Draft

Cascade Boulevard over Moody Creek Bridge Replacement Project

Initial Study/Mitigated Negative Declaration

City of Shasta Lake
Shasta County

January 2022

Dewberry | drakehaglan

Draft

Cascade Boulevard over Moody Creek Bridge Replacement Project

Initial Study/Mitigated Negative Declaration

City of Shasta Lake, California
Project City 7.5-Minute Quadrangle,
Township 33N, Range 04W, Section 29

Submitted to:
City of Shasta Lake Public Works Department
4477 Main Street
Shasta Lake, CA 96019

Prepared by:
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11060 White Rock Road, Suite 200
Rancho Cordova, CA 95670
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January 2022

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EXECUTIVE SUMMARY

The City of Shasta Lake (City) proposes to replace the existing Cascade Boulevard Bridge over Moody Creek (Bridge No. 06C0060) with a new concrete bridge designed to current structural and geometric standards that would provide adequate, reliable, and safe service for traffic. The proposed project, Federal Aid number BRLO-5474 (015), is located along Cascade Boulevard, approximately 0.4 miles north of State Route 151 (SR 151), within the eastern portion of the City. The general land use in the proposed project vicinity consists of commercial and low-density residential uses.

The proposed project is funded primarily by the federal-aid Highway Bridge Program (HBP) administered by the Federal Highway Administration (FHWA) through the California Department of Transportation (Caltrans) Local Assistance. The replacement bridge would be designed to meet current applicable City, American Association of State Highway and Transportation Officials (AASHTO), and Caltrans design criteria and standards.

The Draft Initial Study/Mitigated Negative Declaration (IS/MND) was submitted to the State Clearinghouse on February 7, 2022 for a 30-day public review period that will end on March 7, 2022. During the public review period, the Draft IS/MND will be available for review at the City Development Services Department and at the City Website: [https://www.cityofshastalake.org/].

The Draft IS/MND prepared for the proposed project assesses the potential effects on the environment and the significance of those effects. Based on the results of the IS/MND, the proposed project would not have any significant impacts on the environment once mitigation measures are implemented. This conclusion is supported by the following findings:

- The proposed project would not impact agriculture and forestry resources, land use and planning, mineral resources, population and housing, and recreation.

- The project would have a less-than-significant impact on aesthetics, air quality, energy, greenhouse gas emissions, noise, public services, transportation, and utilities and service systems.

- Once mitigation measures are implemented, the proposed project would have a less-than-significant impact on biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, tribal cultural resources, and wildfire.

- No substantial evidence exists that the proposed project would have a significant negative or adverse effect on the environment.

The proposed project would incorporate standard construction best management practices and standard construction measures required by Caltrans Standard Specifications and other

applicable laws, regulations, and policies. The proposed project would implement mitigation measures, as described in Section 4 of this IS/MND.

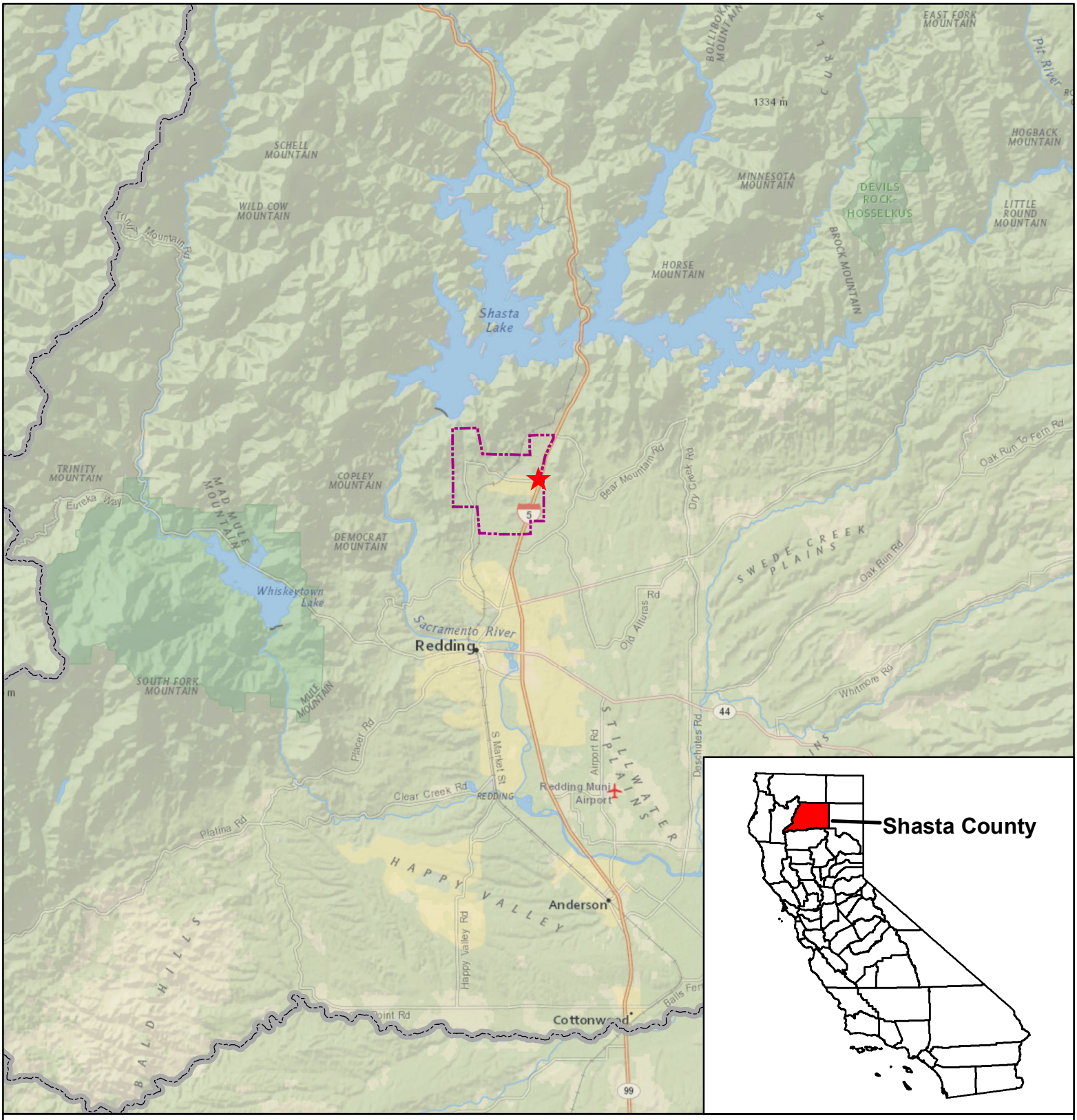
Initial Study

1. Project Title:	Cascade Boulevard Bridge (06C0060) over Moody Creek Replacement Project
2. Lead Agency Name and Address:	City of Shasta Lake Public Works Department 4477 Main Street, Shasta Lake, CA 96019
3. Contact Person and Phone Number:	William Bond, P.E. 530-275-7436 wbond@cityofshastalake.org
4. Project Location:	Cascade Boulevard Bridge, City of Shasta Lake, CA Project City U.S. Geological Survey 7.5-Minute quadrangle, Township 33N, Range 04W, Section 29
5. Project Sponsor's Name and Address:	William Bond, P.E. City of Shasta Lake Public Works Department 4477 Main Street, Shasta Lake, CA 96019
6. Adjacent General Plan Designation(s):	Commercial, Mixed Use, Public Facilities, Urban Residential, and Rural Residential A.
7. Adjacent Zoning Designation(s):	Community Commercial Design Review (C-2-DR), Commercial Planned Development (CPD), One-Family Residential (R-1), Planned Development Specific Plan (PD-SP), Public Facilities (PF), Multiple-Family Residential (R-3), Residential Rural Design Review (R-R-DR), and Interim Residential Design Review (IR-DR).

INTRODUCTION

The City of Shasta Lake (City) proposes to replace the existing Cascade Boulevard Bridge over Moody Creek (Bridge No. 06C0060) with a new concrete bridge designed to current structural and geometric standards that would provide adequate, reliable, and safe service for traffic. The proposed project, Federal Aid number BRLO-5474 (015), is located along Cascade Boulevard, approximately 0.4 miles north of State Route 151 (SR 151), within the eastern portion of the City (**Figures 1-1, 1-2, 1-3, and 1-4**). The general land use in the project vicinity consists of commercial and low-density residential uses.

The proposed project is funded primarily by the federal-aid Highway Bridge Program (HBP) administered by the Federal Highway Administration (FHWA) through the California Department of Transportation (Caltrans) Local Assistance. The replacement bridge would be designed to meet current applicable City, American Association of State Highway and Transportation Officials (AASHTO), and Caltrans design criteria and standards.



