continuous use of the region is indicated because of evidence from this and other regional sites. It is estimated that the Wintu arrived in the Sacramento Valley approximately 1,000 to 1,200 years ago (LaPena 1978; Moratto 1984). A detailed account of the ethnographic context of the area is included in Section 4.6 (Tribal Cultural Resources) of the Draft PEIR.

Historical Context

The first recorded historical use of the region by European-Americans occurred during the late 1820s and early 1830s, when the trapping expeditions of Jedediah Strong Smith, Peter Skene Ogden, and the Hudson Bay Company entered the Sacramento Valley (Petersen 1965). U.S. possession of California territory coincided with the discovery of gold in the foothills of the Sierra Nevada Mountain range. On January 24, 1848, John Marshall, an employee of a ranch and mill owner named John Sutter, discovered gold on the American River. Subsequently, half of California's population descended upon the region between San Francisco and the Sierra Nevada foothills, with the former's population alone growing from fewer than 1,000 people at the beginning of 1848 to more than 26,000 by year's end.

Key events that contributed to settlement and population increases in Shasta County include Pearson B. Reading's discovery of gold on Clear Creek in 1848 and the subsequent California Gold Rush that began in late 1849; the arrival of the Central Pacific Railroad in 1872; the copper mining boom that began in the late 1880s; and the Central Valley Project (CVP) of 1935 and construction of Shasta Dam (Smith 1999).

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, cultural resource impacts may be considered significant if the proposed project would result in one or more of the following:

1. Cause a substantial change in the significance of a historical or archaeological resource as defined in CEQA Guidelines Section 15064.5 or

2. Directly or indirectly destroy a unique paleontological resource.

SUMMARY OF ANALYSIS UNDER THE 2040 GENERAL PLAN EIR, INCLUDING CUMULATIVE IMPACTS, GROWTH INDUCING IMPACTS, AND IRREVERSIBLE SIGNIFICANT EFFECTS

The General Plan PEIR evaluated the potential effects of development under the 2040 General Plan on prehistoric and historic resources, which includes its implementation through necessary municipal code amendments. The PEIR identified no significant and unavoidable effects on historic resources and archaeological resources. The 2040 General Plan incorporates a substantial number of goals, policies, and implementation actions related to the protection of historical and cultural resources. (See PDEIR Chapter 4.5., Section 4.5.4 and Chapter 4.6 Tribal Cultural Resources). Based on Appendix G of the CEQA Guidelines, the City concluded that implementation of the 2040 General Plan, which includes the project, could have a significant impact on cultural resources if it would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5.
2. Cause a substantial adverse change in the significance of a unique archaeological resource
pursuant to CEQA Guidelines §15064.5.
3. Disturb any human remains, including those interred outside of dedicated cemeteries.

In addition, based on Appendix G of the CEQA Guidelines, the City concludes that implementation of the 2040 General Plan including the project, could have a significant impact if it would cause a substantial adverse change in the significance of a *tribal cultural* resource as defined in PRC §21074 that is:

1. Listed or eligible for listing in the California Register of Historical Resources (CRHR), or in a local register of historical resources; or
2. Is determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC §5024.1(c)1, taking into consideration the significance of the resource to a California Native American tribe.

Impact Analysis (PEIR)

Impact 4.5-1: Implementation of the 2040 General Plan could cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5. Less-than-Significant Impact

Impact 4.5-2: Implementation of the 2040 General Plan could have a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5. Less-than-Significant Impact

Impact 4.5-3: Implementation of the 2040 General Plan could disturb human remains, including those interred outside of dedicated cemeteries. Less-than-Significant Impact

Impacts 4.6-1 and 4.6-2: Implementation of the 2040 General Plan could cause a substantial adverse change in the significance of a tribal cultural resource, as defined in PRC §21074, that is eligible for listing in the CRHR or a local register or is determined by the City to be significant pursuant to the criteria in PRC §5024.1(c). Less-Than-Significant Impact

MITIGATION MEASURES FROM 2040 GENERAL PLAN PEIR THAT APPLY TO THE PROJECT

None, beyond those identified in the PEIR.

ANSWERS TO CHECKLIST QUESTIONS

Questions A - C

The project site has been extensively studied and surveyed throughout recent history. For this project, the City contracted with ICF to review all records, produce a cultural resources constraints report, and complete extensive pedestrian surveys to locate all previously identified or new sites within the project area and flag them for avoidance.

Additionally, mastication of brush or hand clearing does not significantly disturb the soil. The project does not propose subsurface excavation and will not affect human remains interred outside of cemeteries.

Because extensive surveys and flagging has been performed at the site, the Project will not affect culturally sensitive lands.

MITIGATION MEASURES
No mitigation measures are required.

FINDING

The proposed Project would have no project-specific environmental effects relating to Cultural Resources, beyond those identified in the 2040 General Plan PEIR.

Issues:	Less Than Significant Impact	No Impact
7. HYDROLOGY AND WATER QUALITY Would the project: A) Substantially degrade water quality and violate any water quality objectives set by the State Water Resources Control Board, due to increases in sediments and other contaminants generated by construction and/or development of the project?	X	

B) Substantially increase the exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood?		x

***Discussion**:*

See Section 4.10 “Hydrology – Water Quality” of the Shasta Lake 2040 General Plan Update Programmatic Environmental Impact Report for complete analysis and discussion. This section describes applicable regulations associated with hydrology and water quality and evaluates whether implementation of the 2040 General Plan would violate water quality standards or waste discharge requirements, impede sustainable groundwater management, or substantially alter the existing drainage pattern of the area.

ENVIRONMENTAL SETTING

The City of Shasta Lake is located within the Stillwater-Churn Creek Watershed, which encompasses ±77,735 acres. The headwaters of both Stillwater Creek and Churn Creek originate in the hills between Redding and Lake Shasta and flow in a north to south direction, entering the Sacramento River south of Redding. The steep, hilly headwaters constitute a heavy precipitation zone that typically receives over 60 inches of rain annually in non-drought years. Figure 4.10-1 of the PEIR identifies regional watersheds in relation to the City of Shasta Lake as identified by the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD). Boundaries are shown for hydrologic unit codes (HUC) 8, 10, and 12.

Climate and Precipitation: Climactic conditions in the City are characterized by a Mediterranean climate with cool, wet winters and hot, dry summers. The average annual temperature is about 75 degrees Fahrenheit (° F). Monthly mean maximum temperatures range from a high of 95° F in July to a low of 31° F in January. Daily high temperatures commonly exceed 100° F during the summer. Precipitation is about 63 inches per year in a non-drought year.

Surface Water/Drainage: The three major streams in the city are Churn Creek, Salt Creek, and Moody Creek, each of which drains sizeable areas ranging between 2,400 and 6,000 acres. Salt Creek collects runoff from the central core of Shasta Lake and converges with Churn Creek in the City of Redding. Moody Creek drains a small area in the northeastern area of the city. Additional streams that flow through the City of Shasta Lake include Rich Gulch Creek, Little Churn Creek, Nelson Creek, and Rancheria Creek. The drainage pattern in the city generally flows from the northwest to the southeast.

Available data indicate that water quality is generally good; however, there have been concerns with turbidity and suspended solids generated by local construction and from channel erosion sources. High sediment loads can be carried to the Sacramento River during peak runoff events. There is also a potential for elevated bacterial concentrations from urban runoff, failing septic systems, and domestic livestock. The City’s storm drain system consists of natural and manmade open channels and ditches, and a system of storm drain pipes, inlets/outlets, area drains, and catch basins. Runoff from new development projects is commonly controlled and treated with detention basins and related facilities.

Groundwater and Groundwater Recharge: The City of Shasta Lake is not included in a State-designated groundwater basin. Non-basin areas generally consist of impermeable rocks, where groundwater is found in fractures or other voids. In non-basin areas, groundwater typically yields quantities sufficient only for limited domestic use or for agricultural stock use (DWR, 2021).

Groundwater use in the City has been limited to a few domestic wells for individual single-family homes. Although not a considerable source of water supply, non-basin areas provide for groundwater recharge, which occurs when water seeps into the ground to replenish underground aquifers. The City is located immediately north and west of the Enterprise Groundwater Subbasin, and recharge within the City may benefit the aquifer system. Groundwater recharge in the City is mostly by infiltration of stream flows.

Flooding: Past flood events in the City have been primarily localized and caused by rainfall volumes exceeding the capacity of storm drain facilities. Heavy seasonal rainfall occurs typically between November and May, and has resulted in backyard flooding, flooding garages, and some street flooding. Flooding also occurs in areas adjacent to creeks following prolonged rain events that generate a high volume of runoff in areas with saturated soils from previous rain events. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) identify several properties in the City within designated flood hazard zones. These areas are shown in Figure 4.10-2 of the PEIR.

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, impacts to hydrology and water quality may be considered significant if construction and/or implementation of the Proposed Project would result in the following impacts that remain significant after implementation of General Plan policies or mitigation from the General Plan FPEIR:

- substantially degrade water quality and violate any water quality objectives set by the State Water Resources Control Board, due to increases in sediments and other contaminants generated by construction and/or development of the Specific Plan or
- substantially increase the exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood.

SUMMARY OF ANALYSIS UNDER THE 2040 GENERAL PLAN PEIR, INCLUDING CUMULATIVE IMPACTS, GROWTH INDUCING IMPACTS, AND IRREVERSIBLE SIGNIFICANT EFFECTS

Chapter 4.10 of the PEIR evaluates the potential effects of the 2040 General Plan related to surface water, groundwater, flooding, stormwater and water quality. Implementation of policies included in the 2040 General Plan, including regional cooperation, comprehensive flood management, construction of adequate drainage facilities with new development, enforcement of existing regulations, and protection of creeks were identified and reduced all impacts to a less- than-significant level as follows:

Impact 4.10-1: Implementation of the 2040 General Plan could violate water quality standards or waste discharge requirements by substantially degrading surface or groundwater quality. Less-than-Significant Impact

Impact 4.10-2: Implementation of the 2040 General Plan would not conflict with or

obstruct implementation of a water quality control plan or sustainable groundwater management plan. Less-than-Significant Impact

Impact 4.10-3: Implementation of the 2040 General Plan would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. Less-than-Significant Impact

Impact 4.10-4: Implementation of the 2040 General Plan would not substantially alter existing drainage patterns, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:

a. Result in substantial erosion or siltation on- or off-site or provide substantial additional sources of polluted runoff.
b. Substantially increase the rate or amount of surface runoff and result in flooding on- or off-site.
c. Substantially create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.
d. Impede or redirect flood flows.

Less-than-Significant Impact

MITIGATION MEASURES FROM 2040 GENERAL PLAN PEIR THAT APPLY TO THE PROJECT
None.

ANSWERS TO CHECKLIST QUESTIONS

Questions A and B

Because all wetlands on the site have been identified and appropriate buffers have been established and flagged, the proposed Project would not affect water quality or flooding. The mulch left behind on the forest floor after mastication provides soil stabilization and prevents contamination of watercourses.

MITIGATION MEASURES
No mitigation measures are required.

FINDINGS
The proposed Project would have no additional project-specific environmental effects relating to Hydrology and Water Quality.

MANDATORY FINDINGS OF SIGNIFICANCE

Issues:	Less Than Significant Impact	No Impact
13. MANDATORY FINDINGS OF SIGNIFICANCE A.) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	X	
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.)	X	
C.) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	X	

Answers to Checklist Questions

NOTE: The findings and full Cumulative Impact analysis located in Section 5 of the 2040 General Plan PEIR, which addresses the analysis of cumulative impacts for all areas of environmental concern as reflected in this initial study, is incorporated herein by reference.

A cumulative impact is defined in §15355 of the CEQA Guidelines as an impact that is created because of the combination of a proposed project together with other closely related past, present, and reasonably foreseeable future projects that cause related impacts. Due to the programmatic nature of the PEIR, the analysis included in Section 4.0 (Environmental Impact Analysis) of the PEIR for each resource category largely addresses cumulative impacts that could occur through the end of the 20-year planning period for the 2040 General Plan with approval of the Project.

Question A - C

Implementing the proposed Project would result in no additional significant cumulative impacts. As described in the preceding sections, the proposed Project does not

propose any specific projects for future development beyond what was analyzed in the 2040 General Plan FPEIR. Implementing the proposed Project would not affect or modify existing or planned development regulations in a fashion that would impact environmental conditions as analyzed in the PEIR including, but not limited to, biological resources, open space, air quality, transportation and traffic, noise, public services, groundwater, utilities, aesthetics, energy, recreation, and cultural resources individually or cumulatively.

The Project will not have negative effects on the quality of the environment or reduce habitat for fish or wildlife population because adequate steps have been taken to avoid impacts. The Project will also not cause adverse effects on human populations, directly or indirectly but will help avoid imminent catastrophic emergencies.

Section 5 of the PEIR addresses cumulative impacts that could occur because of implementation of the proposed 2040 General Plan and its related policies. Section 15130 of the CEQA Guidelines states that an Environmental Impact Report (EIR) must discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Where a lead agency is examining a project with an incremental effect that is not cumulatively considerable, a lead agency need not consider that effect significant, but shall briefly describe the basis for concluding that the incremental effect is not cumulatively considerable.

The analysis of cumulative impacts for each environmental topic in the PEIR is based on a list of past, present, and probable future projects producing related or cumulative impacts, or a summary of projections contained in an adopted plan, or in a certified EIR that describes or evaluates regional or area-wide conditions contributing to cumulative impacts. As described below, depending on the environmental topic, the cumulative setting extends beyond the boundaries of the Planning Area.

The 2040 General Plan is a cumulative project because it addresses development projected to occur in the Planning Area over the 20-year planning period of the General Plan. Where the cumulative setting extends beyond the Planning Area, the cumulative impacts analysis of the PEIR considers development that could occur in accordance with the adopted plans of the City of Redding and unincorporated Shasta County. Any development occurring after the adoption of the proposed Project would be subject to all existing City and State development standards and environmental regulations, including project specific mitigation requirements.

SECTION IV - ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would potentially be affected by this project.

____	Aesthetics	____	Hazards
____	Air Quality	____	Noise
____	Biological Resources	____	Public Services
____	Cultural Resources	____	Recreation
____	Energy and Mineral Resources	____	Transportation/Circulation
____	Geology and Soils	____	Utilities and Service Systems
____	Hydrology and Water Quality	____	
____		____	
X ____	None Identified		

SECTION V - DETERMINATION

On the basis of the initial study:

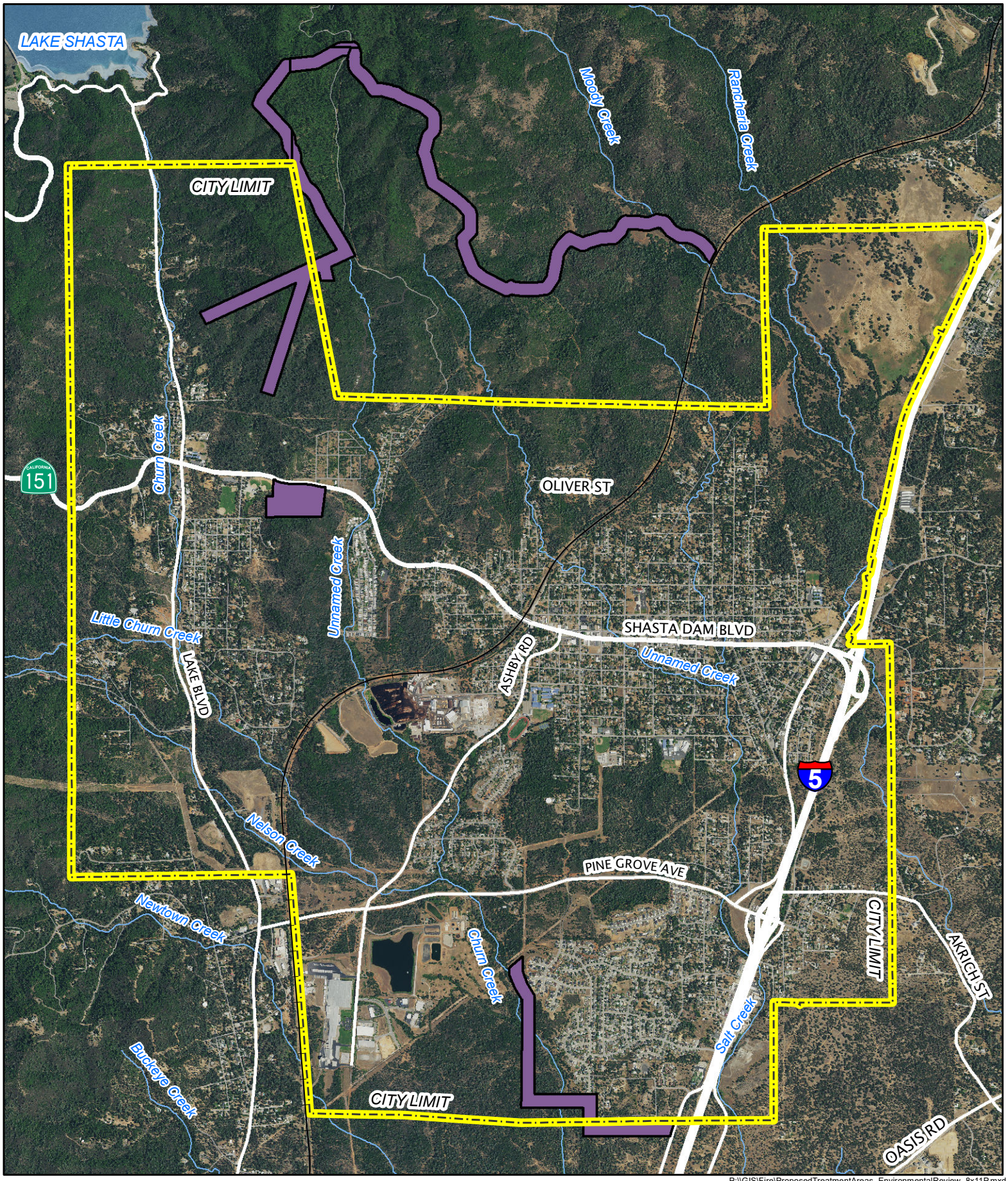
X I find that (a) the proposed Project is a subsequent project within the scope of the PEIR for the City of Shasta Lake 2040 General Plan and is consistent with the 2040 General Plan land use designations and the permissible densities and intensities of use; and (b) the proposed Project will not have any project-specific additional significant environmental effects not previously examined in the PEIR, and therefore no new mitigation measures or alternatives will be required. Applicable mitigation measures from the PEIR will be applied to the proposed Project as appropriate. (CEQA Guidelines Section 15177(b))

Signature

7-5-2023
Date

Peter Bird, Senior Planner

Exhibit B – Project Map



P:\\GIS\Fire\ProposedTreatmentAreas_EnvironmentalReview_8x11P.mxd

Boundaries and approximate. Not a survey product.

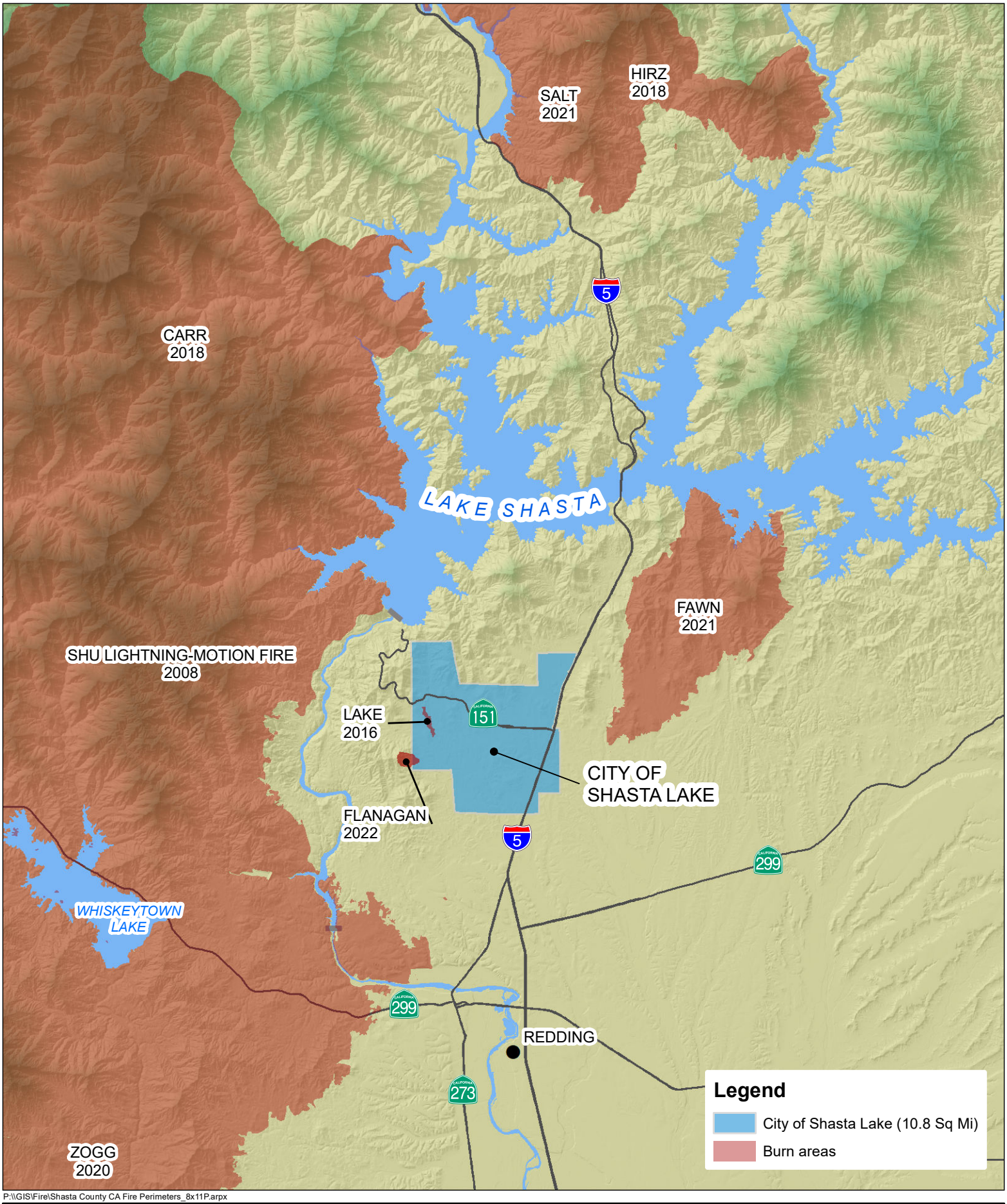
Fuel Treatment Areas

City of Shasta Lake

0 0.5 Miles

Map Produced: June 29, 2023

Exhibit C – Wildfire Perimeters



P:\\GIS\Fire\Shasta County CA Fire Perimeters_8x11P.arpx

0 4 Miles

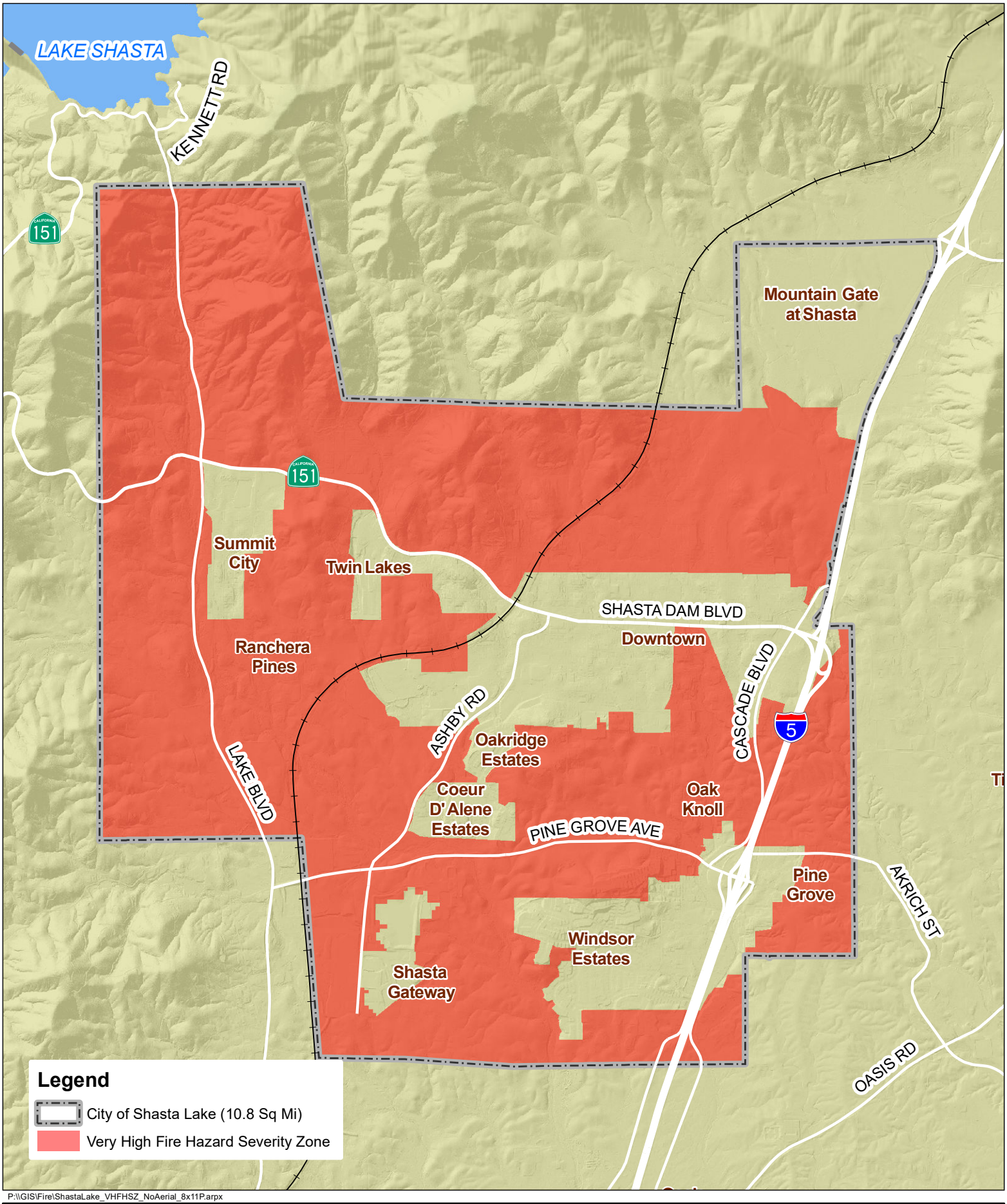
Map Produced: June 21, 2023

Recent Wildfire Perimeters

Burn Areas

Shasta County, CA

Exhibit D - Very High Fire Hazard Severity Zones



P:\\GIS\Fire\ShastaLake_VHFHSZ_NoAerial_8x11P.arpx

Very High Fire Hazard Severity Zone

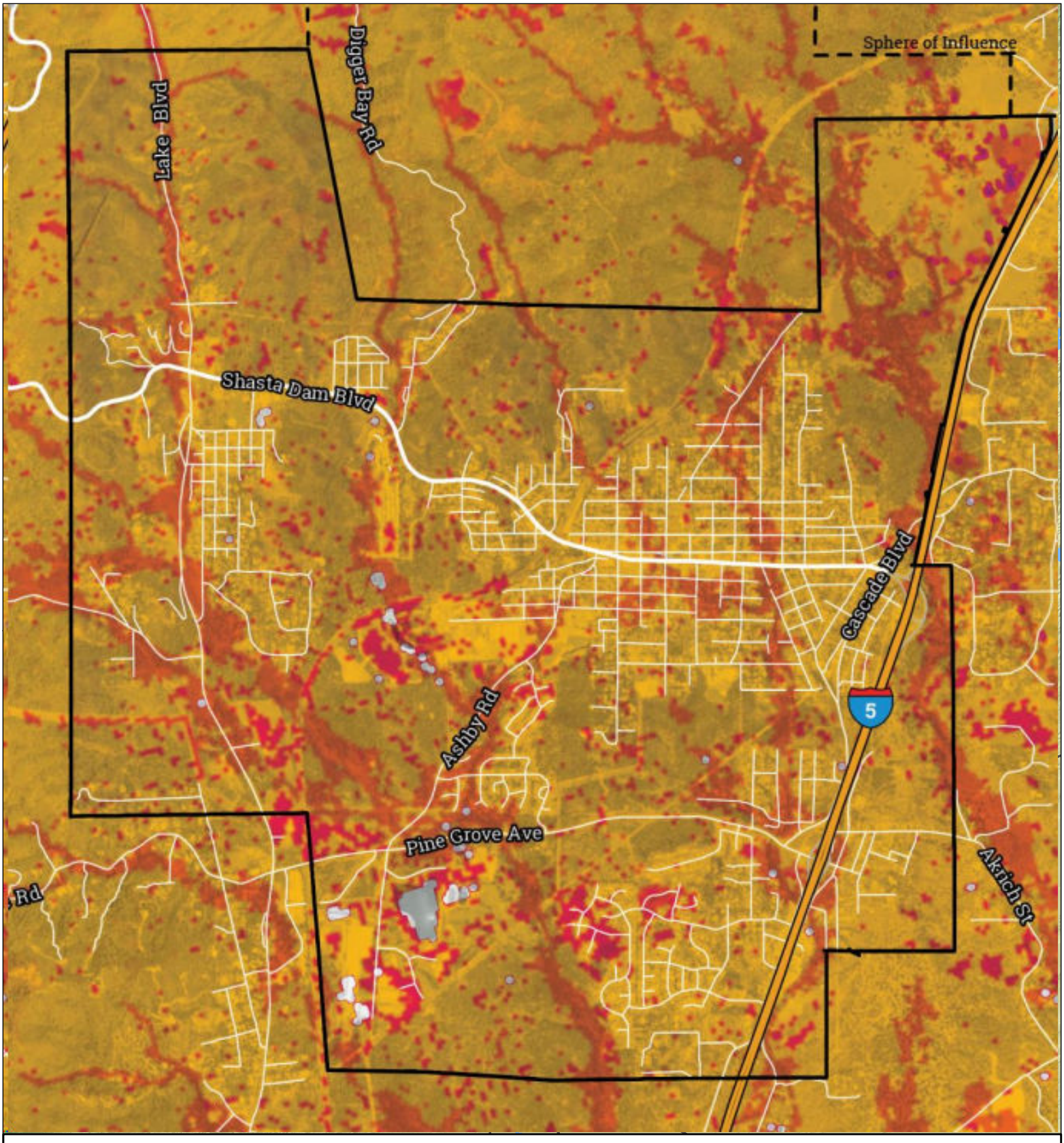
City of Shasta Lake

Source: CAL FIRE

0 0.5 Miles

Map Produced: June 28, 2023

Exhibit E - Fire Return Interval



P:\\GIS\Fire\HMP_FireRisk_8x11P.arpx

0 4 Miles

Map Produced: June 26, 2023

Mean Fire Return Interval

City of Shasta Lake
Shasta County, CA

Source: USGS LANDFIRE

Exhibit F – Bio

Biological Resources Constraints Report for the City of Shasta Lake Fuels Reduction Project, Shasta County, California

Prepared for:

City of Shasta Lake Planning Division
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Shasta Lake, CA 96019
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June 2023

ICF. 2023. *Biological Resources Constraints Report for the City of Shasta Lake Fuels Reduction Project, Shasta County, California.* June. Redding, CA. Prepared for City of Shasta Lake, Planning Division, CA.

Contents

Tables and Figures

Acronyms and Abbreviations

AMM	Avoidance minimization measure
BLM	Bureau of Land Management
BSA	Biological Study Area
CAL FIRE	California Department of Foretery and Fire Protection
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPA	California Native Plant Society
CRPR	California Rare Plant Rank
DBH	Diameter at breast height
FESA	Federal Endangered Species Act
FFRC	Fire Fuel Reduction Coordinator
FR	Federal Register
NWI	National wetland inventory
OHWM	Ordinary High-Water Mark
RWQCB	Regional Water Quality Control Board
SNC	Sensitive natural community
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
USFWS	U.S. Fish and Wildlife Service

Biological Resources Constraints Report

Introduction

ICF was retained by the City of Shasta Lake to conduct a biological constraints analysis to support proposed fuel reduction projects within and adjacent to the city limits. The Project involves the treatment of fuels at eight different areas on public and private lands. This constraints report describes the biological resources and baseline conditions of the Project.

For the purpose of this constraints analysis, the term "biological resources" includes resources that would be considered sensitive and therefore regulated under state and federal laws and regulations. Biological resources include special-status plant, wildlife, and fish species (protected under the Federal Endangered Species Act [FESA], California Endangered Species Act [CESA]); sensitive natural communities (e.g., riparian communities protected under state regulations); waters of the United States (regulated by U.S. Army Corps of Engineers [USACE] under the Clean Water Act); and waters of the State (regulated by California Department of Fish and Wildlife [CDFW] and Regional Water Quality Control Boards [RWQCBs]).

Project Location

The Project is located within and adjacent to the city limits of the City of Shasta Lake, Shasta County, California (Figure 1). Land ownership is predominantly private, with some public lands managed by Bureau of Land Management (BLM) and U.S. Forest Service (USFS).

Table 1. Project Treatment Unit Locations

Treatment Area	Coordinates[1]	USGS Quadrangle	T/R/Sec.	Ownership
L1 (L2, L3)	40.709548°, -122.383025°	Shasta Dam/ Project City	33N/4W/19; 33N/5W/13, 14, 23, 24	Private/USFS
L4 (L5)	40.691932°, -122.396182°	Shasta Dam	33N/5W/26	Private
L6	40.691632°, -122.372779°	Project City	33N/4W/30	BLM
L7	40.688449°, -122.397630°	Shasta Dam	33N/5W/26	Private
L8	40.688766°, -122.393375°	Shasta Dam	33N/5W/26	Private
L9	40.680560°, -122.412075°	Shasta Dam	33N/5W/26, 27, 34, 35	Private/BLM
L10	40.678501°, -122.392151°	Shasta Dam	33N/5W/25, 26, 36	Private
L13 (L11, L12, L14)	40.656233°, -122.374167°	Shasta Dam/ Project City	32N/5W/1; 32N/4W/6, 7	Private

[1]Coordinates – Coordinates provided are for the approximately center point of each treatment area.