Legend

- Project Location
- City of Shasta Lake Boundary
- County Boundary

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N

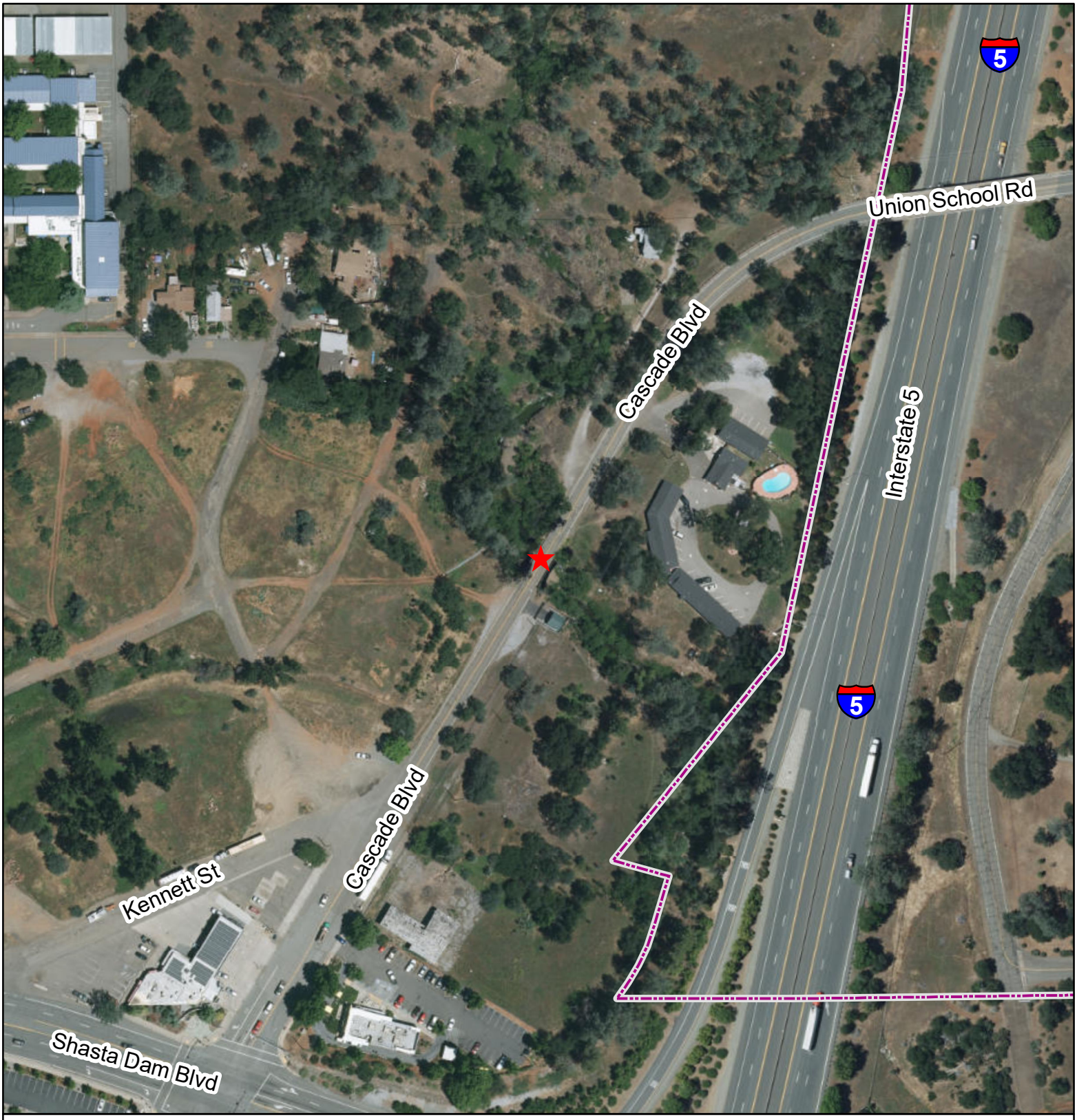
0 3 6 Miles

Source: ESRI Online Basemap, National Geographic World Map, Shasta County Coordinate System NAD 83 State Plane 1 California FIPS 0402 Feet
Notes: This map was created for informational and display purposes only

Cascade Boulevard over Moody Creek Bridge Replacement Project
City of Shasta Lake, CA

Regional Location

Figure 1-1



Legend

★ Project Location

City of Shasta Lake Boundary

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N

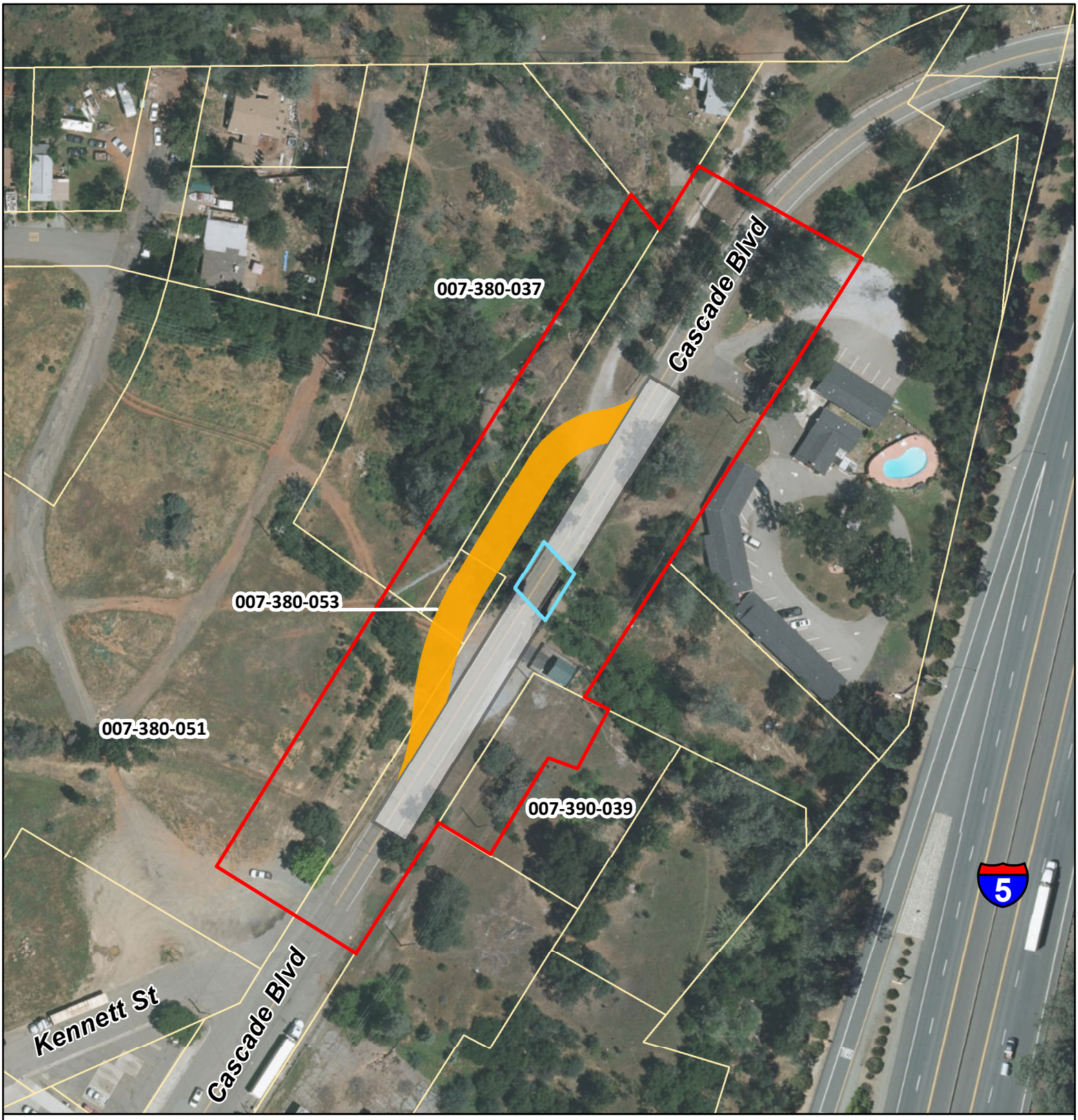
0 100 200 Feet

Source: ESRI Online Basemap, World Imagery Map, Shasta County Coordinate System NAD 83 State Plane 1 California FIPS 0402 Feet
Notes: This map was created for informational and display purposes only

Cascade Boulevard over Moody Creek Bridge Replacement Project
City of Shasta Lake, CA

Project Location

Figure 1-2



Legend

- Project Extent
- Proposed Bridge
- Proposed Roadway
- Proposed Detour
- Parcels

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N

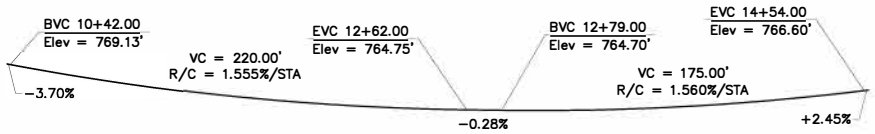
0 30 60 120 Feet

Source: ESRI Online Basemap, World Imagery Map, Shasta County Coordinate System NAD 83 State Plane California I FIPS 0402 Feet
Notes: This map was created for informational and display purposes only

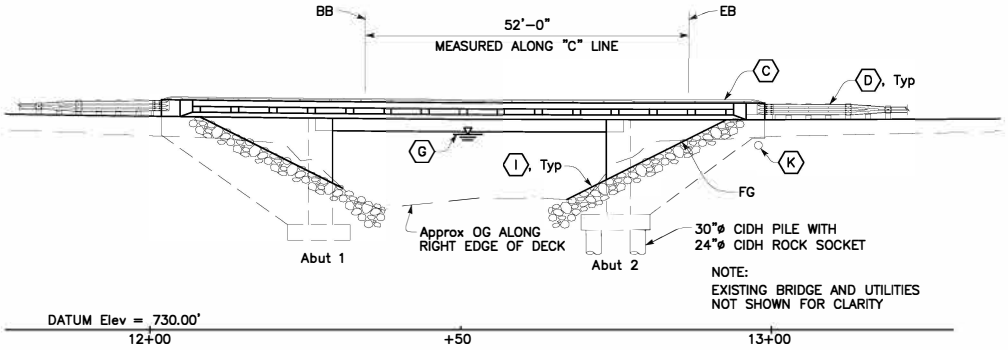
Cascade Boulevard over Moody Creek Bridge Replacement Project
City of Shasta Lake, CA

Project Footprint Map

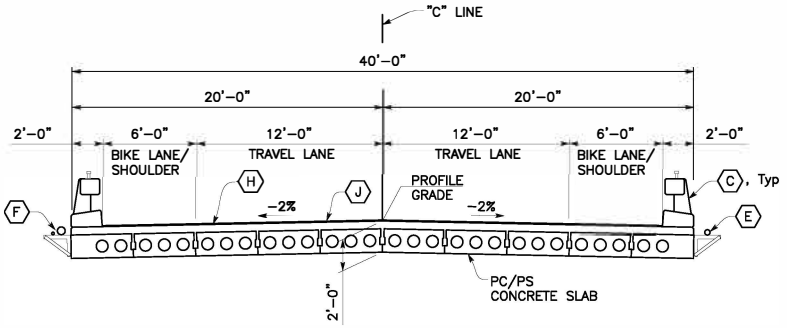
Figure 1-3



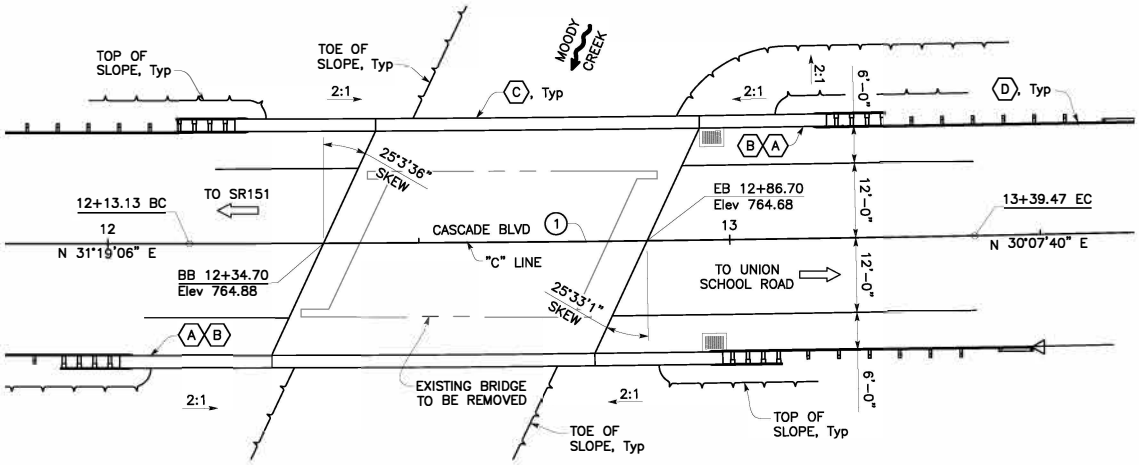
PROFILE GRADE
NO SCALE



ELEVATION
1" = 10'



TYPICAL SECTION
1/4" = 1'-0"



PLAN
1" = 10'

NOTES:

- (A) Paint "CASCADE BOULEVARD BRIDGE"
- (B) Paint "Bridge No. XXCXXXX" and year constructed
- (C) Concrete Barrier (Type 85)
- (D) Midwest Guardrail System, see "Roadway Plans"
- (E) 4" Water Line, see "Roadway Plans"
- (F) 6" Sewer Line and 2" Gas Line, see "Roadway Plans"
- (G) For "HYDROLOGIC SUMMARY", see "FOUNDATION PLAN" sheet
- (H) Reinforced Concrete Deck
- (I) Rock Slope Protection
- (J) ¾" Polyester Concrete Overlay
- (K) 15" APC Storm Drain, see "Roadway Plans"

LEGEND:

- Indicates direction of traffic
- Indicates direction of flow
- Indicates existing bridge to be removed
- Indicates new structure
- Indicates 10 Yr Water Surface Elevation

CURVE DATA				
No.	R	Δ	T	L
(1)	6080.00'	1°11'26"	63.17'	126.35'

NOTE:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

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Cascade Boulevard over Moody Creek Bridge Replacement Project City of Shasta Lake, CA	**General Plan**	**Figure 1-4**

1 PROJECT DESCRIPTION

The City of Shasta Lake (City) is proposing to replace the existing Cascade Boulevard Bridge over Moody Creek (Bridge No. 06C0060). The Cascade Boulevard over Moody Creek Bridge Replacement Project (proposed project), Federal Aid number BRLO-5474 (015), is located on Cascade Boulevard, approximately 0.4 miles north of SR 151, within the eastern portion of the City of Shasta Lake (**Figure 1-1 and 1-2**). The general land use in the project vicinity consists of commercial and low-density residential uses. The existing roadway at the bridge is classified as a "Major Collector" roadway and accommodates an Average Daily Traffic (ADT) of approximately 2,025 vehicle trips per day (City of Shasta Lake Traffic Counts Report, 2021).

The proposed project is funded primarily by the federal-aid HBP administered by the Federal Highway Administration (FHWA) through Caltrans Local Assistance. The replacement bridge would be designed to meet current applicable City, American Association of State Highway and Transportation Officials (AASHTO), and Caltrans design criteria and standards.

1.1 Existing Conditions

Constructed in 1918, the existing bridge is a two-span reinforced concrete T-girder bridge supported on concrete gravity abutments and a central concrete pier wall, with a substructure supported by spread footings. The bridge is approximately 42 feet (ft) long by 24 ft wide and is within the City's right-of-way. The bridge has been determined to be functionally obsolete due to substandard deck geometry and there are no accommodations for bicyclists or pedestrians across the bridge. The existing bridge is coded as a 5 "not eligible" by Caltrans for listing on the National Register of Historic Places (National Register). The City has determined the structure has no historical significance and therefore does not qualify for special historical considerations.

The most recent 2019 Caltrans Bridge Inspection Report noted that existing bridge has minor deck and beam cracking and scour along the Abutment 1 and Pier 2 footing. Additionally, a previous Caltrans Bridge Inspection Report noted that the top timber posts of the metal guard rail are rotted at the right side of Abutment 1.

1.2 Purpose and Need

The bridge was last inspected by Caltrans in September 2019 and has an overall Sufficiency Rating (SR) of 58.9. The bridge has been identified as functionally obsolete due to substandard deck width. Caltrans Structures Local Assistance approved the replacement of the bridge on March 15, 2019.

The purpose of the proposed project is to remove the existing functionally obsolete concrete bridge and replace it with a new concrete bridge designed to current structural and geometric

standards that would provide adequate, reliable, and safe service for traffic. The new bridge would be designed to improve safety for vehicular, pedestrian, and bicycle traffic along Cascade Boulevard at the project site.

1.3 Proposed Project

The proposed structure would be a single-span precast prestressed concrete voided slab, cast-in-place reinforced concrete slab, or cast-in-place prestressed concrete slab bridge. The proposed bridge would be approximately 52 feet in length and approximately 40 feet in width and would be raised 3 feet to meet AASHTO stopping sight distance requirements. The proposed bridge would have a 36-foot wide roadway travel width including two 12-foot travel lanes and two 6-foot shoulders/Class II bike lanes. The superstructure of the proposed bridge would be supported by concrete abutments, which are anticipated to be founded on either Cast-in-Drilled hole (CIDH) piles or spread footings. The length of approach roadway work is being governed by the necessary rise in the roadway profile at the bridge to meet applicable sight distance requirements but is anticipated to extend approximately 200 feet from the bridge along Cascade Boulevard in both directions.

1.3.1 Creek Diversion and Dewatering

Moody Creek is an intermittent creek that contains flowing water for only a portion of the year, and flows are not anticipated to be present during the construction period. Should water be present at the commencement of construction, a creek diversion system would be established to divert flow through the construction zone and dewater the area around the proposed bridge and temporary detour route. The creek diversion system would likely consist of placing cofferdams upstream and downstream of the construction site and conveying the water from Moody Creek through temporary culverts. Any temporary fill associated with the dewatering system would be removed at the end of construction, returning the creek to its original condition. The temporary cofferdams and culverts would be completely removed after the removal of the existing bridge and completion of the replacement bridge.

The creek diversion system and subsequent site dewatering would be designed in conformance with City specifications and regulations as required by Shasta County, the Central Valley Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW The operational timeline for the creek diversion would likely be June 15 to October 31, depending on the regulatory permit mitigation measures. As the proposed bridge is relatively short, falsework beams for the cast-in-place superstructure option would likely be able to span from one abutment to the other without the need for falsework bents or other temporary supports to be located within the creek channel.

1.3.2 Demolition

Demolition of the existing Cascade Boulevard Bridge (06C0060) and associated roadway would be performed in accordance with City standards, supplemented by Caltrans Specifications modified to meet environmental permit requirements. All concrete and other debris resulting from the demolition would be removed from the project site and properly disposed of by the contractor. The construction contractor would prepare a bridge demolition plan for the proposed project that would include the use of best management practices.

1.3.3 Detour Route

During construction, it is anticipated that Cascade Boulevard would be detoured just west of the existing bridge onto a temporary creek crossing. The temporary detour would provide for a 12-ft wide vehicle lane in each direction and consist of a low-water crossing constructed on fill material. The detour would temporarily affect portions of Assessor Parcel Numbers (APN) 007-380-051, 007-380-053, and 007-380-037. The City determined the establishment of an on-site detour is necessary to maintain through traffic from SR 151 to Union School Road, as there are a large number of residences located along Union School Road which rely on Cascade Boulevard to access the City of Shasta Lake, SR 151, and I-5. If Cascade Boulevard at the Moody Creek bridge were closed, residences along Union School Road would be forced to travel east to Old Oregon Trail Road and would be subjected to an average one-way detour distance of approximately 4 miles. City staff will provide public outreach prior to construction to keep residents informed of the project's status and schedule throughout construction.

1.3.4 Utility Relocation

There are several utilities in the immediate vicinity of the project site, including overhead, and underground utilities. Overhead electrical and telecommunications lines run parallel to Cascade Boulevard on both sides of the roadway. These lines are set back from Cascade Boulevard and are not anticipated to require relocation. Additionally, there is currently a 6-inch sewer line, 2-inch gas line, and 4-inch waterline attached to the existing bridge, which would need to be temporarily relocated and attached to the new bridge. There is also a 12-inch reclaimed water line attached to the existing bridge that no longer services any properties north of the bridge and would be removed off of the existing bridge during construction and abandoned.

1.3.5 Right-of-Way

Temporary construction easements would likely be required from four parcels located adjacent to the project to complete construction of the replacement bridge, temporary detour, utility relocations, and necessary driveway conforms (**Figure 1-3**). The parcels that would require temporary construction easements include APN 007-380-037, APN 007-380-051, APN 007-380-

053, and APN 007-390-039. Permanent right-of-way acquisition is not anticipated from any of the adjacent parcels.

1.3.6 Construction Activities

In order of activity, construction would consist of the following:

Installing construction area and detour signs

Sufficiently in advance of construction operations, appropriate construction signage would be installed, identifying lanes closures and the temporary onsite detour route. Signs would remain in place throughout the duration of construction.

Clearing, grubbing, and tree removals

Portions of hardscape and landscaping in conflict with construction and demolition activities would be removed. Areas along the existing bridge would be cleared of vegetation and fencing.

Stream Diversion

Should water be present, stream flow in Moody Creek would be diverted into temporary culverts through the active construction zone. The diversion would be established in conformance with City specifications as well as Shasta County, California Department of Fish and Wildlife, Regional Water Quality Control Board, and U.S. Fish and Wildlife Service regulatory requirements. The stream diversion would be constructed within the existing channel to protect water flowing in Moody Creek from demolition and construction activities. Materials to construct the diversion would consist of temporary culverts as needed to convey flow rates anticipated during construction, and exclusionary devices to construct diversion dams in the channel upstream and downstream of the site. Exclusionary devices may consist of sheet piles, gravel bags, water filled bladder dams, or another agency approved method. All stream diversion work would be contained within the approved project area.

Relocating utilities

Underground utilities would require temporary or permanent relocation to accommodate the construction of the proposed bridge and temporary detour.

Temporary Detour

The temporary detour roadway would consist of hot mix asphalt pavement over Class 2 Aggregate Base. Away from the creek, imported borrow would be used to construct the temporary detour. Within the limits of the creek channel, the temporary detour roadway would be supported on clean rock placed over the temporary stream diversion culverts. Geotextile

fabric would be placed on the creek bottom below the culverts running the full width of the detour roadway in line with the natural flow path of the channel. The detour would be removed at the conclusion of bridge construction.

Demolition

Demolition of the existing bridge work would be performed in accordance with the Caltrans Standard Specifications modified to meet environmental permit requirements. All concrete and other debris resulting from the bridge demolition would be removed from the project site and disposed of by the contractor. The construction contractor would prepare a bridge demolition plan.

New Bridge Foundations

The new abutment foundations would involve excavations of up to 20 feet deep in the banks of Moody Creek. The abutments would be supported on spread footing foundations placed below the scour elevation or CIDH piles with rock sockets. No bridge supports are anticipated to be placed within the waterway.

New Bridge Construction

The new bridge construction would involve placement of cast-in-place concrete abutments. The superstructure would be a single span precast prestressed concrete voided slab, cast-in-place reinforced concrete slab, or cast-in-place prestressed concrete slab bridge. For the precast concrete slab option, a reinforced concrete deck would be utilized to connect the individual slab units together. As the proposed bridge is relatively short, falsework beams for the cast-in-place option would likely be able to span from one abutment to the other without the need for falsework bents or other temporary supports to be located within the creek channel. Forms would be constructed on the falsework and then the concrete and reinforcement placed for the new bridge. Falsework would then be removed, and concrete surfaces would be finished. The proposed project is located inside of the Caltrans defined freeze-thaw area so special bridge deck protection features would be required, including placing a ¾" thick polyester concrete overlay on the deck. The creek diversion would be removed after the concrete has been sufficiently cured and finished and the falsework has been removed. The bridge barriers, roadway approaches, and bicycle facilities would then be completed. Backfill behind abutments and roadway base materials would be placed and then the roadway would be prepared for final surfacing.