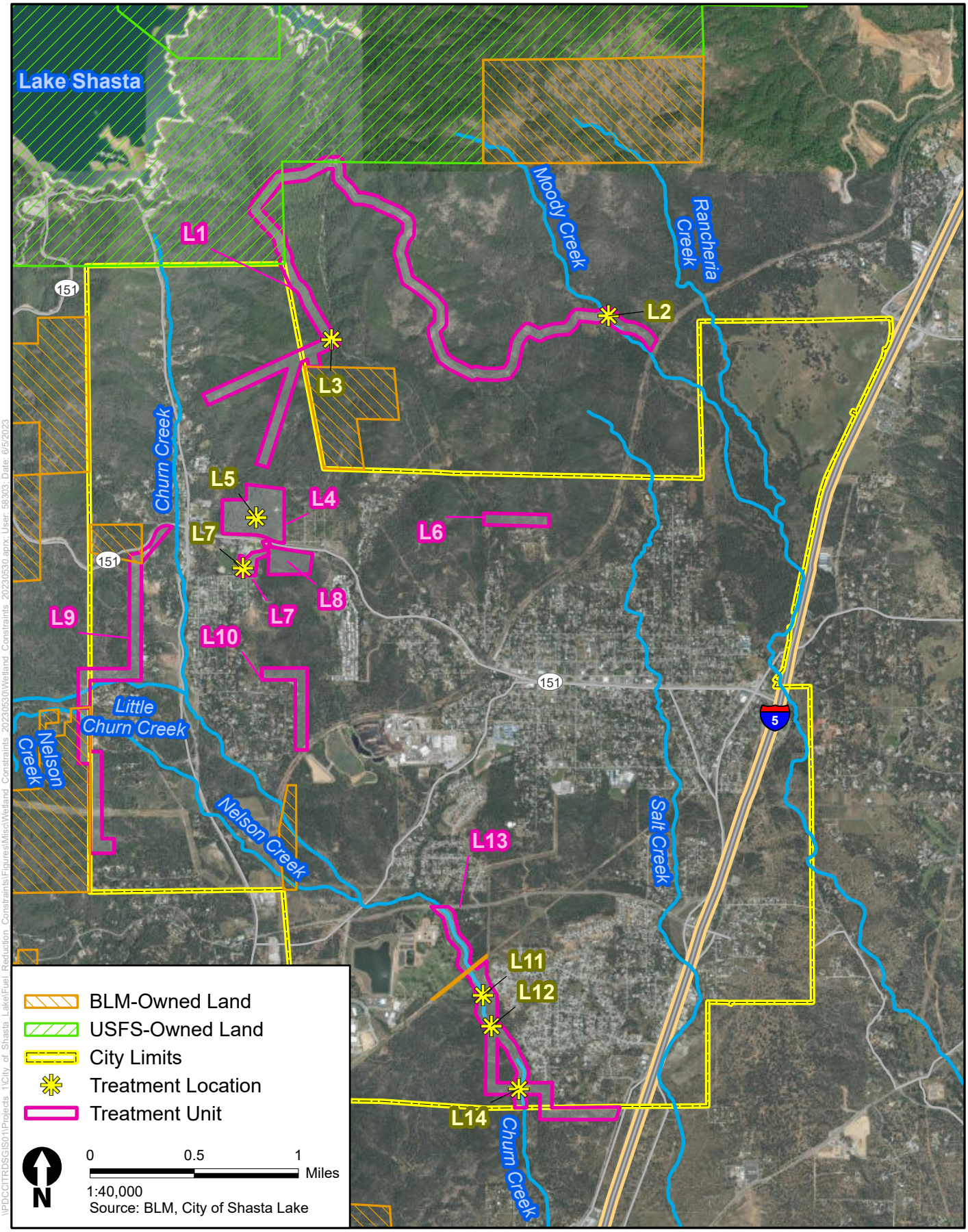

Figure 1
Biological Constraints Analysis
for the City of Shasta Lake Fuels Reduction Projects

Project Description

The proposed Project would remove dead and dying trees, understory shrubs, and heavy accumulations of downed material to reduce hazardous fuel loading. Fuel breaks will be constructed up to 300 feet in width from roadsides, property boundaries, and locations with strategic value to the California Department of Forestry and Fire Protection (Cal Fire) for fire prevention and fighting. Implementation methods will include hand cutting using power saws, piling using ground personnel, burning of piles on-site, and mastication. Mechanical equipment may also be used to remove and pile vegetation. Vegetation to be removed or modified will be standing or fallen dead vegetation, selective thinning of overstocked live shrubs and trees less than 8 inches diameter at breast height (4.5 feet above ground) (DBH) and mowing or weed eating ground fuels.

Material will be gathered into burn piles, at a minimum of 6 feet x 6 feet and a maximum of 20 feet x 20 feet tall x wide, built outside of remaining canopy drip lines, free of dirt or non-organic materials, and covered using paper or plastic. Piles will be burnt on site. Pile burning typically occurs outside of fire season from October to May but may be implemented when environmental conditions or parameters are met. Fuels reduction treatment objectives will achieve 30ft spacing between leave trees 8" DBH or greater post-treatment.

The general process for projects that require mastication is as follows.

1. The location and scale of these projects are determined in coordination with Cal Fire and Shasta Lake Fire Protection District. After concurrence on location, projects are prioritized based on the threat posed to the community. This is determined by considering several factors, such as topography, fuel load (verified by pedestrian surveys), and proximity to structures.

2. Before project work begins, the Shasta Lake Fire Fuel Reduction Coordinator (FFRC) flags the extent of and sensitive habitats within the treatment area.

3. After steps 1 and 2 have been completed, a pre-construction meeting is held where standard operating procedures, such as restricting clearing operations between the hours of 6am and 10am are addressed. During this meeting, the FFRC also verifies there is sufficient fire suppression equipment onsite. Before the mechanical treatment begins, the FFRC notifies Cal Fire and Shasta Lake Fire Protection District that clearing is about to commence. At this time, the FFRC performs a "conditions check" to verify weather, humidity, and fuel moisture levels. If these conditions are not favorable for mechanical treatment, projects will not proceed. Once projects begin, the FFRC, equipped with fire suppression equipment, continuously monitors the operation. At the conclusion of a project, the FFRC performs a final site inspection to ensure all requirements have been met.

4. At the conclusion of a project, the FFRC performs a final site inspection to ensure all project requirements have been met.

Project Setting

Climate

The climate in the region is Mediterranean with hot dry summers and cool wet winters. The nearest long-term weather station that records rainfall and temperature is at Shasta Dam (Western Regional Climate Center 2023). Average annual rainfall is 62 inches, falling mostly as rain, with about 4 inches of snow on average. Rainfall in the southern portions of the project area is likely to be less than rainfall recorded at Shasta Dam. Average maximum temperature is 95 degrees Fahrenheit in July, and average minimum temperature is 39 degrees Fahrenheit in January.

Soils

There are many soil map units in the project area. Most are shallow loamy coarse-textured soils of hillslopes. Along Moody Creek and Churn Creek soils are deeper alluvial soils. None of the soil map unit components are classified as hydric soils and there are no soils derived from serpentinite or limestone (Web Soil Survey 2023).

Vegetation

The dominant vegetation in the project is pine-oak woodland, which covers the mid and upper hillslopes on a variety of aspects. Patches of montane chaparral grow along ridges and south-facing slopes and may also be interspersed with the oak-pine forest. Along larger streams, Churn Creek and Moody Creek, narrow bands of riparian scrub occur. These vegetation types are described in more detail below.

Definitions

The biological resources reviewed in this constraints analysis are special-status animals and plants, sensitive natural communities, and aquatic resources. These resources are defined below.

Special-Status Species

For the purpose of this analysis, *special-status species* are (1) those that are legally protected under FESA, CESA, California Fish and Game Code; and (2) species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status species are defined as follows.

- Species that are listed or proposed for listing as threatened or endangered under FESA (50 Code of Federal Regulations 17.11 [listed animals]; 50 Code of Federal Regulations 17.12 [listed plants]; and various notices in the Federal Register [FR]).
- Species that are candidates for possible future listing as threatened or endangered under FESA.
- Species that are listed or proposed for listing by the State of California as threatened or endangered under CESA (14 California Code of Regulations 670.5).
- Animals listed as California species of special concern (California Department of Fish and Wildlife 2023a).

- Plants listed as rare under the California Native Plant Protection Act (California Fish and Game Commission 1900 et seq.).
- Animals fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], and 5050 [amphibians and reptiles]).
- Plants and animals that meet the criteria for listing, even if not currently included on any list, as described in the California Environmental Quality Act (CEQA) Guidelines Section 15380(b), (c), and (d). Species that may meet this definition include the following.
    - Plants ranked as "rare, threatened, or endangered in California" (California rare plant rank [CRPR] 1B and 2B).
    - Plants and animals that may warrant consideration on the basis of local significance or recent biological information (State CEQA Guidelines 15380[d]), which may include plants rated CRPR 3 (plants about which more information is needed to determine their status) and CRPR 4 (plants of limited distribution).
    - Some plants included on the Special Vascular Plants, Bryophytes, and Lichens List (California Department of Fish and Wildlife 2023b).
    - Some animals included on the Special Animals List (California Department of Fish and Wildlife 2023a).

Sensitive Natural Communities

Some vegetation types are considered *sensitive natural communities* (SNCs) because of their high species diversity, high productivity, unusual nature, limited distribution, and/or declining status. Vegetation types with a State Rank of S3, S2, and S1 are considered sensitive by CDFW (California Department of Fish and Wildlife 2022).

Aquatic Resources

Wetlands and non-wetland waters of the United States consist of the following categories of potential jurisdictional features:

- **Tributary Streams** – Perennial, intermittent, and ephemeral streams are tributaries to the Sacramento River, a traditional navigable water.
    - Perennial streams flow year round.
    - Intermittent streams flow continuously at least seasonally (typically at least 3 months of the year).
    - Ephemeral streams flow for brief periods after storm events.
    - Roadside ditches are constructed features that conduct road runoff after storm events.
- **Clean Water Act Section 404 Wetlands** – The three parameters used to determine the presence of wetlands are (1) hydrophytic vegetation (U.S. Army Corps of Engineers 2020); (2) hydric soils; and (3) wetland hydrology. According to the USACE wetland delineation manual (Environmental Laboratory 1987:10), "…[E]vidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland determination."

Methods

This section describes the methods used to assess baseline conditions in the project area and analyze biological resources that could be affected by the project. Biologists queried resource databases and existing literature and conducted reconnaissance-level field surveys.

Biological Study Area

For the purpose of this study, the biological study area (BSA) includes areas that could be directly and indirectly affected by the Project (Figure 1).

Database Review

The pre-field investigation involved reviewing existing information and querying databases to develop a list of special-status plants, animals, and fish, and other sensitive biological resources that could be affected by the Project.

Biologists reviewed existing information to evaluate which special-status species and other sensitive biological resources that could occur in the BSA. The query assessed all special-status species known to occur within 12-miles of the BSA. The 12-mile buffer was based on the fuel treatment locations and surrounding United States Geological Survey (USGS) 7.5-minute quadrangles. The sources listed below were reviewed to develop lists of special-status species and other sensitive biological resources (e.g., aquatic resources) that could be present in the BSA. Species were included in these lists if they were known to occur in the BSA or if their habitats were present in the BSA. Database search results are in Appendix A.

- California Natural Diversity Database (CNDDB) records search of approximately a 12-mile area around the BSA (California Department of Fish and Wildlife 2023c, b). The USGS 7.5-minute quadrangles searched were Schell Mtn., Bohemotash Mountain, O'Brien, Minnesota Mountain, Whiskeytown, Shasta Dam, Project City, Bella Vista, Palo Cedro, Enterprise, Redding, and Igo.
- California Native Plant Society's (CNPS) 9th Edition *Rare Plant Inventory* query of the Schell Mtn., Bohemotash Mountain, O'Brien, Minnesota Mountain, Whiskeytown, Shasta Dam, Project City, Bella Vista, Palo Cedro, Enterprise, Redding, and Igo USGS 7.5-minute quadrangles (California Native Plant Society 2023).
- The U.S. Fish and Wildlife Service (USFWS) list of endangered and threatened species that may occur in the BSA or be affected by the proposed Project (U.S. Fish and Wildlife Service 2023a).
- Critical habitat defined by FESA and regulated by USFWS or the National Marine Fisheries Service.
- Aerial imagery of the project area (Google Earth 2023).
- National Wetland Inventory (NWI; U.S. Fish and Wildlife Service 2023b): a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of US wetlands, including streams, lakes, and other aquatic resources.

Field Surveys

Reconnaissance Surveys

To determine the suitability of wildlife habitat and potential for special status plants to occur within the BSA, ICF wildlife biologist Bud Widdowson and ICF botanist/wetland ecologist Margaret Widdowson conducted a reconnaissance-level wildlife survey and habitat assessment on May 18, 22, and 24. Where terrain and vegetation allowed, locations that supported unique or sensitive habitat types (e.g. wetlands and streams) were visited. The biologists walked meandering transects to assess habitat suitability and species presence. The biologists also drove portions of the BSA to assess and document potential suitable habitat. Photographs were taken to show representative habitats (Appendix B).

Aquatic Resources

A constraints-level field survey to identify and map potential aquatic resources was also conducted by ICF botanist and wetland ecologist Margaret Widdowson. The intent was to identify and map areas that would likely meet the USACE definition of a wetland and map the extent of non-wetland waters (i.e., streams) to the ordinary high water mark (OHWM) as described in the USACE (2005) Regulatory Guidance Letter No. 05-05 *Ordinary High Water Mark Identification* and as described in the 2023 Waters of the US rule that took effect March 20, 2023 (Environmental Protection Agency 2023). These features likely would be regulated by the USACE, CDFW, and the California RWQCB. Based on direction provided by the City of Shasta Lake, seven locations (treatment location) were assessed for wetlands and non-wetland waters (Figure 1).

Wetlands were identified based on the assessment of the three parameters required to meet the USACE's wetland definition: wetland plants, hydric soils, and wetland hydrology, in accordance with indicators and guidance described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008). The field assessment of wetlands was based on observation of surface features only. Streams were mapped based on visible OHWM characteristics and where access was limited due to dense vegetation, topographic maps were reviewed.

Results

The natural communities and aquatic resources identified in the BSA are described below, followed by a discussion of special-status species known or with potential to occur.

Treatment Units

This section provides a brief overview of natural communities identified during reconnaissance level surveys and aquatic resources in each treatment unit. In general, vegetation over most of the BSA consisted of interior live oak–pine woodland and mixed chaparral. Small bands of riparian scrub grow along the larger streams which include Churn and Moody creeks. These communities are widespread and common in the region, and are not considered to be sensitive natural communities. The riparian vegetation is generally too small to characterize and would be within the equipment

exclusion zones established along streams. The three natural communities identified in the BSA were interior live oak-pine woodland, mixed chapparal, and riparian scrub.

Interior live oak-pine woodland. This is by far the dominant vegetation in the BSA. Interior live oak (*Quercus wislizeni*) dominates the canopy and emergent foothill pine trees (*Pinus sabiniana*) are common throughout. Associated trees include emergent Ponderosa pines (*Pinus ponderosa*) at higher elevations and black oak (*Quercus kelloggii*) on north and east facing slopes. Understory shrubs vary with elevation and aspect. Common shrubs include manzanita (*Arctostaphylos viscida*), California coffeeberry (*Frangula californica*), toyon (*Heteromeles arbutifolia*), snowdrop bush (*Styrax redivivus*), and western redbud (*Cercis occidentalis*).

Mixed Chaparral. Patches of mixed chaparral grow along ridges and south-facing slopes and may also be interspersed with the oak-pine forest; dominant shrubs are manzanitas, especially whiteleaf manzanita (*Arctostaphylos viscida*) and common manzanita (*A. manzanita*), with buckbrush (*Ceanothus cuneatus*), Lemmon's ceanothus (*Ceanothus lemmonii*), and California coffeeberry.

Riparian Scrub. Narrow bands of riparian scrub grow along the larger streams, Churn Creek and Moody Creek, and consist of shrubby willows (sandbar willow [*Salix exigua*] and arroyo willow [*S. lasiolepis*]), with a dense understory of poison-oak (*Toxicodendron diversilobum*) and Himalayan blackberry (*Rubus armeniacus*), with buttonwillow (*Cephalanthus occidentalis*). Scattered riparian trees are present, including white alder (*Alnus rhombifolia*), Pacific willow (*Salix lasiandra*), Fremont cottonwoods (*Populus fremontii*) and valley oak (*Quercus lobata*). Valley oak riparian woodland is considered a sensitive natural community, and would be within the no equipment exclusion zones established along streams.

Unit L1 (L2 and L3)

Unit L1 is north of the City of Shasta Lake and stretches from the railroad tracks northwest to an unnamed intermittent tributary to Churn Creek and curves southeast back toward the northwest portion of city limits. Pine-oak woodland is the dominant vegetation type, with mixed montane chaparral on the ridges to the east and west. In addition to foothill pine, Ponderosa pine occurs as scattered emergent trees. This project unit crosses an unnamed intermittent tributary to Churn Creek at aquatic resource treatment point L3 along Digger Bay Road. Riparian vegetation along the upper reach of this stream consists of a narrow patchy band of arroyo willow scrub and spicebush (*Calycanthus occidentalis*) with dense Himalayan blackberry and poison-oak and scattered white alder. On steeper sheltered slopes, canyon live oak (*Quercus chrysolepis*) occurs in the canopy and the shrub layer is dense and diverse with snowdrop bush, poison-oak, coffeeberry, and western redbud. At the east end, unit L1 intersects the upper reaches of Moody Creek at aquatic resource treatment point L2. The intermittent stream supports a small stand of large valley oak trees, which is considered a sensitive natural community.

Unit L4 (L5)

Treatment unit L4 is located on the north side of Shasta Dam Blvd. and consists of dense oak-pine woodland with a dense understory dominated by toyon, buckbrush, and poison-oak; the woodland is interspersed with patches of mixed chaparral. Part of the unit has been planted with Eucalyptus trees but is reverting to oak-pine woodland. The unit contains a small ephemeral stream at aquatic resource treatment point L5 that arises within the unit – this stream is not mapped in the NWI or on the USGS topo map.

Unit L6

Treatment unit L6 is north of Oliver Street and consists of oak-pine woodland with a more open canopy of interior live oak and abundant emergent foothill pine trees interspersed with small patches of mixed chaparral. National Wetlands Inventory shows a narrow riparian corridor along an unnamed intermittent stream mapped as a blue line stream on the USGS topo map; the stream eventually flows to Salt Creek (U.S. Fish & Wildlife Service 2023b).

Unit L7

This unit is adjacent to Margaret Polf Park and consists of open oak-pine woodland in which the understory has been recently cleared. A large intermittent stream and wetland complex runs through the north and west portion of the unit. Much of the wetland is shrub-scrub wetland dominated by dense Himalayan blackberry and California grape (*Vitis californica*). A smaller area of emergent wetland is located between the scrub-shrub wetland and Sacramento Street and is dominated by perennial ryegrass (*Festuca perennis*) with iris-leaved rush (*Juncus xiphioides*), yampah (*Perideridia* sp.), blue-eyed grass (*Sisyrinchium bellum*).

Unit L8

This small treatment unit west of Margaret Polf Park and south of Shasta Dam Blvd. consists of oak-pine woodland with a dense canopy of interior live oak and abundant emergent foothill pine. There are no mapped aquatic resources in this unit.

Unit L9

Treatment unit L9 runs for about 2 miles on the west side of City of Shasta Lake and is predominantly oak-pine woodland and mixed chaparral with manzanitas (*Arctostaphylos* spp.) and ceanothus/buckbrush (*Ceanothus* spp.). Little Churn Creek and Nelson Creek that are identified as perennial watercourses and are north of Flannigan Road bisect unit L9.

Unit L10

This small unit roughly parallels Ranchera Road in western City of Shasta Lake. It consists of oak-pine woodland with some small patches of chaparral. There is a small seasonal creek or wetland at the south end of unit L10. This aquatic resource is not a mapped feature on the USGS quadrangle, but upon review of aerial imagery, box culverts are visible beneath the railroad tracks to the east of this unit.

Unit L13 (L11, L12 and L14)

Unit L13 runs from Pine Grove Ave to Cascade Blvd in the southern portion of City of Shasta Lake. Much of the unit encompasses Churn Creek which is perennial and includes three aquatic resource treatment points, L11, L12, and L14. Upland habitat consists of oak-pine woodland. Along Churn Creek is a narrow continuous band of riparian scrub dominated by shrubby willows (sandbar willow and arroyo willow), buttonwillow, and dense Himalayan blackberry, with scattered larger trees such as white alder, valley oak, and Pacific willow. In this segment, Churn Creek is a low to moderate gradient perennial stream that averages 20 to 40 feet wide.

Special-Status Species

This section summarizes the potential for special-status wildlife and plant species to occur in the BSA.

Special-Status Wildlife

Based on the database review, 33 special-status wildlife and fish species have been recorded in the project region and were assessed for their potential to occur within or adjacent to the BSA, based on species distribution and habitat requirements (Table 2).

Of the 33 species known to occur in the region, 15 special-status wildlife and fish species were determined to have a low to high potential to occur within or adjacent to the BSA. Table 2 briefly describes the rationale for determining the potential for special status species to occur. The species with a moderate to high potential to occur or those species that have been identified within the BSA are discussed.

Mammals

Pallid Bat is a State species of special concern. Pallid bat tends to inhabit foothills and lowlands near water throughout California below 6,562 feet in elevation. It occurs in a variety of habitats including deserts, grasslands, shrublands, woodlands and forests. It is most common in open, dry habitats with rocky areas for roosting. It is a yearlong resident in most of its range. Day roosts are in caves, crevices in rocky outcrops and cliffs, mines, and occasionally in tree hollows and various human structures such as bridges (especially wooden and concrete girder designs), barns, porches, bat boxes, and human-occupied as well as vacant buildings. Pallid bats prefer roosts with unobstructed exit/entrances, high above ground, with access to open habitats for foraging. They can be found roosting on the ground under stone piles, rags, and baseboards. Night roosts may be in more open sites, such as porches and open buildings. Pallid bat has the potential to occur in the BSA in wooded areas with decadent trees or rocky outcrops.

Amphibians

Foothill Yellow-legged Frog is a State species of special concern. The foothill yellow-legged frog is found in rocky streams and rivers with rocky substrates with open, sunny banks, in woodlands, chaparral, and forests. It is rarely found in isolated ponds, vegetated backwaters, and shaded, spring-fed pools. This species is almost always found near water and is mostly active during daylight. The foothill yellow-legged frog has been documented at several locations within 3 miles of the BSA (California Department of Fish and Wildlife 2023c). They are highly aquatic and have the potential to occur in perennial and intermittent streams that occur in the BSA such as the lower reaches of Churn Creek and Moody Creek.

Shasta Salamander is listed as State threatened. Shasta salamander occurs in moist rocky sites such as around cliff faces, steep cavern walls and level ground in mixed forests of Douglas-fir (*Pseudotsuga menziesii*), pine, and oak. It lives in moist caves and rock crevices, often associated with limestone outcrops. Shasta salamander has been recorded in the BSA near the headwaters of Moody Creek in unit L1 on a sparsely vegetated ridgetop with rock outcrops (California Department of Fish and Wildlife 2023c).

Table 2. Special-Status Fish and Wildlife Species with Potential to Occur in the Biological Study Area

Common Name *Scientific Name*	Status[a] Federal/State	Habitat Requirements	Potential to Occur[b]
Mammals			
Pallid bat *Antrozous pallidus*	-/SSC	Occurs in a wide variety of habitats throughout the southwestern US from interior British Columbia to Mexico. Found in foothills and lowlands near water throughout California below 6,562 feet. Roosts in caves, tree hollows, and artificial structures with unobstructed exit/entrances, high above ground, with access to open habitats for foraging.	Moderate: May occur in suitable habitat in the BSA.
Gray wolf *Canis lupus*	FE/SE	Historically occupied a wide range of habitats throughout North America, including forests, grasslands, deserts and tundra. In California, they are known to occupy public and private forests, rangeland, and agricultural lands in the northern portion of the state.	None: Not known to occur in vicinity of the BSA.
Townsend's big-eared bat *Corynorhinus townsendii*	-/SSC	Primarily roost in caves and cave-like roosting habitat, such as tunnels and mines. Very sensitive to disturbances and may abandon a roost after one on-site visit. Reported to use buildings in the northern and coastal portions of range. Also reported to use bridges and hollow trees as roost sites. In California, occurs in inland deserts, moist cool redwood forests, oak woodlands of the inner Coast Ranges and Sierra Nevada foothills, and low to mid-elevation mixed conifer forests.	Low: One occurrence at Rock Creek 5.5 mile southwest of unit L9.
Spotted bat *Euderma maculatum*	-/SSC	Occurs at a small number of localities in foothills, mountains and desert regions of southern California. Known to roost in rock crevices, caves and buildings. Cliffs provide optimal roosting habitat. Habitats range from arid deserts and grasslands to mixed conifer forests.	None: Not known to occur in vicinity of the BSA.

Common Name ***Scientific Name***	**Status[a]** **Federal/State**	**Habitat Requirements**	**Potential to Occur[b]**
North American wolverine *Gulo gulo luscus*	FPT/ST, SFP	Occurs in Canada and Alaska, with smaller populations in the lower 48 United States in Idaho, Montana and Wyoming. In the northern part of their range, they occur in a wide variety of arctic, subarctic and alpine habitats. In California, uses a variety of montane habitat types over large areas. Susceptible to human disturbance and avoids human activity.	None: Not known to occur in vicinity of the BSA.
Western red bat *Lasiurus frantzii*	-/SSC	Occurs from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest. Roosts in forests and woodlands, and forages in open habitats such as grasslands, shrublands, open woodlands and forests, and croplands. Roosts primarily in foliage of trees in riparian areas, often adjacent to streams, fields, or urban areas. Roosts range from 2–40 feet above the ground in trees that are protected from above and open below.	Low: May occur in suitable habitat in the Project area.
Fisher *Pekania pennanti* (Northern California-Southern Oregon DPS, Northern California ESU)	-/SSC	Requires forests with dense canopy and a complex structure that includes lots of down wood, moderate shrub cover, dead trees, and intermixed hardwood trees. Relies on dens created in large trees, snags, logs, rock piles, and root wads.	Low: One occurrence 0.3 mile north of unit L1 at Digger Bay Road.
Amphibians/Reptiles			
Pacific tailed frog *Ascaphus truei*	-/SSC	Occurs in coastal northern California and inland to Big Bend in Shasta County and north in the Cascade Mountains. Restricted to montane cold, clear, rocky perennial streams in wet forests; tadpoles require water below 15 degrees Celsius.	None: No suitable cold perennial streams present in BSA.

Common Name ***Scientific Name***	**Status[a]** **Federal/State**	**Habitat Requirements**	**Potential to Occur[b]**
Western pond turtle *Emys marmorata*	-/SSC	Occurs from the Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada. Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with some watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests. Overwintering habitat consists of mud in stream and pond bottoms or a variety of upland habitats, including riparian habitat for basking.	Present: Known to occur in ponded or slow-moving streams in the BSA. A recent record of two turtles was reported in an impounded segment of Churn Creek at Avington Way in unit L13.
Shasta salamander *Hydromantes shastae*	-/ST	Endemic to California in a small area in the Cascade Range near Shasta Lake. Occupies rock cracks and moist caves. Mostly associated with limestone outcrops, and other rock formations in forested areas.	Present: Known from one record on rocky ridgetop site with rock outcrops and sparse vegetation in unit L1. Suitable rocky sites are rare in the BSA.
Western spadefoot *Spea hammondii*	-/SSC	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California; west of Sierran-desert range axis. Inhabits shallow streams with riffles and seasonal wetlands, such as vernal and seasonal pools, in annual grasslands and oak woodlands. Majority of life spent underground.	Low: May occur in suitable wetland habitats in the BSA.
Foothill yellow-legged frog *Rana boylii* (Northwest-North Coast Clade, North Coast DPS)	–/SSC	Occurs throughout the North and South Coast Ranges, south to the Transverse Range, across northern California to the west slope of the Cascade Range, and south through the foothills of the Sierra Nevada. Inhabits forest streams and rivers (both perennial and intermittent) with sunny, sandy, and rocky banks, with deep pools, and shallow riffles.	High: May occur in perennial creeks in the BSA.
Birds			

Common Name ***Scientific Name***	**Status[a]** **Federal/State**	**Habitat Requirements**	**Potential to Occur[b]**
Tricolored blackbird *Agelaius tricolor*	-/ST	Permanent resident in the Central Valley from Butte County to Kern County; breeds at scattered coastal locations from Marin County south to San Diego County and at scattered locations in Lake, Sonoma, and Solano Counties. Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grain fields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony. Ideal foraging habitat is composed of low growing, expansive grasslands and other upland habitats with abundant insect prey.	None: No suitable nesting or foraging habitat in the BSA.
Yellow-billed cuckoo *Coccyzus americanus*	FT/SE	A neotropical migrant that winters in South America. Breeds primarily in riparian woodlands with mature broadleaf trees and shrubs that are in patches of 50 acres or more. In California, occupies gallery riparian forest with dense cover and water nearby, including woodlands with low, scrubby, vegetation, overgrown orchards, abandoned farmland and dense thickets along streams and marshes.	None: No suitable nesting or foraging habitat in the BSA.
Bald eagle *Haliaeetus leucocephalus*	-/SE, SFP	Breeding mostly in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity Counties. Large wintering population in Klamath Basin and select locations in Southern California. Associated with aquatic habitats (coastal areas, rivers, lakes, reservoirs). Uses large bodies of water or flowing rivers with adjacent snags and perches for foraging. Nests in large trees with open branch work near permanent water source.	Moderate: Marginal suitable nesting habitat on ridges of unit L1 and no suitable foraging habitat in the BSA. Nearest record from south Shasta Lake one mile north of unit L1.

Common Name ***Scientific Name***	**Status[a]** **Federal/State**	**Habitat Requirements**	**Potential to Occur[b]**
Yellow-breasted chat *Icteria virens*	–/SSC	Nests and forages in riparian thickets of willow and other brushy tangles near water and thick understory in riparian woodland. Breeding range includes the northern Sacramento Valley, Cascade Range, Sierra Nevada foothills, northwestern California, most of the Coast Ranges, the Colorado River, and other scattered sites. Migrates south of California in fall/winter.	Present: Riparian habitat along Churn Creek provides suitable nesting and foraging habitat. Heard during 2023 reconnaissance surveys.
Purple martin *Progne subis*	-/SSC	Occur throughout temperate North America. Breed in open areas across eastern North America, and some locations of the west coast from British Columbia to Mexico. Nest in cavities, either natural or artificial. California purple martins nest mainly in natural cavities in trees and in highway overpasses in the Sacramento area.	None: Known to nest in the Pit Arm of Lake Shasta but no records near the BSA.
Bank swallow *Riparia riparia*	-/ST	Breeds primarily in lowland areas along ocean coasts, rivers, streams, lakes, reservoirs, and wetlands. Nests in vertical banks, cliffs, and bluffs in alluvial, friable soils. Also nests in artificial sites such as sand and gravel quarries and road cuts. Foraging habitats surrounding nesting colony include wetlands, open water, grasslands, riparian woodlands, agricultural areas, shrublands, and occasionally upland woodlands. Tends to avoid dense forests and woodlands, deserts, montane areas, and alpine areas because of paucity of suitable nesting habitat.	None: No suitable nesting or foraging habitat in the BSA.
Yellow warbler *Setophaga petechia*	–/SSC	Nests and forages in early successional riparian habitats. Range includes coastal and northern California and the Sierra Nevada below approximately 7,000 feet; mostly extirpated from the southern Sacramento and San Joaquin Valleys.	Moderate: Riparian habitat in the BSA along Churn Creek in unit L13 provides suitable nesting and foraging habitat.

Common Name ***Scientific Name***	**Status[a]** **Federal/State**	**Habitat Requirements**	**Potential to Occur[b]**
Peregrine falcon *Falco peregrinus*	–/SFP	Occurs in a variety of open habitat types. Nest site is typically on cliff ledge, although rarely in hollow of broken tree snag or in old stick nest of other large bird. Also uses ledges of buildings, bridges, other structures. Some sites may be used year after year.	None: No suitable nesting sites in the BSA.
Northern spotted owl *Strix occidentalis caurina*	FT/ST	Occurs in coniferous, hardwood, and mixed forests with complex, multi-layered structure, large-diameter trees, and high-canopy closure. Ranges from southwestern British Columbia, through Washington and Oregon, and into northern California.	None: No suitable habitat in the BSA.
Invertebrates			
Conservancy fairy shrimp *Branchinecta conservatio*	FE/–	Found in large vernal pools with moderate turbidity. Known from eight populations in Butte, Yolo, Tehama, Glenn, Stanislaus, Merced, and Ventura Counties.	None: The BSA is outside species known range.
Vernal pool fairy shrimp *B. lynchi*	FT/–	Occurs in the Central Valley, central and south Coast Ranges from Tehama County south to Santa Barbara County. Inhabits vernal pools and also found in sandstone rock outcrop pools.	None: No suitable habitat in the BSA.
Monarch butterfly *Danaus plexippus* (California overwintering population)	FC/–	Adults migrate from August–October, and winter along the California coast and in central Mexico. Open habitats including fields, meadows, weedy areas, marshes, and roadsides. Monarch butterflies roost in wind-protected tree groves (such as eucalyptus) with nectar and water sources nearby. Caterpillar host plants are milkweeds.	Low: Does not overwinter in vicinity of the BSA. Nectar sources are present throughout the BSA and milkweed species were observed during the field surveys.

Common Name ***Scientific Name***	**Status[a]** **Federal/State**	**Habitat Requirements**	**Potential to Occur[b]**
Valley Elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT/–	Current range extends throughout the Central Valley; range extends from approximately Shasta County south to Fresno County including valley floor and lower foothills. Majority of occurrences are below 500 feet in elevation (U.S. Fish and Wildlife Service 2017). Elderberry shrubs (*Sambucus* sp.) are the host plant. Elderberry shrubs occur in riparian (valley-foothill forest habitat) and non-riparian (valley oak and blue oak woodland and annual grassland) vegetative communities. USFWS recognizes habitat for VELB as including both riparian and non-riparian areas where elderberry shrubs are present (U.S. Fish and Wildlife Service 2017).	Low: The lowest elevation (approx. 650 ft) occurs along Churn Creek and is slightly higher than the majority of known occurrences. No elderberry shrubs observed during reconnaissance-level field surveys. USFWS considers the current range to extend slightly north of Pine Grove Ave which encompasses unit L13 along Churn Creek (U.S. Fish and Wildlife Service 2021).
Vernal pool tadpole shrimp *Lepidurus packardi*	FE/–	Occurs from Shasta County south to Merced County. Endemic to Oregon and California. Inhabits vernal pools and seasonal stock ponds.	None: No suitable habitat in the BSA.
Shasta crayfish *Pacifastacus fortis*	FE/SE	Endemic to Shasta County, where it is found only in isolated spots on the Pit River and Fall River Mills. Prefers clear, spring-fed lakes, streams, and rivers. Usually congregates near spring flows where the water remains cool.	None: BSA outside species known range and lacks suitable habitat.
Shasta chaparral *Trilobopsis roperi*	–/–	An endemic species of Shasta County. Found within 100 meters of lightly to deeply shaded limestone rockslides, draws, or caves with a cover of shrubs or oak.	Present: Known from one record in unit L1 on ridgetop rocky site with rock outcrops & sparse vegetation.
Fish			
Green sturgeon southern DPS *Acipenser medirostris*	FT/SSC	Spawns and rears in upper Sacramento river. Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	None: Not known to occur in the BSA and suitable habitat is not present.
Pacific lamprey *Entosphenus tridentatus*	–/SSC	Occurs in creeks and tributaries in a wide variety of habitats. Requires cold, clean water and gravel for spawning, with slower water velocity areas such as backwaters.	None: No suitable habitat in the BSA.

Common Name ***Scientific Name***	**Status[a]** **Federal/State**	**Habitat Requirements**	**Potential to Occur[b]**
Steelhead – Central Valley DPS *Oncorhynchus mykiss irideus*	FT/–	Found in cool, clear, fast-moving perennial streams with riffles, pools, and dense riparian cover.	High: Likely to occur in Churn Creek during high winter flows. May also occur in Moody Creek, Little Churn Creek and Nelson Creek. The lower reach of Churn Creek south of Hwy. 299 is designated critical habitat, which is outside the BSA.
Chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha*	FT/ST	Requires cold, clean water and gravel for spawning and rearing, with cover for velocity and predator refuge.	None: Known to occur in the Sacramento River and a few tributaries. Water temperatures in Churn Creek are too warm to support over-summering chinook salmon.
Chinook salmon – Sacramento River winter-run ESU *O. tshawytscha*	FE/SE	Requires cold, clean water and gravel for spawning and rearing, with cover for velocity and predator refuge.	None: Only known to spawn and occur in the Sacramento River.

[a] Status explanations:

Federal: U.S. Fish and Wildlife Service

FE = Federally endangered.
FT = Federally threatened.
FC = Candidate for Federal listing
FPT = Federally proposed threatened

State: California Department of Fish and Wildlife

SE = State endangered.
ST = State threatened.
SSC = State species of special concern.
SFP = State fully protected.