Table 1.3-1 provides a description of the type of equipment likely to be used during the construction of the proposed project.

Table 1.3-1 Construction Equipment

Equipment	Construction Purpose
Hydraulic Hammer	Demolition
Hoe ram	Demolition
Jack Hammer	Demolition
Water Truck	Earthwork construction + dust control
Bulldozer / Loader	Earthwork construction + clearing and grubbing
Haul Truck	Earthwork construction + clearing and grubbing
Front-End Loader	Dirt or gravel manipulation
Air compressor	Bridge removal + finishing work
Boom Truck	Rebar installation + bridge removal
Drill Rig	Pile installation
Flatbed Truck	Rebar installation + bridge removal
Crane	Placement of false work beams + rebar cages + pile installation + bridge removal
Grader	Ground grading and leveling
Dump Truck	Fill material delivery
Bobcat	Fill distribution
Excavator	Soil manipulation and placement of rock slope protection
Compaction Equipment	Earthwork
Roller / Compactor	Earthwork and asphalt concrete construction
Backhoe	Soil manipulation + drainage work
Holding tanks	Slurry storage for pile installation
Concrete Truck and Pump	Placing concrete
Paver	Asphalt concrete construction
Truck with seed sprayer	Erosion control landscaping
Generators	Power Hand Tools

1.3.7 Construction Schedule and Timing

Construction is estimated to begin in the spring of 2023 and take approximately 8 months to complete. All in-creek construction work would be completed during the dry season when Moody Creek is dry or has very minimal water flow.

2 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

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

2.1 Determination: (To be completed by Lead Agency)

On the basis of this initial study:

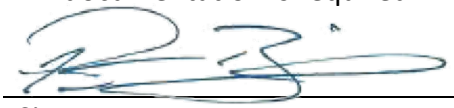
☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

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

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

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

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.



Signature

1-31-2022

Date

Peter Bird

Printed Name

3 ENVIRONMENTAL CHECKLIST

3.1 Aesthetics

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Aesthetics – Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) 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?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

3.1.1 Setting

The analysis below follows the guidance and the definitions outlined in the publication *Guidelines for the Visual Impact Assessment of Highway Projects* published by the U.S. Department of Transportation (USDOT) Federal Highway Administration (FHWA) in January 2015.

Visual character is a description (not evaluation) of a site, and includes attributes such as form, line, color, and texture. Visual quality is the intrinsic appeal of a landscape or scene due to the combination of natural and built features in the landscape, and this analysis rates visual quality as high, moderate, or low. Visual sensitivity is the level of interest or concern that the public has for maintaining the visual quality of a particular aesthetic resource and is a measure of how noticeable proposed changes might be in a particular scene and is based on the overall clarity, distance, and relative dominance of the proposed changes in the view, as well as the duration that a particular view could be seen.

<u>Proposed Project Site</u>

The proposed project would replace and widen the existing Cascade Boulevard Bridge over Moody Creek (Bridge No. 06C0060). The proposed bridge would be 52 feet long, with a width of approximately 40 feet, and would be raised 3 feet to meet AASHTO stopping sight distance

requirements. The proposed bridge would have a 36-foot wide roadway travel width including two 12-foot travel lanes and two 6-foot shoulders/Class II bike lanes. The superstructure of the proposed bridge would be supported by concrete abutments, which are anticipated to be founded on either CIDH piles or spread footings. The length of approach roadway work is being governed by the necessary rise in the roadway profile at the bridge to meet applicable sight distance requirements and is anticipated to extend approximately 200 feet from the bridge along Cascade Boulevard in both directions. The surrounding landscape is characterized by riparian habitat, oak woodland, and the existing residences. Primary land uses include residential, greenbelt/open space, and commercial/professional uses.

I-5 and SR 151 are both roadways near the proposed project impact area that are designated as Eligible State Scenic Highways (Caltrans, 2021). I-5 is located approximately 350 feet southeast of the proposed project site and SR 151 is located approximately 750 feet southwest of the project site.

Existing Project Site

Currently, the existing Cascade Boulevard Bridge is a two-span reinforced concrete T-girder bridge supported on concrete gravity abutments and a central concrete pier wall, with a substructure supported by spread footings. The bridge is approximately 42 feet long by 24 feet wide and is within the City's right-of-way. The bridge has been determined to be functionally obsolete due to substandard deck geometry and there are no accommodations for bicyclists or pedestrians across the bridge. The most recent 2019 Caltrans Bridge Inspection Report noted that the existing bridge has minor deck and beam cracking and scour along the abutment 1 and pier 2 footing. Additionally, a previous Caltrans Bridge Inspection Report noted that the top timber posts of the metal guard rail are rotted at the right side of abutment 1.

Sensitive Receptors

The proposed project includes the replacement of the Cascade Boulevard Bridge over Moody Creek. Although the proposed project would be compatible with the existing visual character, it would be approximately 10 feet longer and 16 feet wider than the existing bridge. This change is designed to accommodate the Shasta County Development Standards Manual and may be more visually appealing since it would present a newer, cleaner appearance. Sensitive receptors in the vicinity of the proposed project include roadway users, the Shasta Dam Motel, the residence at 1457 Buena Vista Street, the residence at 1530 Cascade Boulevard, and the residence at 5373 Grand Avenue.

3.1.2 Discussion

a) **No Impact.** According to the City of Lake Shasta General Plan (General Plan), the proposed project site is not located within an officially designated Scenic Vista. Although the project

site is located within the vicinity of two Eligible State Scenic Highways (Caltrans 2021), I-5 and SR 151, the proposed project site is not visible from these two highways. The proposed project would be consistent with the visual character of the project site upon completion of construction. The proposed project would have **no impact** on a scenic vista. No mitigation measures are required for this resource.

b) **Less than significant.** No visually unique features or outcroppings, including rocks, or historic buildings, are located within or in the vicinity of the proposed project site. No State Scenic Highways, National Scenic Byways, or All-American Roads are located within viewable distance of the proposed project site. The closest eligible scenic highway is I-5, which is approximately 350 feet southeast of the proposed project site.

Vegetation removal would be required to accommodate construction of the new bridge; Disturbed areas would be revegetated with native plants. Construction activities, including presence of construction equipment, may temporarily affect the visual environment surrounding the proposed project site. However, these impacts would be temporary and less than significant. Characteristics of the visual environment surrounding the proposed project site would be consistent with existing conditions upon completion of construction.

The visual characteristics and quality would be similar to existing conditions. The Project would have a **less than significant impact** on scenic resources such as historic buildings, prominent natural features, or any state designated scenic highway. No mitigation is required.

c) **Less than Significant Impact.** The proposed project site is located within land zoned as Community Commercial Design Review within western Shasta County (City of Shasta Lake, 2021). Receptors sensitive to visual change include roadway users, neighbors, and visitors to the Shasta Dam Motel. Neighbors to the project site include the Shasta Dam Motel, the residence at 1457 Buena Vista Street, the residence at 1530 Cascade Boulevard, and the residence at 5373 Grand Avenue. The proposed project is a bridge replacement that is intended to be similar to the existing visual character of the Cascade Avenue corridor.

Construction activities would introduce heavy equipment and associated vehicles, including backhoes, compactors, tractors, cranes, and trucks, into the viewshed of all viewer groups. Approximately 36 trees and some vegetation adjacent to Moody Creek and within the proposed project footprint would be removed during construction. Construction activities and the presence of equipment and vehicles would create a temporary visual impact on views seen of and from the proposed project site during the construction period. This impact would not be significant due to the temporary nature of

construction and the transient nature of viewers passing by the proposed project site. The proposed project would revegetate areas of temporary disturbance within the proposed project footprint with native, drought-tolerant vegetation and use native, drought tolerant vegetation for landscaping wherever possible. Trees and vegetation would be replanted after construction to restore the visual character of the proposed project site consistent with Section 20, "Landscape" of the Caltrans Standard Specifications 2015. Additionally, removal of exotic plant species and revegetation with native plants would help restore the site to a more natural condition, making it more consistent with the indigenous visual character of the area. Caltrans Design Guidelines and City Design Guidelines would be followed to keep construction visual impacts to a minimum.

Upon construction completion, the proposed project would be visually consistent with the existing structure and surrounding conditions. The new appearance would not be any less visually appealing than the existing bridge and may be more appealing since it would present a newer, cleaner appearance. The proposed project would be consistent with the visual character of the proposed project site and would be similar to existing conditions. Therefore, the proposed project would have a **less than significant** impact on the visual character and quality of public views of the proposed project site and surrounding area and no mitigation measures would be required.

d) **No Impact.** The proposed project would remove the existing functionally obsolete bridge along Cascade Boulevard over Moody Creek and construct a new bridge. Currently, lighting from adjacent facilities and from roadway traffic are the only significant sources of nighttime light at the proposed project site. There is a utility pole with a street light next to the sewer lift station located southeast of the bridge that would be relocated to accommodate the realigned driveway for the sewer lift station. Since the proposed project would not add capacity to the roadway nor would it introduce additional street lighting, no new sources of glare would be created. Construction activities would be temporary in nature, would occur during daylight hours, and would not increase light or glare. The proposed project would have **no impact** to light and glare, and no mitigation measures would be required.

3.1.3 Mitigation Measures

No mitigation measures are required related to aesthetics.

References

California Department of Transportation (Caltrans). 2021. California State Scenic Highway System Map. Available online:

https://www.arcgis.com/apps/webappviewer/index.html?id=2e921695c43643b1aaf7000dfcc19983. Date Accessed: July 19, 2021.

City of Shasta Lake. 1999. General Plan. Online: https://www.cityofshastalake.org/DocumentCenter/View/115/General-Plan---City-of-Shasta-Lake---June-1999?bidId=. Accessed: October 19, 2021.

City of Shasta Lake. 2021. Shasta Lake Map Viewer. Online: https://www.arcgis.com/apps/webappviewer/index.html?id=6e08b7cb14aa4302ab9f3da3a89d7d8e. Accessed: October 19, 2021.

Federal Highway Administration (FHWA). 2015. Guidelines for the Visual Impact Assessment of Highway Projects. Available at: https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.aspx#chap11. Date Accessed: July 19, 2021.

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Shasta County. 1997. Shasta County Development Standards Manual. Available at: https://www.co.shasta.ca.us/docs/libraries/public-works-docs/devstdmanual/sc-development-standards-manual.pdf. Date Accessed: July 19, 2021.

3.2 Agriculture and Forestry Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Agricultural and Forest Resources – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

3.2.1 Environmental Setting

According to the California Department of Conservation (CDOC) Farmland Mapping and Monitoring Program, land within the proposed project vicinity is categized as urban and built up land (CDOC, 2016). No land area in the City of Shasta Lake is designated as agricultural land by the CDOC. The proposed project is located on the northeastern edge of the City of Shasta Lake, which is an area designated as "Urban and Built-Up Land" by the California Department of Conservation. The nearest land categorized as Farmland of Local Importance is located approximately 2 miles southwest of the proposed project site, while the nearest land categorized

as Farmland of Statewide Importance is located approximately 2.3 miles southwest of the proposed project site.