[b] **Potential to occur explanations:**

High: Suitable habitat and microhabitat is present and of good quality.
Moderate: Suitable habitat is present in the BSA, but is of medium to low quality.
Low: Suitable habitat is present but is marginally suitable
None: Suitable habitat is not present.

Reptiles

Western Pond Turtle is a State species of special concern. Western pond turtles occur in ponds, marshes, and ponded segments and slow-moving portions of perennial streams (California Department of Fish and Wildlife 2023c). There is a recent CNDDB record of two western pond turtles observed in a ponded segment of Churn Creek west of Avington Way in unit L13. A small pond formed by an impoundment of an unnamed stream located about 470 feet from unit L6 was also identified as suitable aquatic habitat for western pond turtle.

Birds

Bald Eagle is State endangered and State fully protected. They nest in large emergent trees and snags near coastlines, rivers, and large lakes where there is an adequate food supply. Bald eagles forage on rivers and lakes for fish and waterfowl. Bald eagles nest at numerous locations around Lake Shasta (California Department of Fish and Wildlife 2023c). There is some marginal suitable nesting habitat in large ridge-top trees in the BSA, but no foraging habitat. The nearest known nesting record is from south Shasta Lake one mile north of unit L1 (California Department of Fish and Wildlife 2023c).

Yellow Warbler and Yellow-breasted Chat are both State species of special concern. These migratory birds occupy riparian scrub and riparian woodland habitat types, dense thickets, and shrubs along streams. Yellow-breasted chat is present within the BSA and was encountered along Churn Creek in unit L13 during the reconnaissance-level field surveys. Yellow warbler has the potential to occur in riparian habitat along streams in the BSA.

Invertebrates

Shasta Chaparral is included on the Special Animals List (California Department of Fish and Wildlife 2023a) and has a State Rank of S1 (is rare and therefore meets the criteria for listing). This small snail is endemic to Shasta County. It is typically found within 100 meters of lightly to deeply shaded limestone rockslides, draws, or caves with some shrub cover. It is known to occur in the BSA from one record in unit L1 on a sparsely vegetated ridgetop with bedrock ledges and slopes. (California Department of Fish and Wildlife 2023c).

Fish

Steelhead – Central Valley DPS is federally threatened. Steelhead adults spawn in fresh water and spend a part of their life history at sea. Steelhead adults may spawn more than once during their life. Typically, steelhead rear in freshwater streams for 2 years, followed by up to 2 or 3 years of residency in the ocean before returning to their natal stream to spawn as 4- or 5-year olds. Steelhead enter fresh water as mature adults and spawn shortly after river entry.

Spawning and initial rearing of juvenile steelhead generally takes place in small, moderate-gradient streams with water temperatures between 39 and 49 degrees Fahrenheit with a minimum depth of 7 inches and water velocity of 1 to 3 cubic feet per second. The gravel must be clean, and the size is usually ¼ to 4 inches. Cover in various forms is needed during spawning to reduce disturbance and predation. Eggs hatch in 35 to 50 days and, after 2 to 3 weeks, alevins emerge from the gravel and begin active feeding along shallow water stream banks. Juvenile steelhead occupy variable habitats and depths. Preferred water temperatures range from 54 to 59 degrees Fahrenheit. Primary food

sources include aquatic and terrestrial insects and sometimes emerging fry. Freshwater rearing generally is for 2 years but can be up to 4 years. Steelhead usually smolt at about 6–8 inches in length before migrating to the ocean.

Within the BSA, the reach of Churn Creek in unit L13, Little Churn Creek and Nelson Creek in unit L9, and Moody Creek in unit L1provide suitable habitat during winter months when water flows are high.

Other Special-Status and Non-Special-Status Migratory Birds and Raptors

Many non-special-status migratory birds could nest in and adjacent to the BSA, based on the presence of suitable nesting habitat in shrubs and trees, including riparian habitats. The breeding season for most birds is generally from February 16 to August 15. The occupied nests and eggs of these birds are protected by federal and state laws, including the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503 and 3503.5.

Special-Status Plants

The pre-field investigation identified 23 special-status plant species known to occur within 12 miles of the BSA (Table 3). Based on a review of the literature, existing conditions, habitat requirements, and distribution, 2 special-status plant species were identified as having the potential to occur in the BSA. Table 3 outlines the rationale for determining the potential for special-status plant species to occur in the BSA. The two species identified as having the potential to occur included oval-leaved viburnum (*Viburnum ellipticum*) and Redding checkerbloom (*Sidalcea celata*).

Oval-leaved viburnum has a CRPR of 2B.3, meaning it is rare in California but more common in other states. It is a deciduous shrub that produces bunches of white flowers in May and June followed by small dark blue fruit. It grows in chaparral, oak woodland, and lower montane coniferous forest, usually on north-facing slopes at elevations between 700 feet and 4,600 feet. In Shasta County, it is known from several scattered occurrences around the county. There is abundant suitable habitat for this species in the proposed treatment units.

Redding checkerbloom has a CRPR of 3, meaning it appears to be rare, but more information is needed to evaluate its taxonomic status, in this case, because there are several similar checkerbloom species that are difficult to distinguish. It is a perennial herb that grows in oak woodland, often in grassy openings and under light canopy cover, from 445 to 5,000 feet in elevation. It flowers from April through August. The nearest known occurrence is adjacent to Pine Grove Ave north of treatment unit L13. Suitable habitat for this species is scattered throughout many of the treatment units. As a plant of lighter canopy and small openings, the project may benefit this plant by opening the canopy and clearing dense shrubs.

Table 3. Special-Status Plant Species Known to Occur within 12 Miles of the Biological Study Area

Scientific Name Common Name	Status[a] Federal/ State/CRPR	Habitat Requirements	Blooming Period	Potential to Occur in the BSA[b]
Ahart's paronychia *Paronychia ahartii*	–/–/1B.1	Shallow soils in cismontane woodland, valley and foothill grassland, vernal pools; 100–1675 feet	Feb-Jun	None: no suitable habitat present.
Bellinger's meadowfoam *Limnanthes floccosa* ssp. *bellingeriana*	–/–/1B.2	Mesic sites in oak woodland, meadows and seeps; 950–3610 feet	Apr-Jun	None: no suitable habitat present.
Big-scale balsamroot *Balsamorhiza macrolepis*	–/–/1B.1	Sometimes on serpentine soils in chaparral, cismontane woodland, valley and foothill grassland; 150–5100 feet	Mar-Jun	None: no suitable habitat present.
Blushing wild buckwheat *Eriogonum ursinum* var. *erubescens*	–/–/1B.3	Rocky, scree, or talus slopes in lower montane coniferous forest and montane chaparral; 2460–6235 feet	Jun-Sep	None: occurs at higher elevations, no suitable habitat present.
Boggs Lake hedge-hyssop *Gratiola heterosepala*	–/SE/1B.2	Clay soils in shallow water, lake margins of swamps and marshes, vernal pool margins; 35–7790 feet	Apr-Aug	None: no suitable aquatic habitat present.
Cantelow's lewisia *Lewisia cantelovii*	–/–/1B.2	In moist areas on granitic or sometimes serpentinite seeps in chaparral, cismontane woodland, broadleaved upland forest, lower montane coniferous forest; 1085-4495 feet	May–Oct	None: no suitable habitat present.
Canyon Creek stonecrop *Sedum paradisum* ssp. *paradisum*	–/–/1B.3	Granitic rocky sites in broadleafed upland forest, chaparral, lower montane coniferous forest, subalpine coniferous forest; 985–6235 feet	May-Jun	None: no suitable rocky substrates present.
Hairy marsh hedge-nettle *Stachys pilosa*	–/–/2B.3	Meadows and seeps, mesic sites in Great Basin scrub; 3935-5805 feet	Jun-Aug	None: occurs at higher elevations.
Legenere *Legenere limosa*	–/–/1B.1	Deep, seasonally wet habitats such as vernal pools, ditches, marsh edges, and riverbanks; 5–2885 feet	Apr-Jun	None: no suitable aquatic habitat present.
Maverick clover, Piorkowski's clover *Trifolium piorkowskii*	–/–/1B.2	Openings on clay or volcanic soils in chaparral, oak woodland, lower montane coniferous forest, mesic sites in grasslands, vernal pools, often on streambanks; 525-2230 feet	Apr-May	None: no suitable habitat, outside known range of the species.

Scientific Name Common Name	Status[a] Federal/ State/CRPR	Habitat Requirements	Blooming Period	Potential to Occur in the BSA[b]
Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	–/–/2B.2	Shallow freshwater, marshes and swamps; in Shasta County known only from two collection on the north and east side of Whiskeytown NRA; 1201-7125 feet	(Jun)Jul-Sep	None: no suitable aquatic habitat above 1,200 feet in BSA.
Oval-leaved viburnum *Viburnum ellipticum*	–/–/2B.3	Chaparral, oak woodland, lower montane coniferous forest; 705–4595 feet	May-Jun	Moderate: known to occur in region, small amount of suitable habitat present.
Red Bluff dwarf rush *Juncus leiospermus* var. *leiospermus*	–/–/1B.1	Seasonally wet areas in chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; 115–4100 feet	Mar–Jun	None: no suitable habitat present.
Redding checkerbloom *Sidalcea celata*	–/–/3	Oak woodlands, grassy openings; 445 - 5005 feet	Apr-Aug	High: known to occur near Pine Grove Ave north of Churn Creek.
Sanford's arrowhead *Sagittaria sanfordii*	–/–/1B.2	Freshwater marsh, sloughs, canals, and other slow-moving water habitats; below 2135 feet	May-Oct(Nov)	None: only known from one occurrence in Shasta County.
Shasta ageratina *Ageratina shastensis*	–/–/1B.2	On carbonate rock in chaparral, lower montane coniferous; forest; 1310–5905 feet	Jun-Oct	None: no carbonate rock in project area.
Shasta fawn lily *Erythronium shastense*	–/–/1B.2	Rocky sites, usually on limestone, in oak woodland and lower montane coniferous forest; 1150–3345 feet	(Feb) Mar-Apr	None: no carbonate rock in project area.
Shasta huckleberry *Vaccinium shastense* ssp. *shastense*	–/–/1B.3	On highly acidic moist soils in disturbed areas roadsides, rocky sites, sometimes in seeps and streambanks in chaparral, oak woodland, lower montane coniferous forest, riparian forest, subalpine coniferous forest; 1065–4005 feet	(Jun-Sep) Dec-May	None: no suitable habitat present.
Shasta limestone monkeyflower *Erythranthe taylorii*	–/–/1B.1	Rocky open sites on carbonate in oak woodland and lower montane coniferous forest; 1165–3215 feet	(Feb) Apr-May	None: no carbonate rock in project area.
Shasta snow-wreath *Neviusia cliftonii*	–/SCT/1B.2	Confined to the vicinity of Shasta Lake, usually on limestone, sometimes on volcanic substrates in oak woodland, lower montane coniferous forest, riparian woodland, often along streambanks; 985–1935 feet	Apr-Jun	None: BSA is outside known range of the species, which is around Shasta Lake at Packers Bay area and east of I5.

Scientific Name Common Name	Status[a] Federal/ State/CRPR	Habitat Requirements	Blooming Period	Potential to Occur in the BSA[b]
Silky cryptantha *Cryptantha crinita*	–/–/1B.2	Gravelly streambeds in oak woodland, lower montane coniferous forest, riparian forest and woodland, and valley and foothill grassland; 200–3985 feet	Apr-May	None: no suitable gravelly substrates in project area.
Slender Orcutt grass *Orcuttia tenuis*	FT/SE/1B.1	Vernal pools; 115–5775 feet	May-Sep(Oct)	None: no vernal pools present.
Sulphur Creek brodiaea *Brodiaea matsonii*	–/–/1B.1	Streambanks in oak woodland, meadows and seeps, known only from Sulphur Creek west of Redding; 640-720 feet	May-Jun	None: range restricted; known only from Sulphur Creek, Shasta County.

[a] Status explanations:

Federal

FT = Listed as threatened under the federal Endangered Species Act.
– = No listing status.

State

SE = Listed as endangered under the California Endangered Species Act.
SCT= Candidate for listing as threatened under the California Endangered Species Act
– = No listing status.

California Rare Plant Rank (CRPR)

1B = rare, threatened, or endangered in California and elsewhere.
2B = rare, threatened, or endangered in California but more common elsewhere.
3 = plants for which more information is needed: a review list.
.1 = Seriously endangered in California (more than 80% of occurrences threatened / high degree and immediacy of threat).
.2 = Moderately threatened in California (20–80% occurrences threatened / moderate degree and immediacy of threat).
.3 = Not very threatened in California (less than 20% of occurrences threatened / low degree and immediacy of threat or no current threats known).

[b] **Potential to occur explanations:**

High: Suitable habitat and microhabitat is present and of good quality.
Moderate: Suitable habitat is present in the BSA, but is of medium to low quality and suitable microhabitat may not be present.
None: Suitable habitat is not present in any condition.

Aquatic Resources

Treatment locations where aquatic resources were mapped included locations L2, L3, L5, L7, L11, L12, and L14 (Figure 1). The aquatic features are tabulated by treatment unit and aquatic feature type in Table 4 and shown on maps in Appendix C.

Table 4. Aquatic Resources Mapped in Treatment Units L1, L4, L7, and L13.

Feature Type and Name	Feature size	Cowardin Type[a]
Treatment Unit L1		
Seasonal wetland	0.018 acre	PEM2
Intermittent stream	1,753 linear feet	R4SB
Ephemeral stream	91 linear feet	R4SB
Treatment Unit L4		
Seasonal wetland	0.034 acre	PEM2
Ephemeral stream	619 linear feet	R4SB
Treatment Unit L7		
Scrub-shrub wetland	1.149 acres	PSS1
Seasonal wetland	0.003 acre	PEM2
Emergent wetland	0.299 acre	PEM1
Intermittent stream	806 linear feet	R4SB
Road-side swale	297 linear feet	PEM1
Treatment Unit L13		
Seasonal wetland	0.034 acre	PEM1
Ephemeral overflow channel	347 linear feet	R4SB
Ephemeral stream	456 linear feet	R4SB
Ephemeral stream/swale	305 linear feet	R4SB/PEM1
Intermittent stream	318 linear feet	R4SB
Perennial stream	4,036 linear feet	R2UB1
Swale	261 linear feet	PEM2

[a]Cowardin types (Cowardin et al. 1979) are:
PEM1 = Palustrine, emergent wetland, persistent.
PEM2 = Palustrine, emergent wetland, Nonpersistent.
PSS1 = Palustrine, scrub-shrub, broad-leaved deciduous
R4SB = Riverine, intermittent, streambed
R2UB1 =Riverine, lower perennial, unconsolidated bottom, cobble-gravel

Avoidance and Minimization Measures

To ensure the project avoids/minimizes impacts to special status terrestrial and aquatic fish and wildlife species and other natural resources, the following avoidance and minimization measures (AMMs) are recommended:

1. Construction personnel will attend environmental awareness training prior to the start of construction activities. The training will include a discussion about sensitive-species and habitat descriptions, AMMs to be adhered too, and permit requirements/conditions to be implemented during work activities.
2. If project activities occur during the nesting bird season (February 15–August 31), a nesting bird survey will be performed within 1 weeks of the start of construction. The nest survey will be conducted within 300 feet of the treatment unit for raptors and a 75-foot radius for all other bird species. If treatment units cannot be adequately surveyed because of dense vegetation or steep terrain and if a nest is encountered during operations then a biologist will be contacted and an appropriate avoidance buffer will be established around the nest(s) location.
3. All construction personnel will visually check for wildlife beneath vehicles and equipment before moving or operating them.
4. Equipment service and refueling procedures will be conducted a minimum of 100 feet from wetlands, streams, and other aquatic resources.
5. In the event of a chemical spill, all applicable hazardous waste best management practices (BMPs) shall be implemented as well as applicable laws and regulations followed. Appropriate containment and cleanup materials will be on-site to prevent and manage spills.
6. To protect wetlands, a 50-foot protection zone will be established and equipment will be excluded and not operate within this protection zone.
7. As described by the California Forest Practices Rules (California Department of Forestry and Fire Protection 2022), protection zones will be established around Class I-IV streams:

Watercourse Class	Protective Width	Slope
Class I	75 feet	< 30%
	100 feet	30-50%
	150 feet	> 50%
Class II	50 feet	< 30%
	75 feet	30-50%
	100 feet	> 50%
Classes III and IV	25 feet	< 30%
	50 feet	≥ 30%

8. Erosion, sediment, and material stockpile BMPs will be employed between treatment units and adjacent wetlands or watercourses. Treatment units will be properly contained to prevent the fill of or runoff into adjacent wetlands or watercourses.
9. All trash and waste items generated by construction activities will be properly contained and removed from the project site.
10. All resource agency permit conditions shall be implemented and maintained for the duration of the project.

11. If elderberry shrubs are identified during operations in unit L13, flagging will be installed a minimum of 20 feet from the shrub's dripline. Heavy equipment will be excluded from flagged areas (U.S. Fish and Wildlife Service 2017).
12. All vehicles and equipment used off paved roads will be thoroughly cleaned of all dirt and vegetation prior to entering each treatment unit to prevent importing invasive non-native species. Several invasive plant species were observed in the treatment units during field surveys, including French broom (*Genista monspessulana*), yellow star-thistle (*Centaurea solstitialis*), periwinkle (*Vinca major*), red sesbania (*Sesbania punicea*), Chinese tallow (*Triadaca sebifera*), and Himlalayan blackberry (*Rubus armeniacus*).
13. To protect suitable habitat for the Shasta salamander and Shasta chaparral, an equipment exclusion zone of 50 feet will be established around the rock outcrop in treatment unit L1 at approximate coordinates 40.711876°, -122.382637°. A similar exclusion zone will be established around rock outcrops identified in other treatment units. Vegetation will be left intact and woodchips will not be broadcast onto rock outcrops.

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Appendix A

Database Query Results

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Igo (4012255) OR Redding (4012254) OR Enterprise (4012253) OR Palo Cedro (4012252) OR Bella Vista (4012262) OR Project City (4012263) OR Shasta Dam (4012264) OR Whiskeytown (4012265) OR Schell Mtn. (4012275) OR Bohemotash Mtn. (4012274) OR O'Brien (4012273) OR Minnesota Mtn. (4012272))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects OR Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Ahart's paronychia *Paronychia ahartii*	PDCAR0L0V0	None	None	G3	S3	1B.1
American bumble bee *Bombus pensylvanicus*	IIHYM24260	None	None	G3G4	S2	
American peregrine falcon *Falco peregrinus anatum*	ABNKD06071	Delisted	Delisted	G4T4	S3S4	FP
Antioch Dunes anthicid beetle *Anthicus antiochensis*	IICOL49020	None	None	G3	S3	
bald eagle *Haliaeetus leucocephalus*	ABNKC10010	Delisted	Endangered	G5	S3	FP
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S3	
Bellinger's meadowfoam *Limnanthes floccosa ssp. bellingeriana*	PDLIM02041	None	None	G4T3	S1	1B.2
big-scale balsamroot *Balsamorhiza macrolepis*	PDAST11061	None	None	G2	S2	1B.2
blushing wild buckwheat *Eriogonum ursinum var. erubescens*	PDPGN08632	None	None	G3G4T3	S3	1B.3
Boggs Lake hedge-hyssop *Gratiola heterosepala*	PDSCR0R060	None	Endangered	G2	S2	1B.2
Butte County fritillary *Fritillaria eastwoodiae*	PMLIL0V060	None	None	G3Q	S3	3.2
California linderiella *Linderiella occidentalis*	ICBRA06010	None	None	G2G3	S2S3	
Cantelow's lewisia *Lewisia cantelovii*	PDPOR04020	None	None	G3	S3	1B.2
Canyon Creek stonecrop *Sedum paradisum ssp. paradisum*	PDCRA0A0U3	None	None	G3G4T3	S3	1B.3
chinook salmon - Central Valley spring-run ESU *Oncorhynchus tshawytscha pop. 11*	AFCHA0205L	Threatened	Threatened	G5T2Q	S2	
chinook salmon - Sacramento River winter-run ESU *Oncorhynchus tshawytscha pop. 7*	AFCHA0205B	Endangered	Endangered	G5T1Q	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
dubious pea *Lathyrus sulphureus var. argillaceus*	PDFAB25101	None	None	G5T1T2Q	S1S2	3
English Peak greenbrier *Smilax jamesii*	PMSMI010D0	None	None	G3G4	S3S4	4.2
Fisher *Pekania pennanti*	AMAJF01020	None	None	G5	S2S3	SSC
foothill yellow-legged frog - north coast DPS *Rana boylii pop. 1*	AAABH01051	None	None	G3T4	S4	SSC
great egret *Ardea alba*	ABNGA04040	None	None	G5	S4	
green sturgeon - southern DPS *Acipenser medirostris pop. 1*	AFCAA01031	Threatened	None	G2T1	S1	
hairy marsh hedge-nettle *Stachys pilosa*	PDLAM1X1A0	None	None	G5	S3	2B.3
Henderson's bent grass *Agrostis hendersonii*	PMPOA040K0	None	None	G2Q	S2	3.2
Klamath sideband *Monadenia churchi*	IMGASC7010	None	None	G2G3	S3	
kneecap lanx *Lanx patelloides*	IMGASL7030	None	None	G2?	S2	
legenere *Legenere limosa*	PDCAM0C010	None	None	G2	S2	1B.1
long-eared myotis *Myotis evotis*	AMACC01070	None	None	G5	S3	
maverick clover *Trifolium piorkowskii*	PDFAB40410	None	None	G2	S2	1B.2
North American porcupine *Erethizon dorsatum*	AMAFJ01010	None	None	G5	S3	
northern clarkia *Clarkia borealis ssp. borealis*	PDONA05062	None	None	G3T4	S4	4.3
Nuttall's ribbon-leaved pondweed *Potamogeton epihydrus*	PMPOT03080	None	None	G5	S2S3	2B.2
Oregon shoulderband *Helminthoglypta hertleini*	IMGASC2280	None	None	G3Q	S1S2	
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S4	WL
oval-leaved viburnum *Viburnum ellipticum*	PDCPR07080	None	None	G4G5	S3?	2B.3
Pacific lamprey *Entosphenus tridentatus*	AFBAA02100	None	None	G4	S3	SSC
Pacific tailed frog *Ascaphus truei*	AAABA01010	None	None	G4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G4	S3	SSC
purple martin *Progne subis*	ABPAU01010	None	None	G5	S3	SSC
Red Bluff dwarf rush *Juncus leiospermus var. leiospermus*	PMJUN011L2	None	None	G2T2	S2	1B.1
Sacramento anthicid beetle *Anthicus sacramento*	IICOL49010	None	None	G4	S4	
Sanford's arrowhead *Sagittaria sanfordii*	PMALI040Q0	None	None	G3	S3	1B.2
Shasta ageratina *Ageratina shastensis*	PDASTBX0R0	None	None	G3	S3	1B.2
Shasta chaparral *Trilobopsis roperi*	IMGASA2030	None	None	G2	S1	
Shasta fawn lily *Erythronium shastense*	PMLIL0U0V0	None	None	G2	S2	1B.2
Shasta hesperian *Vespericola shasta*	IMGASA4070	None	None	G3	S3	
Shasta huckleberry *Vaccinium shastense ssp. shastense*	PDERI181Z1	None	None	G4T3	S3	1B.3
Shasta limestone monkeyflower *Erythranthe taylorii*	PDPHR01080	None	None	G2	S2	1B.1
Shasta salamander *Hydromantes shastae*	AAAAD09030	None	Threatened	G3	S3	
Shasta sideband *Monadenia troglodytes troglodytes*	IMGASC7091	None	None	G1G2T1T2	S2	
Shasta snow-wreath *Neviusia cliftonii*	PDROS14020	None	Candidate Endangered	G2	S2	1B.2
silky cryptantha *Cryptantha crinita*	PDBOR0A0Q0	None	None	G2	S2	1B.2
silver-haired bat *Lasionycteris noctivagans*	AMACC02010	None	None	G3G4	S3S4	
slender Orcutt grass *Orcuttia tenuis*	PMPOA4G050	Threatened	Endangered	G2	S2	1B.1
slender silver moss *Anomobryum julaceum*	NBMUS80010	None	None	G5?	S2	4.2
spotted bat *Euderma maculatum*	AMACC07010	None	None	G4	S3	SSC
steelhead - Central Valley DPS *Oncorhynchus mykiss irideus pop. 11*	AFCHA0209K	Threatened	None	G5T2Q	S2	
Sulphur Creek brodiaea *Brodiaea matsonii*	PMLIL0C0H0	None	None	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Townsend's big-eared bat *Corynorhinus townsendii*	AMACC08010	None	None	G4	S2	SSC
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S2	SSC
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	IICOL48011	Threatened	None	G3T2T3	S3	
vernal pool fairy shrimp *Branchinecta lynchi*	ICBRA03030	Threatened	None	G3	S3	
vernal pool tadpole shrimp *Lepidurus packardi*	ICBRA10010	Endangered	None	G4	S3	
Wawona riffle beetle *Atractelmis wawona*	IICOL58010	None	None	G3	S1S2	
western pearlshell *Margaritifera falcata*	IMBIV27020	None	None	G4G5	S1S2	
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western red bat *Lasiurus frantzii*	AMACC05080	None	None	G4	S3	SSC
western spadefoot *Spea hammondii*	AAABF02020	None	None	G2G3	S3S4	SSC
Wintu sideband *Monadenia troglodytes wintu*	IMGASC7092	None	None	G1G2T1T2	S2	
woolly meadowfoam *Limnanthes floccosa ssp. floccosa*	PDLIM02043	None	None	G4T4	S3	4.2
Yuma myotis *Myotis yumanensis*	AMACC01020	None	None	G5	S4	

Record Count: 71

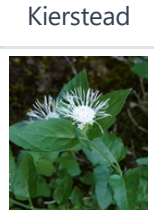
CNPS Rare Plant Inventory

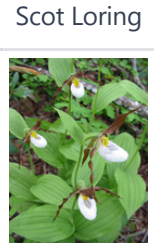
California Native Plant Society

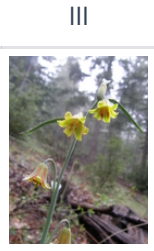
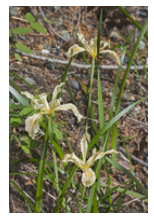
Search Results

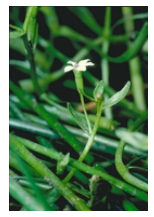
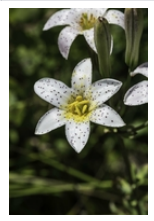
45 matches found. Click on scientific name for details

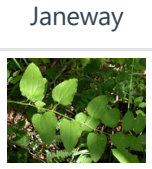
Search Criteria: Quad is one of [**4012264:4012263:4012262:4012265:4012252:4012253:4012254:4012255:4012275:4012274:4012273:4012272**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	CA ENDEMIC	DATE ADDED	PHOTO
Adiantum shastense	Shasta maidenhair fern	Pteridaceae	perennial herb	Apr-Aug	None	None	G3	S3	4.3	Yes	2016-11-18	 ©2015 Julie Kierstead
Ageratina shastensis	Shasta ageratina	Asteraceae	perennial herb	Jun-Oct	None	None	G3	S3	1B.2	Yes	1974-01-01	 ©2011 Sierra Pacific Industries
Agrostis hendersonii	Henderson's bent grass	Poaceae	annual herb	Apr-Jun	None	None	G2Q	S2	3.2		1974-01-01	 ©2005 Steve Matson
Allium sanbornii var. *sanbornii*	Sanborn's onion	Alliaceae	perennial bulbiferous herb	May-Sep	None	None	G4T4?	S3S4	4.2		1994-01-01	 ©2018 Steven Perry
Anomobryum julaceum	slender silver moss	Bryaceae	moss		None	None	G5?	S2	4.2		2001-01-01	 © 2013 Scot Loring
Arctostaphylos malloryi	Mallory's manzanita	Ericaceae	perennial evergreen shrub	Apr-Jul	None	None	G3	S3	4.3	Yes	1974-01-01	 ©2009 Timothy D. Ives
Arnica venosa	Shasta County arnica	Asteraceae	perennial rhizomatous herb	May-Jul(Sep)	None	None	G3	S3	4.2	Yes	1974-01-01	 ©2005 Dean Wm. Taylor
Astragalus pauperculus	depauperate milk-vetch	Fabaceae	annual herb	Mar-Jun	None	None	G4	S4	4.3	Yes	1974-01-01	 ©2012 Tim Kellison

Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 ©1998 Dean Wm. Taylor
Brodiaea matsonii	Sulphur Creek brodiaea	Themidaceae	perennial bulbiferous herb	May-Jun	None	None	G1	S1	1B.1	Yes	2011-07-12	 ©2016 Len Lindstrand III
Bulbostylis capillaris	thread-leaved beakseed	Cyperaceae	annual herb	Jun-Aug	None	None	G5	S3	4.2		2001-01-01	 ©2016 Ryan Batten
Clarkia borealis ssp. *borealis*	northern clarkia	Onagraceae	annual	Jun-Sep	None	None	G3T4	S4	4.3	Yes	1980-01-01	 ©2018 Sierra Pacific Industries
Cryptantha crinita	silky cryptantha	Boraginaceae	annual herb	Apr-May	None	None	G2	S2	1B.2	Yes	1980-01-01	 ©2009 Sierra Pacific Industries
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	None	None	G4	S4	4.2		1980-01-01	 © 2013 Scot Loring
Cypripedium montanum	mountain lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	None	None	G4G5	S4	4.2		1980-01-01	 ©2021 Scot Loring
Eriogonum congdonii	Congdon's buckwheat	Polygonaceae	perennial deciduous shrub	(May)Jun-Aug(Sep)	None	None	G4	S4	4.3	Yes	1974-01-01	 Steve Matson 2014
Eriogonum tripodum	tripod buckwheat	Polygonaceae	perennial deciduous shrub	May-Jul	None	None	G4	S4	4.2	Yes	1974-01-01	 ©2008 Steven Perry

Eriogonum ursinum var. *erubescens*	blushing wild buckwheat	Polygonaceae	perennial herb	Jun-Sep	None	None	G3G4T3	S3	1B.3	Yes	2006-10-24	 ©2008 Sierra Pacific Industries
Erythranthe taylorii	Shasta limestone monkeyflower	Phrymaceae	annual herb	(Feb)Apr-May	None	None	G2	S2	1B.1	Yes	2013-10-16	 © 2016 Steve Matson
Erythronium shastense	Shasta fawn lily	Liliaceae	perennial bulbiferous herb	(Feb)Mar-Apr	None	None	G2	S2	1B.2	Yes	2015-09-14	 © 2015 Len Lindstrand III
Fritillaria eastwoodiae	Butte County fritillary	Liliaceae	perennial bulbiferous herb	Mar-Jun	None	None	G3Q	S3	3.2		1974-01-01	 ©2009 Sierra Pacific Industries
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	None	CE	G2	S2	1B.2		1974-01-01	 ©2004 Carol W. Witham
Iris bracteata	Siskiyou iris	Iridaceae	perennial rhizomatous herb	May-Jun	None	None	G4G5	S3	3.3		1974-01-01	 ©2012 Aaron Schusteff
Juncus leiospermus var. *leiospermus*	Red Bluff dwarf rush	Juncaceae	annual herb	Mar-Jun	None	None	G2T2	S2	1B.1	Yes	1974-01-01	 ©2016 Dylan Neubauer
Lathyrus sulphureus var. *argillaceus*	dubious pea	Fabaceae	perennial herb	Apr-May	None	None	G5T1T2Q	S1S2	3	Yes	1994-01-01	No Photo Available

Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	None	None	G2	S2	1B.1	Yes	1974-01-01	 ©2000 John Game
Leptosiphon latisectus	broad-lobed leptosiphon	Polemoniaceae	annual herb	Apr-Jun	None	None	G4	S4	4.3	Yes	2001-01-01	 © 2015 Steve Matson
Lewisia cantelovii	Cantelow's lewisia	Montiaceae	perennial herb	May-Oct	None	None	G3	S3	1B.2	Yes	1974-01-01	 ©2005 Steve Matson
Lewisia cotyledon var. *howellii*	Howell's lewisia	Montiaceae	perennial herb	Apr-Jul	None	None	G4T4Q	S3	3.2		1980-01-01	 © 2021 Scot Loring
Lilium rubescens	redwood lily	Liliaceae	perennial bulbiferous herb	(Mar)Apr-Aug(Sep)	None	None	G3	S3	4.2	Yes	1974-01-01	 Gerald and Buff Corsi © 2022 California Academy of Sciences
Limnanthes floccosa ssp. *bellingeriana*	Bellinger's meadowfoam	Limnanthaceae	annual herb	Apr-Jun	None	None	G4T3	S1	1B.2		1980-01-01	 © 2021 Scot Loring
Limnanthes floccosa ssp. *floccosa*	woolly meadowfoam	Limnanthaceae	annual herb	Mar-May(Jun)	None	None	G4T4	S3	4.2		1980-01-01	 © 2021 Scot Loring
Neviusia cliftonii	Shasta snow-wreath	Rosaceae	perennial deciduous shrub	Apr-Jun	None	CT	G2	S2	1B.2	Yes	1994-01-01	 ©2008 Steve Matson
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	FT	CE	G2	S2	1B.1	Yes	1974-01-01	 © 2013 Justy Leppert

Paronychia ahartii	Ahart's paronychia	Caryophyllaceae	annual herb	Feb-Jun	None	None	G3	S3	1B.1	Yes	1988-01-01	 © 2004 Carol W. Witham
Penstemon filiformis	thread-leaved beardtongue	Plantaginaceae	perennial herb	May-Aug(Sep)	None	None	G4	S4	4.2	Yes	1974-01-01	 Steve Matson (2015)
Potamogeton epihydrus	Nuttall's ribbon-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	(Jun)Jul-Sep	None	None	G5	S2S3	2B.2		1994-01-01	 Louis-M. Landry, 2010
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb (emergent)	May-Oct(Nov)	None	None	G3	S3	1B.2	Yes	1984-01-01	 ©2013 Debra L. Cook
Sedum paradisum ssp. *paradisum*	Canyon Creek stonecrop	Crassulaceae	perennial herb	May-Jun	None	None	G3G4T3	S3	1B.3	Yes	1980-01-01	 ©2018 Julie Kierstead Nelson
Sidalcea celata	Redding checkerbloom	Malvaceae	perennial herb	Apr-Aug	None	None	G2G3	S2S3	3	Yes	2012-07-11	 ©2014 Lawrence Janeway
Smilax jamesii	English Peak greenbrier	Smilacaceae	perennial rhizomatous herb	May-Jul(Aug-Oct)	None	None	G3G4	S3S4	4.2	Yes	1980-01-01	 Sheli Wingo 2004
Stachys pilosa	hairy marsh hedge-nettle	Lamiaceae	perennial rhizomatous herb	Jun-Aug	None	None	G5	S3	2B.3		2001-01-01	 ©2020 Richard Spellenberg
Trifolium piorkowskii	maverick clover	Fabaceae	annual herb	Apr-May	None	None	G2	S2	1B.2		2016-11-10	 ©2018 Al Keuter

Vaccinium shastense ssp. *shastense*	Shasta huckleberry	Ericaceae	perennial deciduous shrub	(Jun-Sep)Dec-May	None	None	G4T3	S3	1B.3	Yes	2015-12-15	 © 2016 Steve Matson
Viburnum ellipticum	oval-leaved viburnum	Viburnaceae	perennial deciduous shrub	May-Jun	None	None	G4G5	S3?	2B.3		1974-01-01	 © 2006 Tom Engstrom

Showing 1 to 45 of 45 entries

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website https://www.rareplants.cnps.org [accessed 10 May 2023].