The proposed project site is within land designated by the General Plan as Commercial. The proposed project footprint is located within the Community Commercial Design Review Zoning District and adjacent to the Commercial Planned Development Zoning District (City of Lake Shasta GIS 2020). The Community Commercial Zoning District includes buildings that conduct retail sales, commercial services, or emergency shelter (City of Shasta Lake Municipal Code 2017). The Planned Development Zoning District includes developments that have a mix of use that would otherwise have land use conflicts (City of Shasta Lake Municipal Code 2017). There is no designated farmland, forestland, or timberland in the vicinity of the proposed.

3.2.2 Discussion.

a) **No Impact.** According to the CDOC Farmland Mapping and Monitoring Program, the proposed project site is located within an area designated as Urban and Built-Up Land. There are no lands designated as prime farmland, unique farmland, or farmland of statewide importance located with the proposed project vicinity (CDOC 2016). No mitigation measures are required.

b) **No Impact.** City zone classifications within and adjacent to the proposed project extent include Community Commercial (C-2-DR) and Commercial Planned Development (CPD). There are no lands operating under a Williamson Act contract within or adjacent to the proposed project site. Therefore, the proposed project would have no impact on agricultural zone classifications or Williamson Act contracts. No mitigation measures are required.

c) **No Impact.** According to the CDOC, the proposed project area does not include agricultural land enrolled under the Williamson Act (CDOC, 2012). In addition, the proposed project site does not include forestland, timberland, or timberland zoned Timberland Production as defined by the Public Resources Code or the Government Code. Therefore, no impact would occur. No mitigation measures are required.

d) **No Impact.** There is no land uses within the proposed project area designated as forestland. As a result, the proposed project would not cause any loss of forestland or the conversion of forestland to non-forest use. No mitigation measures are required.

e) **No Impact.** The proposed project does not involve any changes or alterations to the existing environment that could result in the conversion of Farmland to nonagricultural use or forestland to non-forest use, as no Farmland or forestland exists in the immediate or surrounding area of the proposed project. No mitigation measures are required.

3.2.3 Mitigation Measures

No mitigation measures are required related to agriculture and forestry resources.

References

California Department of Conservation (CDOC). 2016. California Important Farmland Finder. Available online: https://maps.conservation.ca.gov/DLRP/CIFF/. Date Accessed: July 16, 2021.

Municipal Code Shasta Lake, CA. 2017. Code of Ordinances. Available online: https://library.municode.com/ca/shasta_lake/codes/code_of_ordinances?nodeId=TIT1GEPR. Date Accessed: July 16, 2021.

City of Shasta Lake. 2020. Shasta Lake Map Viewer. Available online: https://shastalake.maps.arcgis.com/apps/webappviewer/index.html?id=6e08b7cb14aa4302ab9f3da3a89d7d8e. Date Accessed: July 16, 2021.

3.3 Air Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Air Quality – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project?				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) 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?	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Setting

The proposed project is located near the City's eastern boundary which is located at the northern end of the Sacramento Valley Air Basin (SVAB) and is within the Shasta County Air Quality Management District (SCAQMD). Air quality districts are public health agencies whose mission is to improve the health and quality of life for all residents through effective air quality management strategies. The SCAQMD adopted the California Environmental Quality Act (CEQA) Air Quality Handbook to define thresholds of significance and local guidance to further assist with determining the significance of land use projects and feasible mitigation.

The counties located in the northern portion of the Sacramento Valley, Butte, Colusa, Glenn, Shasta, Sutter, Tehama, and Yuba, together establish the Northern Sacramento Valley Planning Area (NSVPA). NSVPA is bound on the north and west by the Coastal 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 both locally created pollution and pollution that has been transported northward on prevailing winds from the Broader Sacramento Area. In addition, the NSVPA is shaped like an elongated bowl, where temperature inversion layers can act as a lid on the bowl, which allows air pollution to rise to unhealthy levels.

Concentrations of ozone, carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), lead (Pb), and particulate matter (PM10 and PM2.5) are commonly used as indicators of ambient

air quality conditions. These pollutants are known as "criteria pollutants" and are regulated by the U.S. Environmental Protection Agency (USEPA) and California Air Resources Board (CARB) through National and California ambient air quality standards (National Ambient Air Quality Standards [NAAQS] and California Ambient Air Quality Standards [CAAQS]), respectively. The NAAQS and CAAQS limit criteria pollutant concentrations to protect human health and prevent environmental and property damage. The SCAQMD is responsible for ensuring the NAAQS and CAAQS are met within Shasta County. The SCAQMD administers local and state air quality regulations designed to achieve state and federal ambient air quality standards. These functions are grouped into three areas: permitting, monitoring/inspection, and long-range planning.

An air basin is in "attainment" (compliance) when the levels of the pollutant in that air basin are below NAAQS and CAAQS thresholds. **Table 3.3-1** provides information on the NAAQS and **Table 3.3-2** provides information on the CAAQS.

Table 3.3-1. NAAQS

Pollutant		Standard type	Averaging time	Concentration threshold	Form
Carbon monoxide (CO)		Primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		Primary and secondary	Rolling 3-month average	0.15 µg/m^3	Not to be exceeded
Nitrogen dioxide (NO_2)		Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Primary and secondary	1 year	53 ppb	Annual mean
Ozone (O_2)		Primary and secondary	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particulate matter (PM)	$PM_{2.5}$	Primary	1 year	12.0 µg/m^3	Annual mean, averaged over 3 years
		Secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years
		Primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	Primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur dioxide (SO_2)		Primary	1 hour	75 ppb	99th percentile of 1 hour daily maximum concentrations, averaged over 3 years
		Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source: U.S. EPA, 2021.

Table 3.3-2. CAAQS

Pollutant		Averaging time	Concentration threshold
Carbon monoxide (CO)		8 hours	0.09 ppm
		1 hour	0.070 ppm
Lead (Pb)		1.5	0.15 µg/m^3
Nitrogen dioxide (NO_2)		1 hour	0.18 ppm
		Annual arithmetic mean	0.030 ppm
Ozone (O_2)		8 hours	0.09 ppm
		1 hour	0.070 ppm
Particulate matter (PM)	$PM_{2.5}$	Annual arithmetic mean	12.0 µg/m^3
	PM_{10}	24 hours	50 µg/m^3
		Annual arithmetic mean	20 µg/m^3
Sulfur dioxide (SO_2)		1 hour	0.25 ppm
		24 hours	0.04 ppm
Visibility reducing particles		9 hours	Extinction of 0.23 per kilometer
Sulfates		24 hours	25 µg/m3
Hydrogen sulfide		1 hour	0.03 ppm
Vinyl chloride		24 hours	0.01 ppm

Source: ARB, 2016

The proposed project site is located in an area that is currently in federal attainment status for all criteria pollutants. However, the proposed project site is located in an area that is currently in state non-attainment for ozone. The NSVPA Districts were designated as nonattainment for the ozone CAAQS and jointly prepared an Air Quality Attainment Plan, Northern Sacramento Valley Planning Area 2018 Triennial Air Quality Attainment Plan (AQAP). In the NSVPA, ozone can be caused by stationary source emissions, mobile source emissions, or area sources. The NSVPA districts also experience transport ozone from the Broader Sacramento Area, which comprises all of the Sacramento Metropolitan AQMD, Yolo-Solano AQMD, and a portion of El Dorado, Placer, Sutter Counties. Emissions that were originally created in the Broader Sacramento Area can be transported northward via prevailing winds and affect the pollution levels in the NSVPA. Shasta County has four ozone monitoring stations, which did not record a day over the 1-hour standard between 2015 and 2017. Three of the four locations show decreasing number of days over the 8-hour standard since 2007 (SVAQEEP, 2018).

Sensitive Receptors

The City's General Plan designated land uses surrounding the proposed project include Commercial, Mixed Use, Public Facilities, Urban Residential, Rural Residential A, and Rural Residential B. The SCAQMD Environmental Review Guidelines identifies sensitive receptors as facilities that house or attract children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Sensitive Receptor locations may include hospitals, schools, convalescent facilities, and residential areas (CARB, 2021b). Exposure to diesel exhaust associated with construction activity contributes to both cancer and chronic non-cancer health risks.

The closest sensitive receptor is a residence located approximately 400 feet northwest of the proposed project site. There are additional residences located in the vicinity of the proposed project site as well as Grand Oaks Elementary School, which is located approximately 600 feet northwest of the proposed project site. The residences as well as the elementary school are located on fairly open land with little to no obstructions interfering with cross wind. Exposure to concentrations of criteria air pollutants would not be expected to be significant.

3.3.2 Discussion

a) **Less than Significant.** The proposed project would replace an existing, obsolete structure with a bridge that is compliant with current applicable City, AASHTO and Caltrans design criteria and standards. The proposed project would not increase automobile capacity or create other permanent new sources of emissions. In addition, the proposed project would provide safer bicycle and pedestrian access along Cascade Boulevard within the project area. Currently there are no accommodations for bicyclists or pedestrians along Cascade Boulevard within the proposed project vicinity. Upon completion, the proposed project would be consistent with applicable air quality plans.

   The proposed project is consistent with the Air Quality Objectives in the City's General Plan. The proposed project would enhance bicycle and pedestrian access along Cascade Boulevard, which is consistent with the General Plan Air Quality Policy AQ-e, which includes the need to encourage walking and the use of bicycles. The proposed project would not conflict with or obstruct implementation of the 2018 Triennial Air Quality Attainment Plan or the SCAQMD Environmental Review Guidelines. All construction equipment would be maintained in a manner consistent with state and federal regulations applicable to off-road, construction diesel equipment. The proposed project would not increase long term traffic levels and there would be no operational impacts to air quality. Impacts would be less than significant, and no mitigation is required.

b) **Less than Significant with Mitigation.** The project site is located in an area that is currently in federal attainment status for all criteria pollutants but is currently in state non-attainment for ozone. The proposed project would replace an existing obsolete structure with a bridge that is compliant with current applicable City, AASHTO and Caltrans design criteria and standards. The proposed project would not increase capacity along Cascade Boulevard, nor would it increase traffic and congestion. The proposed project would have no impact related to criteria air pollutant emissions during operations.

   Temporary impacts resulting from the proposed project regarding air quality would be construction related. The primary impact to local air quality during construction would be emissions from dust-generating activities (PM_{10} and $PM_{2.5}$). The SCAQMD does not have any specific significance thresholds for construction emission levels. For the purpose of

this analysis, the Sacramento Metropolitan Air Quality Management District (SMAQMD) thresholds of significance were used. In addition, construction operations in the SCAQMD are required to comply with Rule 3:16, *Fugitive, Indirect, or Non-Traditional Sources,* which is in place to minimize the amount of respirable PM_{10} that is emitted from anthropogenic fugitive dust sources. The reduction of fugitive emissions would be sufficient in attaining state and national PM_{10} ambient air quality standards (Shasta County Department of Resource Management, 2021).