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Shasta County, California

Local offices

Yreka Fish And Wildlife Office

(530) 842-5763
(530) 842-4517

1829 South Oregon Street

1829 South Oregon Street
Yreka, CA 96097-3446

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Gray Wolf Canis lupus There is **final** critical habitat for this species. https://ecos.fws.gov/ecp/species/4488	Endangered
North American Wolverine Gulo gulo luscus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

Birds

NAME	STATUS
Northern Spotted Owl Strix occidentalis caurina Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Valley Elderberry Longhorn Beetle Desmocerus californicus dimorphus — Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/7850

Crustaceans

NAME	STATUS

Conservancy Fairy Shrimp Branchinecta conservatio — Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/8246

Shasta Crayfish Pacifastacus fortis — Endangered

Wherever found

No critical habitat has been designated for this species.

https://ecos.fws.gov/ecp/species/8284

Vernal Pool Fairy Shrimp Branchinecta lynchi — Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/498

Vernal Pool Tadpole Shrimp Lepidurus packardi — Endangered

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/2246

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

Appendix B

Representative Photographs

Photograph 1. Unit L1, Valley oak woodland along Moody Creek near treatment location L2.

Photograph 2. Unit L1 near treatment location L2, Moody Creek with Himalayan blackberry scrub along the banks and interior live oak woodland adjacent to the stream

Photograph 3. Unit L1, oak woodland along the upper reach of Churn Creek, with dense Himalayan blackberry on the streambank

Photograph 4. Unit 1, near treatment location L3, upper reach of Churn Creek lacks continuous riparian vegetation.

Photograph 5. Unit L4**,** near treatment location L5, oak-pine woodland with patches of dense manzanita-buckbrush chaparral that has been partially cleared.

Photograph 6. Unit L4, near treatment location L5, showing small eucalyptus saplings in the understory of oak-pine woodland.

Photograph 7. Unit L13 near treatment location L12: band of willow scrub along Churn Creek.

Photograph 8. Unit L13 near treatment location L12: oak-pine woodland and willow scrub along Churn Creek

Photograph 9. Unit L13 near treatment location L14: low terrace along Churn Creek with oak-pine woodland in background.

Photograph 10. Unit L13 near treatment location L14: view across narrow segment of Churn Creek surrounded by oak-pine woodland.

Photograph 11. Unit L13**:** open oak-pine woodland on lower slopes along Churn Creek.

Photograph 12. Unit 13 between treatment locations L12 and L14: impounded stretch of Churn Ck that provides habitat for western pond turtle and supports a narrow band of emergent wetland and riparian habitat.

Appendix C

Aquatic Resources Mapped in the Biological Study Area

City of Shasta Lake
Resource Constraint Analysis
June 2023

L1 Treatment Unit
Treatment Location
Flow Direction

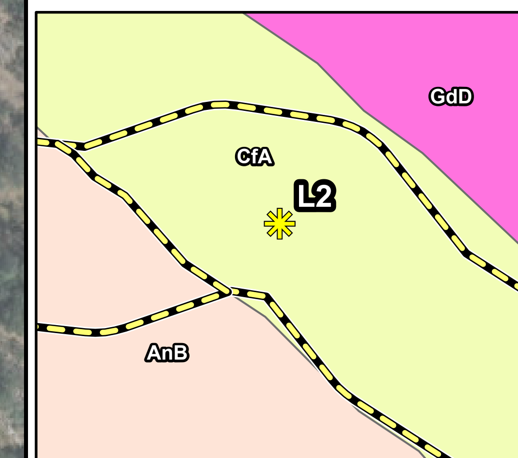
Aquatic Resource

Wetland (Total Acres)

Seasonal Wetland (0.018)

Other Water (Total Linear Feet)

Intermittent Stream (791)



AnB, Auburn loam, 0 to 8 percent slopes

CfA, Churn gravelly loam, deep, 0 to 3 percent slopes

GdD, Goulding very stony loam, 10 to 30 percent slopes

Notes:
Base Map Source: ICF, 2021
Imagery Source: ESRI
USGS Topo Quad: Project City
PLSS: S19, T33N, R4W
Datum/Projection: NAD 1983
Vertical Datum: N/A

N
0 50 100 Feet
1:1,300

Path: \\PDCCITRDSGIS01\Projects_1\City_of_Shasta_Lake\Fuel_Reduction_Constraints\Figures\Misc\Wetland_Constraints_20230530\Wetland_Constraints_20230530.aprx; Author: ; Date: 6/5/2023

Appendix C. Aquatic Resources Constraints Map 1 of 5 (Treatment Unit L1)

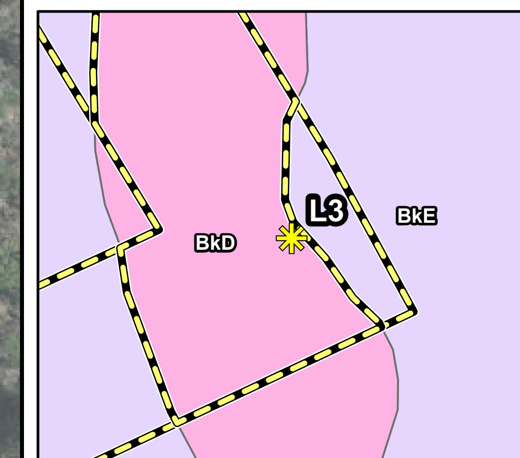
City of Shasta Lake
Resource Constraint Analysis
June 2023

- L1 Constraints Analysis Area
- Treatment Location
- Flow Direction

Aquatic Resource

Other Water (Total Linear Feet)

- Ephemeral Stream (91)
- Intermittent Stream (962)



- BkD, Boomer gravelly loam, 15 to 30 percent slopes
- BkE, Boomer gravelly loam, 13 to 52 percent slopes, MLRA 15

Base Map Source: ICF, 2021
Imagery Source: ESRI
USGS Topo Quad: Shasta Dam
PLSS: S24, T33N, R5W
Datum/Projection: NAD 1983
Vertical Datum: N/A

N

0 50 100 Feet
1:1,300

Appendix C. Aquatic Resources Constraints Map 2 of 5 (Treatment Unit L1)

City of Shasta Lake
Resource Constraint Analysis
June 2023

L4 Constraints Analysis Area

Other Constraints Analysis Area

Treatment Location

Flow Direction

Culvert

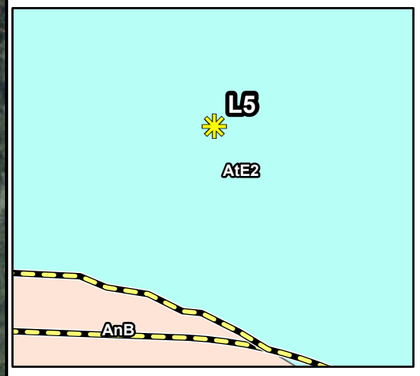
Aquatic Resource

Wetland (Total Acres)

Seasonal Wetland (0.034)

Other Water (Total Linear Feet)

Ephemeral Stream (619)



AnB, Auburn loam, 0 to 8 percent slopes

AtE2, Auburn very stony clay loam, 30 to 50 percent slopes, eroded

Base Map Source: ICF, 2021
Imagery Source: ESRI
USGS Topo Quad: Shasta Dam
PLSS: S26, T33N, R5W
Datum/Projection: NAD 1983
Vertical Datum: N/A

N

0 50 100 Feet

1:1,300

Appendix C. Aquatic Resources Constraints Map 3 of 5 (Treatment Unit L4)

City of Shasta Lake
Resource Constraint Analysis
June 2023

- L7 Treatment Unit
- Other Treatment Unit
- Culvert
- Treatment Location
- Flow Direction

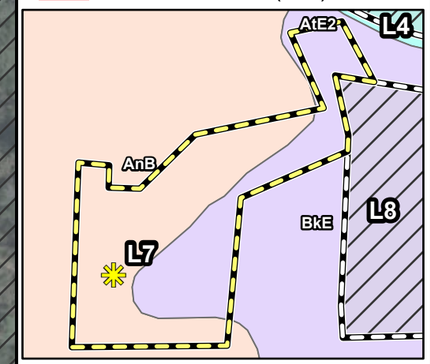
Aquatic Resource

Wetland (Total Acres)

- Scrub-Shrub Wetland (1.149)
- Seasonal Wetland (0.003)
- Emergent Wetland (0.299)

Other Water (Total Linear Feet)

- Intermittent Stream (806)
- Roadside swale (297)



- AnB, Auburn loam, 0 to 8 percent slopes
- AtE2, Auburn very stony clay loam, 30 to 50 percent slopes, eroded
- BkE, Boomer gravelly loam, 13 to 52 percent slopes, MLRA 15

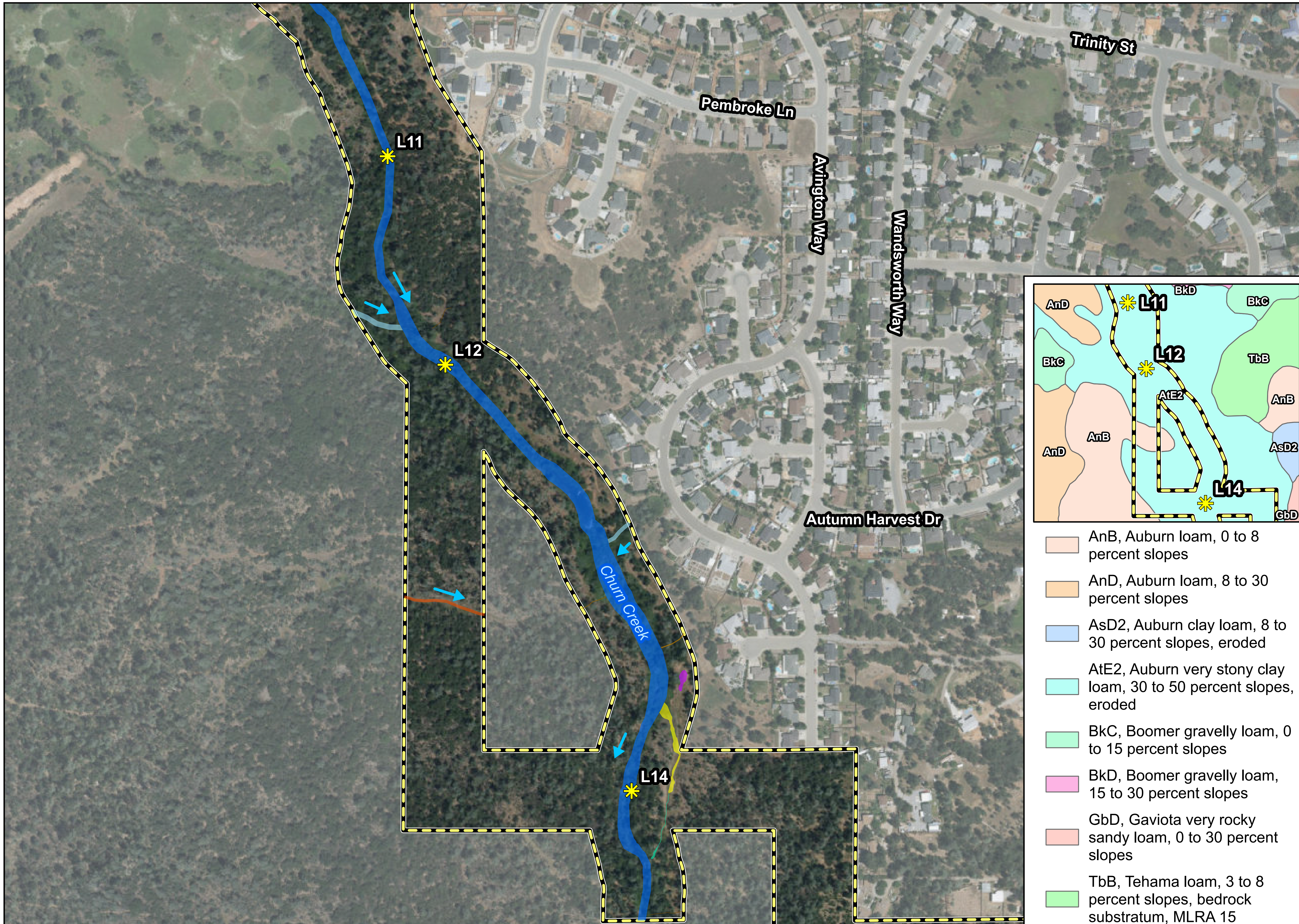
Base Map Source: ICF, 2021
Imagery Source: ESRI
USGS Topo Quad: Shasta Dam
PLSS: S26, T33N, R5W
Datum/Projection: NAD 1983
Vertical Datum: N/A

N

0 50 100 Feet
1:1,300

Path: W:\DOCTR\SGS\SLW\Projects_1\City_of_Shasta_Lake\Fuel_Reduction_Constraints\gis\mxd\Wetland_Constraints_2022\05\30\Wetland_Constraints_2022\05\30.aprx, Author: , Date: 6/6/2023

Appendix C. Aquatic Resources Constraints Map 4 of 5 (Treatment Unit L7)



City of Shasta Lake
Resource Constraint Analysis
June 2023

L13 Treatment Unit
Treatment Location
Flow Direction

Aquatic Resource

Wetland (Total Acres)

Seasonal Wetland (0.034)

Other Water (Total Linear Feet)

Ephemeral Overflow Channel (347)
Ephemeral Stream (456)
Ephemeral Stream/Swale (305)
Intermittent Stream (318)
Perennial Stream (4,036)
Swale (261)

Base Map Source: ICF, 2021
Imagery Source: ESRI
USGS Topo Quad: Project City, Shasta Dam
PLSS: S1, T32N, R5W (L11),
S6, T32N, R4W (L12, L14)
Datum/Projection: NAD 1983
Vertical Datum: N/A

N
0 250 500 Feet
1:4,500

Appendix C. Aquatic Resources Constraints Map 5 of 5 (Treatment Unit L13)

Exhibit G – Standard Conditions

CITY OF SHASTA LAKE
STANDARD CONDITIONS OF APPROVAL

NOTE: These standard conditions of approval are applicable to all discretionary entitlements' except as may be specifically modified or determined inapplicable by the approving authority. Conditions applicable to a SPECIFIC project are identified by check mark or other identifying mark as reflected below.

General Requirements

1. In accordance with the Shasta Lake Municipal Code, the entitlement authorized by this permit shall automatically expire 2 years from the date of approval in the case of use permits or other discretionary entitlement without further notice or action by the City, unless any of the following occurs:

    a. A building permit has been issued and substantial construction has occurred as determined by the Development Services Director or designee.

    b. The use of the property specifically authorized by the entitlement or permit has been actively and substantially commenced as determined by the Development Services Director or designee.

    c. Approval of the entitlement or permit has been extended by the approving authority. An extension of time may be granted if the permittee shows reasonable cause for the extension. Reasonable cause exists if the permittee shows that circumstances beyond their control have prevented them from taking sufficient action to effectuate the permit or other approval.

2. The requirements of the California Buildings Standards Code, the California Fire Code, and the Shasta Lake Municipal Code are to be met with all projects. The requirements of all governmental agencies having jurisdiction including obtaining any other permits related to construction or use of the property which are not governed by this approval shall be met. The permittee is responsible for contacting the offices of the Shasta Lake Development Services Department, Shasta County Environmental Health, and the Shasta Lake Fire Protection District prior to commencement of construction or use on the site to verify compliance with this condition.

3. All mitigation measures which are established pursuant to the requirements of the California Environmental Quality Act for a project shall by reference herein also be considered conditions of this approval and any related approvals, permits or entitlements issued by the City of Shasta Lake.

Site Design and Development Conditions

4. Prior to issuance of a grading or building permit, architectural and site plans shall be reviewed and approved by the Development Services Director or his/her designee to ensure compliance with Shasta Lake Municipal Code Chapter 17.84 *General Development Standards*, including Section 17.84.005 *Design and Architectural Objectives*.

5. Site development and grading shall be designed to provide accessible access to all entrances and exterior ground-floor exits and to normal paths of travel and shall incorporate pedestrian ramps, curb ramps, and/or other improvements necessary to provide compliance with state and local ordinances. Access shall be provided within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones if provided, and public streets or sidewalks. When more than one building or facility is located on a site, accessible routes of travel shall be provided between buildings and accessible site facilities, public streets, and accessible parking spaces that are on the same site. The accessible route of travel shall be the most practical direct route between accessible building entrances, accessible site facilities, and the accessible entrance to the site.

6. All trash enclosures shall be located and constructed in accordance with the provisions of Shasta Lake Municipal Code and the design criteria as established in Section 17.84.005 of the Shasta Lake Municipal Code. Trash and recycling enclosure(s) shall be provided as depicted on the approved site plan unless modified by the approving authority.

7. Vegetation slash resulting from land clearing and grading activity shall not be burned onsite and shall be disposed of in a lawful method (such as chipping). Permittee shall dispose of any vegetation slash cleared for construction and/or land development purposes prior to the filing of the Parcel/Final map OR issuance of a Certificate of Occupancy as applicable. All brush piles shall be abated or removed prior to commencement of the next fire season.

8. All existing landscaped areas, and/or landscape areas shown on the approved landscape plans shall be properly and continuously maintained. Maintenance includes providing an operational, automatic irrigation system where needed; weeding; replacing dead and missing plant materials; mowing lawns; pruning; and other maintenance measures as required to keep all planted areas neat, healthy, and attractive.

9. This project is subject to, and shall comply with, all applicable provisions of the Shasta Lake Municipal Code including SLMC Chapter 15.10 "Water Efficient Landscaping". The required Landscape Documentation Package shall accompany the building permit application

10. All new freestanding and building-mounted signage shall comply with all applicable provisions of the Shasta Lake Municipal Code including Section 17.84.060.

11. The permittee shall note that pursuant to Chapter 13.08 of the Shasta Lake Municipal Code, City development impact fees are required to be paid prior to final inspection for new construction, building enlargement, or other improvement. These fees are structured to mitigate the project's fair share of cumulative impacts to the City's transportation, fire

protection district, water, wastewater and parks infrastructure systems. The improvements are based on those improvements necessary to accommodate new development under the City's General Plan. The Permittee/applicant is hereby notified that he/she has the right to protest/appeal imposition of any of these fees or fee amounts. Any protest/appeal shall comply with the provisions of Government Code Section 66020(a) and Section 13.08.070.E.11, as applicable.