Construction emissions were modelled using the Road Construction Emissions Model (RCEM), Version 9.0.0, which was developed by the SMAQMD. For the purpose of this analysis, it was assumed that the proposed project construction would last 8 months, the total project area would be 2.81 acres, and the maximum area disturbed/day would be 2.81 acres. It was also assumed that all on road equipment used for the proposed project would be year 2010 or newer models; and all construction equipment would meet CARB Tier 4 requirements for some or all off-road equipment. See **Appendix A** for the full RCEM. The proposed project would contribute to a temporary incremental increase in emissions. Estimated criteria air pollutant emissions generated by the proposed project's construction and applicable SMAQMD emissions thresholds are summarized in **Table 3.3-3**, below.

Table 3.3-3. Air Quality Emissions and Thresholds

Pollutant	SMAQMD Thresholds (Pounds/day)	Maximum Project Emissions (Pounds/day)
ROG	--	4.76
NOx	85	10.55
CO	--	90.34
SOx	--	0.16
PM_{10}	0. If all feasible BMPs are applied, then 80 pounds/day and 14.6 tons/year.	28.72
$PM_{2.5}$	0. If all feasible BMPs are applied, then 82 pounds/day and 15 tons/year.	6.35
Source: SMAQMD, 2020; SMAQMD, 2018.		

The proposed project would generate emissions below the established SMAQMD emissions thresholds and would not significantly increase emissions to the criteria pollutants currently at nonattainment, ozone, for Shasta County. With the implementation of **Mitigation Measure AIR-1**, impacts to air quality would be less than significant.

c) **Less than Significant.** Construction activities for the proposed project are expected to last approximately 8 months. The area near the proposed project is not heavily populated, but there are several nearby residences as well as an elementary school. Grand Oaks Elementary School is approximately 600 feet northwest of the proposed project site.

Sensitive receptors in the vicinity of the proposed project would be exposed to temporary construction emissions, which would cease upon project completion. Exposure to air emissions is not expected to be significant to the students given dispersion, the distance from the proposed project site, and the temporary nature of emissions during construction. There are a few single-family residences located on Grand Avenue, Buena Vista Street and one north of the proposed project site on Cascade Boulevard. However, these properties are located on open land with little to no obstructions interfering with dispersion or cross winds. BMPs would be implemented in order to minimize potential impacts to sensitive receptors. These BMPS include, but are not limited to, those listed above under subsection b). Short-term exposure to concentrations of criteria air pollutants would not be expected to be significant. For these reasons, this impact is considered less than significant. No mitigation is required.

Sensitive receptors would not experience a permanent increase in air pollutant emissions as a result of the proposed project because it would not result in capacity increases for vehicles, increase average daily traffic (ADT), increase vehicle miles travelled (VMT), or induce changes in the surrounding land uses. Therefore, operations of the proposed project would not result in new sources of emissions of criteria pollutants over time. Operations of the proposed project would not expose sensitive receptors to substantial pollutant concentrations. Long term impacts would be less than significant, and no mitigation is necessary.

d) **Less than Significant.** While offensive odors rarely cause any physical harm, they can be unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and air districts. Project-related odor emissions would be predominately limited to the construction period, when emissions from equipment may be evident in the immediately surrounding area. Odors would be generated from vehicles and/or equipment exhaust emissions during construction. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and architectural coatings. Such odors are temporary, and for the types of construction activities anticipated for proposed project components, would generally occur at magnitudes that would not affect substantial numbers of people. Odor emissions during the proposed project are not expected to result in nuisance odors. This impact is considered less than significant.

The proposed project would not change the operations on surrounding roads, thus, odors and other emissions upon completion of the proposed project would be similar to existing conditions. Impacts regarding operations of the proposed project would also be less than significant. No mitigation is required.

3.3.3 Mitigation Measures

Mitigation Measure AIR-1: BMPs would be implemented during construction to comply with applicable SCAQMD fugitive dust rules and regulations and to reduce construction emissions further. The following BMPs would be implemented by the lead contractor:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt tracked-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]).
- Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- A publicly visible sign shall be posted with the telephone number and contact information for the designated on-site construction manager available to receive and respond to dust complaints. This person shall report all complaints to the County and take immediate corrective action as soon as practical but not more than 48 hours after the complaint is received. The SCAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

3.3.4 References

California Air Resources Board (CARB). 2021a. Maps of Current State and Federal Area Designations. Online: https://ww2.arb.ca.gov/resources/documents/maps-state-and-federal-area-designations. Date Accessed: June 25, 2021.

Shasta County Air Quality Management District. 2003. Environmental Review Guidelines. Online: https://www.co.shasta.ca.us/docs/libraries/resource-management-docs/aq-docs/scaqmd-ceqa-guidelines.pdf. Date Accessed: June 28, 2021.

Environmental Protection Agency (EPA). 2021. NAAQS Table. Online: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Date Accessed: June 25, 2021.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2018. Road Construction Emissions Model, Version 9.0.0. Date Accessed: June 28, 2021.

Sacramento Metropolitan Air Quality Management District (SMAQMD). 2020. SMAQMD Thresholds of Significance Table. Online: https://www.airquality.org/LandUseTransportation/Documents/CH2ThresholdsTable4-2020.pdf. Accessed: October 21, 2021.

Sacramento Valley Air Quality Engineering and Enforcement Professionals (SVAQEEP). 2018. Northern Sacramento Valley Planning Area 2018 Triennial Air Quality Attainment Plan. Online: https://www.co.shasta.ca.us/docs/libraries/resource-management-docs/aq-docs/2018_triennial_air_quality_attainment_plan.pdf. Date Accessed: June 25, 2021.

Shasta County Department of Resource Management. 2021. Air Quality Services. Online: https://www.co.shasta.ca.us/index/drm/air-quality/services. Date Accessed: June 28, 2021.

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3.4 Biological Resources

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

3.4.1 Setting

This section incorporates the analysis, findings, and recommendations in the *Biological Assessment (BA) Cascade Boulevard over Moody Creek Bridge Replacement Project* (Caltrans 2021a) and the *Natural Environment Study (NES) Cascade Boulevard over Moody Creek Bridge Replacement Project* (Caltrans 2021b). For purposes of this chapter, the Project Impact Area (PIA) refers to the areas that will be temporarily or permanently impacted by the proposed project

(i.e., construction-related activities). The PIA includes all areas affected by the construction of the new bridge and demolition of the existing bridge.

Habitats

Habitat conditions within the PIA are relatively undisturbed and of fairly high quality; however, there is surrounding development and some level of human disturbance as evidenced by the homeless camps around the bridge. Moody Creek is characterized by low gradient, slow moving water, dominated by a coarse, gravelly substrate with fine sands and silt as well as small to large size angular rocks and cobbles. The banks have a relatively gentle slope and the soils are friable with evidence of burrowing wildlife. The vegetated banks can also provide shelter for small terrestrial wildlife species. Available fish habitat includes undercut banks, overhanging vegetation, and some instream woody debris.

A description of each natural community, including vegetation types, is provided below:

Barren

Barren habitat is characterized by less than 2 percent total vegetation cover by herbaceous, desert, or nonwildland species and less than 10 percent cover by tree or shrub species. This habitat is limited to nonvegetated areas that have not been significantly disturbed but instead are naturally sparsely vegetated due to hydrology or other factors. Within the PIA, barren habitat is comprised of rock outcroppings, and a gravel bar, along Moody Creek.

Mixed Riparian

The riparian habitat within the PIA appear to be a transition between valley foothill riparian and montane riparian habitat types. The vegetation within the riparian habitat is similar to both the valley foothill riparian and montane riparian forests and woodlands in species occurrences. This habitat type can be found in and along the margins of the active channel on intermittent and perennial streams at mid-elevations. Generally, no single species dominates the canopy, and composition varies with elevation, aspect, hydrology, and channel type. Within the PIA, this habitat type occurs along Moody Creek and appears to be in an area of transition between lower elevation species of valley foothill riparian and high elevation species of montane riparian.

Characteristic species that comprise the upper canopy include Fremont cottonwood (*Populus fremontii*), big leaf maple (*Acer macrophyllum*), and white alder (*Alnus rhombifolia*) as well as the non-native species, tree-of-heaven (*Ailanthus altissima*). The mid-story is relatively dense and dominated by willows including arroyo willow (*Salix lasiolepis*), narrow-leafed willow (*S. exigua*), red willow (*S. laevigata*) western choke cherry (*Prunus virginiana*), and spice bush (*Calycanthus occidentalis*). Brambles of Himalayan blackberry (*Rubus discolor*) and California wild rose (*Rosa californica*) engulf the broader, low-gradient riparian areas. Lianas of California grape (*Vitis californica*) grow into the canopy.

Other species include California buttonwillow (*Cephalanthus occidentalis*), American dogwood (*Cornus sericea*), California ash (*Fraxinus dipetala*), and mugwort (*Artemisia douglasiana*) which occur in riparian habitat at the transition zone between riparian and riverine habitat.

VEGETATION ALLIANCES

- *Populus fremontii / Vitis californica (61.130.13) Fremont Cottonwood Forest and Woodland*
- *Populus fremontii – Salix laevigata (61.130.15) Fremont Cottonwood Forest and Woodland*
- *Populus fremontii – Salix lasiolepis (61.130.23) Fremont Cottonwood Forest and Woodland*
- *Alnus rhombifolia / Salix exigua – (Rosa californica) (61.420.18) White Alder Groves*

Montane Hardwood

Montane hardwood occurs primarily in association with the non-native grassland habitat. Montane hardwood is typically composed of a pronounced hardwood tree layer with a poorly developed understory. Dominant species in this habitat include foothill pine (*Pinus sabiniana*), and black oak (*Quercus kelloggii*). Dominant understory vegetation observed within this habitat type includes geranium (*Geranium molle*), hedgehog dogtail, buckbrush (*Ceanothus cuneatus*) and poison oak (*Toxicodendron diversilobum*).

VEGETATION ALLIANCES

- *Pinus sabiniana - Quercus chrysolepis / Arctostaphylos viscida (87.130.12) Ghost Pine Woodland*

Non-Native Grassland

Non-native grasslands are characterized by a dominance of non-native annual grasses and forbs and intergrades with the montane conifer habitat. Common species represented in this habitat include Italian ryegrass (*Festuca perennis*), ripgut brome (*Bromus diandrus*), soft chess brome (*Bromus hordeaceus*), hedgehog dogtail (*Cynosurus echinatus*), and wild oat (*Avena* spp.). Additional plant species observed in this area include rough cocklebur (*Xanthium strumarium*), and yellow star-thistle (*Centaurea solstitialis*).

VEGETATION ALLIANCES

- *Avena (barbata, fatua) (44.150.00) Wild oats grasslands*
- *Bromus (diandrus, hordeaceus) (42.026.00) Annual brome grasslands*

Riverine (Intermittent)

Riverine habitats are distinguished by intermittent or continually running water and occur in association with a variety of terrestrial habitats. Within the PIA, Moody Creek comprises the riverine habitat and contains flowing water only for part of the year. Riverine habitat provides water and a migration corridor for a variety of amphibians, reptiles, and fish species.

The substrate within Moody Creek consists of a coarse gravel with fine sands and silt as well as small to large size angular rocks and cobbles. At the time of the wetland delineation, conducted

in May 2019, water was present and flowing within Moody Creek, with a depth of six inches to one foot and the average width of the ordinary high water mark (OHWM) was approximately 9 feet; however, at the bridge it ranges from 11 to 14 feet. The banks of Moody Creek range from gently sloping to relatively steep and are primarily vegetated with species described under the mixed riparian habitat type. In some areas the banks are undercut or consist of large chunks of bedrock.

Special-Status Plant Species

The plants listed are considered to be of special concern based on (1) federal, state, or local laws regulating their development; (2) limited distributions; and/or (3) the presence of habitat required by the special-status plants occurring on site. After completion of the field surveys and review of existing information on special-status plants in the proposed project region, it was determined that four special-status plant species, big-scale balsamroot, Sulphur Creek brodiaea, silky cryptantha, and oval-leaved viburnum, have the potential to occur within the PIA based on the presence of suitable habitat.

Big-scale balsamroot is ranked by the California native Plant Society (CNPS) as being fairly threatened in California, meaning that 20-80 percent of the known occurrences are threatened. Big-scale balsamroot is a perennial herb found on chaparral, cismontane woodland, and valley and foothill grassland from 295 to 5,100 feet in elevation. Big-scale balsamroot blooms from May to June. Big-scale balsamroot is known to occur in several counties along the Sierra Nevada foothills and the California Coast Ranges and include Alameda, Amador, Butte, Colusa, El Dorado, Lake, Mariposa, Napa, Placer, Santa Clara, Shasta, Solano, Sonoma, Tehama, Tuolumne counties (CNPS 2021).

Sulphur Creek brodiaea is ranked by the CNPS as being seriously threatened in California, meaning that over 80 percent of the known occurrences are threatened. Sulphur Creek brodiaea is a perennial bulbiferous herb found on rocky, metamorphic amphibolite schist along streambanks in cismontane woodlands and within meadows and seeps from 640 to 730 feet in elevation. Sulphur Creek brodiaea blooms from May to June and is known to only occur in Shasta County (CNPS 2021).

Silky cryptantha is ranked by the CNPS as being fairly threatened in California, meaning that 20-80 percent of the known occurrences are threatened. Silky cryptantha is an annual herb found along gravelly streambeds in cismontane woodlands, lower montane coniferous forest, riparian forest, riparian woodland, and valley and foothill grasslands from 200 to 4,010 feet in elevation. Silky cryptantha blooms from April to May and is known to occur in Glenn, Shasta, and Tehama counties (CNPS 2021).

Oval-leaved viburnum is ranked by the CNPS as being not very threatened in California, meaning that less than 20 percent of the known occurrences are threatened. Oval-leaved viburnum is a

perennial deciduous shrub found in chaparral, cismontane woodland, and lower montane coniferous forests from 710 to 4,620 feet in elevation. Oval-leaved viburnum blooms from May to June and is known to occur in Alameda, Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Lake, Mendocino, Mariposa, Napa, Placer, Shasta, Solano, Sonoma, Tehama counties (CNPS 2021).

Special-Status Wildlife Species

After completion of the field surveys and review of existing information on special-status wildlife in the proposed project region, it was determined that eight special-status wildlife species have the potential to occur within the PIA. These species include CV steelhead, CVSR chinook, foothill yellow-legged frog, California red-legged frog, western pond turtle, American peregrine falcon, pallid bat, and Townsend's big-eared bat. In addition, there is the potential for the proposed project to impact nesting migratory birds and raptors. Each of these species is discussed below.

The **Central Valley (CV) Distinct Population Segment (DPS) of steelhead trout** was listed as federally threatened on March 19, 1998. A recovery plan was drafted by NOAA Fisheries for steelhead in 2009 and finalized in July 2014. The Sacramento River is included within the recovery plan area. Steelhead trout belong to the family Salmonidae which includes all salmon, trout, and chars. Steelhead life cycle and ecological requirements are similar to some Pacific salmon because they are considered an "ocean-maturing" species. Steelhead enter freshwater streams in August through April and spawn from December through April, with peaks from January through March. Juvenile steelhead spend their first 1-3 years of life within the streams then migrate to the Pacific Ocean where most of their growth occurs. After one to four growing seasons in the ocean, steelhead return to their native freshwater streams to spawn. Steelhead do not necessarily die after spawning and are able to spawn more than once (NOAA Fisheries, 2014).

The reach of Moody Creek in the PIA provides suitable migration and natal rearing, and spawning habitat for CV steelhead. There are no recorded occurrences for CV steelhead within 5 miles of the PIA. The closest and most recent recorded occurrence is approximately 6.5 miles southwest of the PIA within the Sacramento River. The occurrence was recorded in 2010.

Central Valley spring-run chinook salmon was listed as federally and state threatened in 1999. A recovery plan was drafted by NOAA Fisheries for CV spring-run chinook in 2009 and finalized in July 2014. The Sacramento River is included within the recovery plan area. Spring-run chinook salmon were historically widely distributed and abundant within the Sacramento and San Joaquin river systems (Yoshiyama et al., 1998). Spring-run chinook salmon historically migrated upstream into the upper reaches of the mainstem rivers and tributaries for spawning and juvenile rearing. Spring-run chinook salmon abundance has declined substantially and the geographic distribution of the species within the Central Valley has also declined substantially. Spring-run spawning and

juvenile rearing currently occurs on a consistent basis within only a small fraction of their previous geographic distribution, including populations inhabiting Deer, Mill, and Butte creeks, the mainstem Sacramento River, several other local tributaries on and intermittent basis, and the lower Feather River. Recent genetics studies have shown that spring-run like chinook salmon returning to lower Feather River are genetically similar to fall-run chinook salmon. Hybridization between spring-run and fall-run chinook salmon, particularly on the Feather River where both stocks are produced within the Feather River hatchery, is a factor affecting the status of the spring-run salmon population.

The reach of Moody Creek in the PIA provides suitable migration and natal rearing, and spawning habitat for CVSR chinook salmon. There are no recorded occurrences for CVSR chinook salmon within 5 miles of the PIA. The closest and most recent recorded occurrence is approximately 6.5 miles southwest of the PIA within the Sacramento River. The occurrence was recorded in 2010.

California red-legged frog (CRLF) is federally listed as threatened under the ESA (61 FR 25813) and is designated as a species of special concern by CDFW. The historical range of CRLF extended coastally from Mendocino County, California, and inland from the vicinity of Redding, California, southward to Baja California, Mexico (USFWS 2002). CRLF have been found at elevations that range from mean sea level to about 5,000 feet above mean sea level.

Although Moody Creek, and the associated riparian habitat, provides a potential migration corridor for CRLF, and there are burrows located along the undercut banks which could provide suitable aestivation habitat, there is substantial documentation that the species has been extirpated from Shasta County for many decades (i.e., the species has not been recorded in Shasta County after 1984) and the USFWS has in the past concurred with Caltrans that CRLF is extirpated from this area of Shasta County (Julie Owens, personal communications, 2021). No CRLF were observed within the PIA during the May 2019 survey.

Foothill yellow-legged frog (FYLF) is designated as State listed endangered as well as a species of special concern by CDFW. This species occurs in or near rocky streams in a variety of habitats. Adults may bask on exposed rock, but will take cover underwater when disturbed. Eggs are attached to gravel or rocks in moving water near stream margins. FYLF requires permanent streams with shallow, flowing water, preferably in small- to moderate-sized stream situations with at least some cobble-sized substrate (Jennings and Hayes 1994). This species is rarely found far from permanent water and breeds mid-March to early June, after high water of streams subsides (Jennings and Hayes 1994).

The reach of Moody Creek in the PIA provides suitable breeding habitat. Available amphibian habitat includes undercut banks, overhanging vegetation, and some instream woody debris. In addition, Moody Creek provides a migration corridor for this species. No FYLF were observed

within the PIA during the May 2019 survey. There are four recorded occurrences FYLF within 5 miles of the PIA.

Western pond turtles, including both the northwestern (ssp. marmorata) and southwestern (ssp. pallida) subspecies, are listed as a California species of special concern by CDFW. Western pond turtles range throughout the state of California, from southern coastal California and the Central Valley, east to the Cascade Range and the Sierra Nevada. The two subspecies are believed to integrate over a broad range in the Central Valley (Jennings and Hayes, 1994). Western pond turtles occur in a variety of permanent and intermittent aquatic habitats, such as ponds, marshes, rivers, streams, and ephemeral pools. Pond turtles require suitable basking and haul-out sites, such as emergent rocks or floating logs, which they use to regulate their temperature throughout the day (Holland, 1994). In addition to appropriate aquatic habitat, these turtles require an upland oviposition site in the vicinity of the aquatic habitat, often within 200 meters (656 feet). Nests are typically dug in grassy, open fields with soils that are high in clay or silt fraction. Egg-laying usually takes place between March and August (Zeiner et al., 1988).

Moody Creek does provide some suitable habitat for this species as the banks have a relatively gentle slope and could provide suitable basking structure. In addition, large boulders and logs within the stream channel provide suitable basking structures. The overhanging vegetation provides suitable forage for this species. Lastly, western pond turtle may use Moody Creek as a dispersal corridor to more suitable habitat upstream of the PIA. This species was not observed during the surveys conducted in May 2019. There are three recorded occurrences of western pond turtle within 5 miles of the PIA.

American peregrine falcon is considered to be a fully protected species and lives mostly along mountain ranges, river valleys, coastlines, and increasingly in cities. In mild-winter regions, it is usually a permanent resident, and some individuals, especially adult males, will remain on the breeding territory. Only populations that breed in Arctic climates typically migrate great distances during the northern winter. Riparian areas and coastal and inland wetlands are important habitats yearlong, especially in nonbreeding seasons (Zeiner et. al. 1990).

There is one recorded occurrence for American peregrine falcon within 5 miles of the PIA. The riparian and grassland habitat provides suitable habitat for this species. No active bird nests, or nesting behavior, were observed within the PIA during the May 2019 surveys. The surrounding riparian habitat also provides potential nesting and foraging habitat for birds listed by the Migratory Bird Treaty Act (MBTA).

The **pallid bat** is a locally common species of low elevations and is a yearlong resident through most of its range. It uses a wide variety of habitats from sea level up through mixed conifer forests, but is most common in open, dry habitats with rocky areas for roosting. This bat forages among trees and shrubs and over open ground, and often takes prey on the ground. Its diet is a

variety of insects and spiders, including large, hard-shelled prey, which is often carried to a perch or night roost for consumption. Caves, crevices, and sometimes hollow trees and buildings are used for day roosts. Roosts must protect bats from high temperatures. Night roosts may be in more open sites, such as porches and open buildings. Pallid bats are social, and most roost in groups of 20 or more. Maternity colonies form in early April and may have 10 to 100 individuals. Males may roost separately or in the nursery colony.

Townsend's big-eared bat is widely distributed in North America and occurs in a variety of habitats from sea level to about 10,000 feet elevation. This species is found throughout California, but specific details of its distribution are not well known, however it is most abundant in mesic habitat. It roosts in colonies and prefers cave-like habitat but has also been reported to utilize buildings, bridges, rock crevices and man-made structures as roost sites. Foraging habitat includes edges along streams adjacent to and within a variety of wooded habitats, in addition to open areas such as pastures Small months and beetles are primary food sources. Echolocation is generally used to capture prey while in flight.