12. Ground-mounted mechanical equipment with a total cooling capacity of 5 tons or greater and within 30 feet of any residential district boundary shall be enclosed by a solid block noise wall not less than 1 foot higher than the top of the cooling equipment. Construction and location of the wall shall conform to currently adopted construction codes.

13. In accordance with the requirements of the Shasta Lake Municipal Code, ground- and roof-mounted mechanical equipment shall not be visible from a public street or other public area or residential property. Screening of such equipment shall be accomplished using parapet walls on the building, roof wells, screen walls or other measures approved by the City that are architecturally compatible with the building. Exhibits or other information necessary to determine compliance with this requirement shall be submitted with the building permit application.

14. In accordance with Chapter 17.84.050, Lighting, of the Shasta Lake Municipal Code, any new building-mounted or freestanding exterior lighting shall be designed, located, directed, and shielded in such a manner to prevent objectionable light at, and glare across, property lines. A lighting detail/photometric plan demonstrating how this requirement is being satisfied shall be submitted with the building permit application when required by the Director.

15. The Permittee shall implement the following Standard Mitigation Measures (SMMs) from the City's Air Quality Element during any activity involving ground disturbance, grading or clearing. Temporary modifications to these requirements during construction are at the sole discretion of the City:

    a. Suspend all grading operations when winds, as instantaneous gusts exceed 20 miles per hour or as directed by the Shasta County Air Quality Management District (AQMD).

    b. Water active construction sites at least twice daily, or as needed to control fugitive dust as directed by the Public Works Department or Building Department if on-site.

    c. Apply non-toxic soil stabilizers according to the manufacturer's specification to all graded areas that will be inactive for 10 days or more.

    d. When construction activity occurs during wet weather, install wheel washers where vehicles enter and exit unpaved roads onto paved roads, or wash off trucks and any equipment leaving the site each trip. Prior to the issuance of any clearing or grading

permits, locations of wheel washers shall be identified and approved by the City.

e. If visible soil materials are carried onto adjacent paved roads, sweep streets at the end of the day.

f. Cover trucks hauling dirt, sand, soil or other loose materials. or maintain at least 2 feet of freeboard (minimum vertical distance between the top of the load and the top of the trailer), in accordance with the requirements of California Vehicle Code Section 23114.

g. Re-establish ground cover on the construction site through seeding and watering prior to final occupancy.

16. Due to the project site's proximity to a significant transportation noise source (insert source name), the Permittee shall secure the services of a professional acoustical specialist or other qualified individual to verify interior and exterior noise levels due to exterior sources. Interior noise levels shall not exceed a day-night noise level (Ldn) of 45 dB in any habitable room. Exterior noise levels shall not exceed a day-night noise level (Ldn) of 60 dB as measured at the property line.

17. Where it is not possible to reduce noise in outdoor residential activity areas to 60 dB Ldn or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn may be allowed with City approval, provided that available exterior noise level reduction measures have been implemented, and interior noise levels are in compliance with the City's General Plan.

18. Prior to issuance of a building permit the City shall verify that construction plans include any mitigation measures as recommended by the acoustical engineer. Prior to issuance of a Certificate of Occupancy, the building inspector or other responsible City authority shall verify compliance with required standards.

19. During construction, the Permittee shall comply with the following noise threshold periods established for construction activities.:

a.	Monday through Friday:	7:00 A.M. – 7:00 P.M.
b.	Saturday:	8:00 A.M. – 5:00 P.M.
c.	Sunday:	No construction activities allowed.

Construction activities shall not occur outside of the following time limits unless approved by the City pursuant to documented special circumstances. Special circumstances include

the need to complete construction along public roadways or within public utility easements to ensure continued services or public safety. The City must approve such exceptions prior to commencement of the work.

20. If during the course of construction or pre-construction activities on the site any archeological, historical, or paleontological resources are uncovered, discovered, or otherwise detected or observed, all earthwork and /or construction within one hundred feet (100') of these materials shall be stopped immediately, the City shall be notified, and a professional archeologist, certified by the Society of California Archeology and/or the Society of Professional Archeology, in consultation with other affected parties such as local Native American groups, shall conduct a review of the materials. Site work and construction in the area shall not occur until the archeologist has had an opportunity to evaluate the significance of the find and outline appropriate mitigation measures deemed necessary to provide protection of the materials and/or the site.

21. Should any human remains be found during project construction, construction within 100 feet of the discovery shall stop immediately, and the discovery shall be immediately reported to the County Coroner. Construction shall not proceed until the County Coroner has determined such construction will not further impact human remains.

22. Compliance with Chapter 12.36 "Tree Conservation" of the Shasta Lake Municipal Code is required of all projects. Healthy trees, with the exception of gray pine (pinus sabiniana) on the property in excess of 10" diameter at breast height shall be saved and protected from construction activities. Protection utilizing City approved methods is required, unless the approving authority determines that the tree's removal is unavoidable due to adopted development standards or other project design requirements prevent compliance.

23. Prior to issuance of a Certificate of Occupancy tree planting is required for development projects based on the following standards: A minimum of three 15-gallon trees shall be planted per residential parcel; a minimum of two 15-gallon trees planted per 1,000 square feet of new gross floor area or covered space for Commercial and Public projects; or one 15-gallon tree per 2,000 square feet of gross floor area or covered space for Industrial projects. Use of native trees is preferred.

24. Prior to the issuance of grading permits or commencement of any land clearing work necessary to install improvements, the Permittee shall provide to the City a final count of protected trees to be removed. Tree removal shall be based on the approved Tree removal and replacement plan. Modifications to the tree removal and replacement plan, including approval of alternative mitigation measures, will require a separate action by the approving authority.

Engineering, Utility, and Drainage Conditions

25. A plan checking and inspection fee deposit is required at the time project improvement plans or final maps are submitted for review. The fee(s) shall be based on the City's most recently

adopted fee schedule.

26. Following the completion of public improvements and prior to the filing of a Parcel/Final map OR issuance of a Certificate of Occupancy, the Development Services Director, or designee, will determine the cost of improvement and map plan checking and City inspection services, and will advise the permittee thereof. If the amount exceeds the amount deposited with the City, the permittee shall pay the balance due to the City prior to map recordation or issuance of the Certificate of Occupancy. If the actual cost is less than the estimate, the City will refund the overpayment to the permittee.

27. Prior to the beginning of any clearing, grading, or site improvement activities, improvement plans for grading, drainage, utilities, and other required improvements shall be approved by the City of Shasta Lake. These plans shall be in substantial conformance with Shasta Lake Municipal Code (SLMC) Title 15.08 and/or 16.16. Modifications to this requirement are at the sole discretion of the City.

28. Prior to any land clearing or grading work, the Permittee shall obtain a Grading Permit from the Development Services Department and submit a grading, drainage and erosion control plan, prepared by a licensed civil engineer or other licensed professional as authorized by the California Business and Professions Code, for approval by the City in accordance with Shasta Lake Municipal Code Chapter 15 and Appendix Chapter 33 of the adopted California Building Code. Modifications to this requirement are at the sole discretion of the City.

29. All public improvements proposed by the Permittee or required through project conditions of approval shall be completed in compliance with the time schedule set forth in the conditions of approval; if no time schedule is provided, then the improvements shall be completed no later than prior to recordation of a final map, approval for building occupancy, or commencement of the use, as applicable. The Permittee may request a public improvement agreement in order to schedule the timing of completion of required public improvements. As a condition of any such agreement the City shall require the Permittee to guarantee the completion of construction of said improvements, and the performance of the improvements for one year from the date of filing of the final map, commencement of the use or building occupancy, by furnishing a financial guarantee or performance bond. Acceptance of the form of such security is at the sole discretion of the City.

30. An encroachment permit is required for any work being performed in the public right-of-way or within City easements. The encroachment permit shall be obtained prior to the commencement of any work.

31. Record improvement plans reflecting the as-constructed improvements with the Engineer's Declaration shall be submitted in conformance with Shasta Lake Municipal Code requirements for all projects, except where the requirement is waived by the City Engineer. Record plans shall state that they are RECORD and shall be submitted in both hardcopy and digital formats, with hardcopy drawings submitted at full size on 24" x 36" mylar. Digital drawings shall be submitted in both AutoCAD (.dwg) format and Portable Document Format (.pdf). The plans shall also be provided in a City GIS compatible electronic format and indicate the location of all public and private utilities within the boundaries of the project.

32. Prior to issuance of building permits or final approval of improvement plans, drainage plans shall be submitted to the City Engineer for review and approval. Required storm drainage facilities shall be sized and installed in accordance with the improvement plans as approved by the City Engineer, and in accordance with the construction standards of the Public Works Department.

33. All development sites shall be graded, or alternative measures implemented, to ensure that no post-construction increases in site drainage crosses property lines. All post-construction development drainage shall be directed to a city street or other facility via City Engineer approved stormwater conveyance. Modifications to this requirement are at the sole discretion of the City.

34. Prior to improvement-plan approval, the Permittee shall prepare a Drainage Study in accordance with the Shasta Lake Municipal Code, City Council Policy and the requirements of the City Engineer. The Drainage Study shall address impacts from the 10-, 25-, and 100-year-storm events. Projects shall address peak flows to maintain predevelopment levels at all locations where drainage flows exit the project. The Drainage Study shall be stamped and signed by a registered Civil Engineer and provided to the City at the time of submittal of project improvement plans.

35. Storm-drain facilities shall be designed in accordance with the requirements of City Construction Standards, and good design practice. Project design shall incorporate Best Management Practices (BMPs) to prevent the polluting of stormwater, both during construction and over the life of the project. Should the maintenance costs of the long-term pollution-control measures within the public right of way or easements exceed typical storm-drain-management costs, such costs shall be borne by the project by participation in a landscape maintenance district, establishment of an escrow account, or by other City accepted financing mechanism.

36. Projects which include ground disturbance on 1 or more acres, shall comply with the State Water Quality Control Board's Construction General Permit requirements. Copies of the required "Notice of Intent" (NOI) and "Storm Water Pollution Prevention Plan" (SWPPP) shall be submitted to the City Engineer prior to commencement of any site work. The SWPPP shall utilize the California Storm Water Best Management Practices Handbook for Construction Activities, the COSLCS, and other generally accepted engineering practices for sediment and erosion control.

37. The Permittee shall dedicate necessary easement and right-of-way along the property frontages of all public street(s) to the City of Shasta Lake for road and/or utility purposes. A minimum 5-foot-wide public-utility easement is also to be provided on the property adjacent to all public-road rights-of-way. All required right-of-way and/or easements shall be dedicated to the City of Shasta Lake, and shall be recorded prior to issuance of any building permits for the project site.

38. Sewer lines, waterlines, electric-service facilities; drainage facilities; necessary electric- and public-service easements, and street dedications as applicable to the project, are to be provided in accordance with the Shasta Lake Municipal Code, and as specified by the City Engineer.

39. The permittee shall extend sewer and water lines, electric substructures and conduits, and other City utilities necessary to serve the property and too provide logical extensions of service through the property boundaries to adjacent properties as required by the City.

40. All utilities within the project, including, but not limited to, electric, cable television, and phone, shall be installed underground.

41. Extensions of any gas facilities will require utility easements or right-of-way to PG&E. The project Permittee shall be responsible for satisfactory clearing of all vegetation in the route that is approved for use by PG&E.

42. Per State law, the Permittee shall contact Underground Service Alert (USA) a minimum of two working days before the commencement of any permitted clearing, grading, digging, or excavation.

43. No private building, fences, structures or other permanent improvement are allowed within public utility easements.

44. The California Green Building Code Section 5.304.2 requires a separate water meter and water service for irrigation of landscape areas when a commercial project includes more than 1,000 square feet or irrigated landscape. All utility and landscape plans shall depict the proposed location of the water meter and identify the total area of landscape proposed with the project.

45. All construction work shall conform to the City of Redding Construction Standards (latest revision) and the City of Shasta Lake Construction Standard Exceptions (latest revision). Collectively, the Construction Standards and Construction Standard Exceptions are known as the City of Shasta Lake Construction Standards (COSLCS).

46. Improvement plans for all project grading, paving, drainage, utilities, and public improvements, shall be prepared by a registered civil engineer, and shall be approved by the City prior to commencement of any construction activity on the site.

Subdivision Conditions

47. Parcel Map and Subdivision conditions of approval include all applicable conditions as set forth in Planning Commission Resolution 21-____ Attachment "B" *Standard Subdivision Development Conditions.* When any conflict exists between these conditions and those reflected in *Standard Subdivision Development Conditions,* the more restrictive shall apply except when modified by the City.

48. The approval for a Tentative Subdivision Map is valid for a period of 24 months unless the Permittee applies for an extension of time prior to the map expiration in accordance with the requirements of the City subdivision ordinance and the State Subdivision Map Act.

Electric Utility

49. The Permittee is responsible for all costs associated with the relocation or modification of existing utility facilities or structures necessitated by the construction of the project or of improvements required as a condition of approval of this project, including reimbursement of any costs to City of Shasta Lake Electric Utility for work performed to support the project.

50. After the initial review of improvement plans by the City, the Permittee shall consult with the Electric Utility (SLEU) for preparation of an electric-service plan. A copy of the approved electric-service plan shall be incorporated into the final improvement plans.

51. Electric-supply facilities shall be furnished and installed in accordance with the City's Service Policy in effect at the time the Permittee's plan is approved by the City.

52. Pursuant to the Shasta Lake Municipal Code, streetlight(s) when required shall be installed at the owner's expense, with the location to be determined by the City upon submittal of improvement plans.

53. Eave lines of any proposed structure shall be located outside of the limits of any public utility easement on the project site.

54. No trees or shrubs exceeding a mature height of 15 feet are allowed within the limits of any electric utility easement.

55. The Permittee shall not reduce the vertical clearance between the conductors of the City of Shasta Lake's overhead transmission, distribution, or service lines and improved surfaces thereunder as set forth under General Order 95 of the Public Utilities Commission of the State of California.

56. The Permittee shall provide adequate protection for the City's electric overhead and underground transmission, distribution and service facilities (poles, towers, boxes, and other equipment) by installing protective barriers when determined necessary by the City.

57. The Permittee shall pay the cost for the rearrangement, relocation, alteration or removal of any City electric or other facilities that is caused by project improvements, whether inside or outside of the development area, when such work is necessary to serve the project as determined by the City.

58. The Permittee and all future electric utility users on the project site are subject to the requirements of the "Electric Service System Rules and Regulations" pursuant to Shasta Lake City Council Resolution 16-20, as may be amended and applicable to the project.

Fire Protection

59. On-site and street-side fire hydrants are to be installed in accordance with the California Fire Code in locations approved by the Fire Marshal. Fire hydrants shall have a fire flow meeting Appendix III-B of the California Fire Code. If a hydrant is located on private property, adequate access as approved by the Fire District shall be provided to and around the hydrant.

60. Fire-protection facilities, including all-weather access roads, shall be installed and shall remain serviceable prior to and during the construction.

Fire Fuel Reduction Projects

To ensure the project avoids/minimizes impacts to special status terrestrial and aquatic fish and wildlife species and other natural resources, the following avoidance and minimization measures
(AMMs) are required:

61. Construction personnel will attend environmental awareness training prior to the start of construction activities. The training will include a discussion about sensitive-species and habitat descriptions, AMMs to be adhered too, and permit requirements/conditions to be implemented during work activities.

62. If project activities occur during the nesting bird season (February 15–August 31), a nesting bird survey will be performed within 2 weeks of the start of construction. The nest survey will be conducted within 300 feet of the treatment unit for raptors and a 75-foot radius for all other bird species. If treatment units cannot be adequately surveyed because of dense vegetation or steep terrain and if a nest is encountered during operations, then a biologist will be contacted, and an appropriate avoidance buffer will be established around the nest(s) location.

63. All construction personnel will visually check for wildlife beneath vehicles and equipment before moving or operating them.

64. Equipment service and refueling procedures will be conducted a minimum of 100 feet from wetlands, streams, and other aquatic resources.

65. In the event of a chemical spill, all applicable hazardous waste best management practices (BMPs) shall be implemented as well as applicable laws and regulations followed. Appropriate containment and cleanup materials will be on-site to prevent and manage spills.

66. To protect wetlands, a 50-foot protection zone will be established, and equipment will be excluded and not operate within this protection zone.

67. As described by the California Forest Practices Rules (California Department of Forestry and Fire Protection 2022), protection zones will be established around Class I-IV streams:

Watercourse Class	Protective Width	Slope
Class I	75 feet	< 30%
	100 feet	30-50%
	150 feet	> 50%
Class II	50 feet	< 30%
	75 feet	30-50%
	100 feet	> 50%
Classes III and IV	25 feet	< 30%
	50 feet	≥ 30%

68. Erosion, sediment, and material stockpile BMPs will be employed between treatment units and adjacent wetlands or watercourses. Treatment units will be properly contained to prevent the fill of or runoff into adjacent wetlands or watercourses.

69. All trash and waste items generated by construction activities will be properly contained and removed from the project site.

70. All resource agency permit conditions shall be implemented and maintained for the duration of the project.

71. All vehicles and equipment used off paved roads will be thoroughly cleaned of all dirt and vegetation prior to entering each treatment unit to prevent importing invasive non-native species. Several invasive plant species were observed in the treatment units during field surveys, including French broom (Genista monspessulana), yellow star-thistle (Centaurea solstitialis), periwinkle (Vinca major), red sesbania (Sesbania punicea), Chinese tallow (Triadaca sebifera), and Himlalayan blackberry (Rubus armeniacus).

72. Surveys for biological and cultural resources will be completed prior to commencement of the project to ensure avoidance.

73. A qualified professional will provide training to all construction personnel before construction begins. The training will include a discussion about potential cultural resources in the area, the federal and state laws regarding damage to cultural resources, and procedures to take if a cultural resource is encountered during construction.