There are no recorded occurrences of bat species within 5 miles of the PIA; however, Cascade Boulevard Bridge, and the larger trees and snags could provide suitable roosting habitat for pallid bat, Townsend's big-eared bat, and other common bat species. No bats were observed during the surveys conducted in May 2019.

Jurisdictional Aquatic Resources

The proposed project area contains aquatic resources that fall under the US Army Corps of Engineers (Corps), RWQCB, and CDFW jurisdictions. **Table 3.4-1** summarizes potentially jurisdictional areas within the proposed project area by acreages. Waters of the US and State delineated within the proposed project area include a total of 0.152 acres (intermittent stream). Waters of the State within the PIA includes waters of the US, as well as a total of 0.986 acres of riparian habitat (valley foothill riparian). The valley foothill riparian habitat occurs above the OHWM.

Table 3.4-1. Potentially Jurisdictional Areas within the Proposed Project

Agency	Jurisdictional Areas	Area in Square Feet	Area in Acres
Corps	Other Waters (Intermittent Stream)[1]	6,621	0.152
	Total Corps Jurisdiction	**6,621**	**0.152**
RWQCB and CDFW	Intermittent Stream	6,621	0.152
	Riparian[2]	42,950	0.986
	Total RWQCB and CDFW Jurisdiction[3]	**49,571**	**1.138**

[1] Corps waters of the U. S. are considered "Other Waters". located at or below the OHWM and lack one or more of the three wetland parameters (i.e., hydrophytic vegetation, hydric soils, and/or wetland hydrology).

[2] Mixed riparian along banks above OHWM

[3] RWQCB and CDFW jurisdiction extends from the channel bed to the tops of banks or outer edge of riparian canopy (whichever is greater). This includes any wetlands that have a hydrologic connection to a stream (i.e. ephemeral drainage within PIA)

Movement Corridors

Wildlife movement corridors link areas of suitable wildlife habitat that may otherwise be separated by rugged terrain, changes in vegetation, and/or areas of human disturbance or urban development. Topography and other natural factors, in combination with urbanization, can fragment or separate large open-space areas. The fragmentation of natural habitat creates isolated "islands" of habitat that may not provide sufficient area to accommodate sustainable populations and can adversely impact genetic and species diversity. Movement corridors mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, which in turn allows depleted populations to be replenished and promotes genetic exchange between separate populations.

Moody Creek provides a migration/movement corridor, allowing for fish and wildlife species to move between the upper watersheds and the wildlife habitats of the Cascade foothills to the lower watersheds of the valley floor. Highways and roads can present an impassable barrier to many wildlife species and are hazardous for wildlife to cross. Relatively unimpeded waterways, such as the portion of Moody Creek within the PIA, provide important movement corridors which allow dispersal and subsequent gene flow between wildlife populations separated by roads and populated areas.

3.4.2 Discussion

a) **Less than significant with mitigation.** The following analyzes potential impacts to special-status species. Impacts to riparian habitat are discussed in detail below, under question b. Impacts to wetlands are discussed in detail below, under question c.

Special-Status Plant Species

Silky cryptantha is the only plant species with recorded occurrences within 5 miles of the PIA. No special-status plant species were observed during the botanical survey conducted in May 2019. The riparian habitat within the PIA could provide suitable habitat for all four species. With implementation of **Mitigation Measure BIO-1**, the proposed project is not expected to result in impacts to special-status plant species.

Central Valley Steelhead & Central Valley Spring-Run Chinook Salmon

No salmonids or other fish species were observed within Moody Creek during the May 2019 surveys. In addition, construction is scheduled during the period of low to no flow in Moody Creek and it is unlikely that this species will be present within the PIA during construction.

The installation of a temporary stream diversion and temporary creek crossing may cause an increase in sedimentation, which may adversely affect water quality and channel substrate composition. Specific rates of sedimentation are dependent upon the duration, volume, and frequency at which sediments are contributed to the surface water flow.

Substantial sedimentation rates may smother fish food (i.e., benthic invertebrates) and degrade habitat. Furthermore, suspended sediments increase the turbidity of the water. High rates of turbidity can result in direct mortality or deleterious sublethal effects (e.g., gill abrasion, decreased visibility during foraging) to fish.

The introduction of pollutants into Moody Creek by a spill or discharge may result in the introduction of heavy metals, nutrients, hydrocarbons, or synthetic compounds, which may cause increased temperatures, disease susceptibility, or algal blooming. Although it is unlikely to occur in amounts large enough to have an effect, sediments or pollutants that reach suitable habitat may adversely affect this species by smothering eggs, reducing the availability of oxygen in the water, or by poisoning.

No structures will be placed below the ordinary high water mark. The new bridge will be slightly wider than the existing bridge. The increase is approximately 0.004 acres; however, with the removal of the existing pier wall within the creek channel, this increase is offset by approximately 0.001 acres, thereby reducing the permanent impact area to approximately 0.003 acres. The removal of the existing pier wall within the active channel would result in a wider opening and an improvement to the hydraulic regime in Moody Creek. In addition, approximately 0.029 acres of Moody Creek will be temporarily impacted due to the installation of a stream diversion system and construction access. Temporary impacts will be restored to pre-Project conditions.

Approximately 0.033 acres of mixed riparian habitat will be permanently impacted due to the wider bridge structure. Impacts include the removal of trees and other vegetation. In addition, approximately 0.060 acres of valley foothill riparian habitat will be temporarily impacted as a result of construction access. Temporary impacts will be restored to pre-Project conditions but will have a higher habitat value and function due to the removal of invasive species and the planting of native riparian species.

With implementation of **Mitigation Measure BIO-2**, impacts to CV steelhead would be less than significant.

California Red-Legged Frog

The proposed project is not expected to result in adverse impacts to or take of CRLF due to lack of suitable breeding habitat and the unlikely chance that this species is present in the region. With the implementation of **Mitigation Measure BIO-2** and **BIO-3,** the proposed project is not expected to result in impacts to CRLF and therefore would have no effect on CRLF.

Foothill Yellow-Legged Frog

The proposed project may affect potential breeding habitat for FYLF because Moody Creek is likely to provide adequate ponding depth and duration to support metamorphosis and the substrate is suitable for egg attachment.

Mortality or injury of FYLF in aquatic and upland habitats could occur by crushing by construction equipment or if frogs are displaced from cover, exposing them to predators and desiccation. Trenches left open during the night could trap frogs moving through the construction area. Moreover, construction activities could temporarily impede the movement of juvenile and adult FYLF dispersing between breeding areas and summer refugia sites.

With implementation of **Mitigation Measure BIO-3**, the proposed project is not expected to result in impacts to FYLF.

Western Pond Turtle

Mortality or injury of western pond turtle in suitable upland habitat could occur through crushing by construction equipment or if displaced from cover, exposing them to predators and desiccation. Trenches left open during the night could trap turtles moving through the construction area. Moreover, construction activities could temporarily impede the movement of juvenile and adult life stages of turtles moving through the construction site during normal dispersal activities.

With implementation of the **Mitigation Measure BIO-4**, the proposed project is not expected to result in impacts to western pond turtle.

American Peregrine Falcon & MBTA Species

If it is necessary to remove vegetation, or construction activities begin during the breeding season (February 1 to August 31), the Project could result in mortality of young through forced fledging or nest abandonment by adult birds, as well as destruction of nests. The implementation of **Mitigation Measure BIO-5** would reduce impacts to American peregrine falcon and other nesting birds to less than significant.

Pallid Bat and Townsend's Big-Eared Bat

Demolition of the existing structure and tree removal would remove potentially suitable bat roosting habitat. If bats are roosting under the bridge at the time of demolition or in trees during grubbing and clearing activities, there is the potential to result in mortality to individual bats. In addition, if bats are roosting under the existing bridge, they will have to relocate to another suitable roost site potentially exposing them to increased stress and chance of predation. Implementation of **Mitigation Measure BIO-6** would reduce impacts to special-status bat species to less than significant.

b) **Less than significant with mitigation.** Native riparian habitat is present above the OHWM of Moody Creek. The riparian habitat surrounding Moody Creek could potentially also be considered part of the Great Valley Cottonwood and Great Valley Oak Riparian Forest, as well as the Great Valley Willow Scrub, sensitive natural communities. These habitat types fall within the upper limit of waters of the State and the top of bank and will likely be regulated by CDFW and RWQCB.

Approximately 0.033 acres of mixed riparian habitat will be permanently impacted due to the wider bridge structure. Impacts include the removal of trees and other vegetation. In addition, approximately 0.060 acres of valley foothill riparian habitat will be temporarily impacted as a result of the temporary detour crossing. Temporary impacts will be restored to pre-Project conditions but will have a higher habitat value and function due to the removal of invasive species and the planting of native riparian species. Implementation of **Mitigation Measure BIO-7** and **BIO-8** would reduce impacts to riparian habitat and sensitive natural communities to less than significant.

c) **Less than significant with mitigation**. The proposed project does not contain any state or federally protected wetlands. Moody Creek within the PIA was assessed to qualify as "other waters" because it is bound by an OHWM, lacks one or more wetland parameters (hydric soils), has seasonal flows, and is a relatively permanent tributary to a traditional navigable water (i.e., draining to the Sacramento River, indirectly). The substrate within Moody Creek consists of a coarse gravel with fine sands and silt as well as small to large size angular rocks and cobbles. At the time of the wetland delineation, conducted in May 2019, water was present and flowing within Moody Creek, with a depth of six inches to one foot and the average width of the OHWM was approximately 9 feet; however, at the bridge it ranges from 11 to 14 feet.

   No structures will be placed below the ordinary high water mark. The removal of the existing pier wall, which occupies approximately 0.001 acres (46 square feet) of space within the active channel, would result in a wider opening and an improvement to the hydraulic regime in Moody Creek. In addition, approximately 0.029 acres of Moody Creek will be temporarily impacted due to the installation of a stream diversion system for construction access as well as for the temporary detour crossing. Temporary impacts will be restored to pre-Project conditions.

   Potential indirect impacts could result from increased sedimentation rates if fine sediment is discharged into Moody Creek during the construction as well as from an accidental spill. Increased sedimentation may adversely affect water quality and channel substrate composition. Specific rates of sedimentation are dependent upon the duration, volume, and frequency at which sediments are contributed to the surface water flow.

   Potential impacts to Moody Creek would be reduced to less than significant with implementation of **Mitigation Measure BIO-7.**

d) **Less than significant.** Moody Creek provides a migration/movement corridor, allowing for fish and wildlife species to move between the upper watersheds and the wildlife habitats of the Cascade foothills to the lower watersheds of the valley floor. Highways and roads can present an impassable barrier to many wildlife species and are hazardous for wildlife to cross. Relatively unimpeded waterways, such as the portion of Moody Creek within the PIA, provide important movement corridors which allow dispersal and subsequent gene

flow between wildlife populations separated by roads and populated areas. The proposed project would not remove, degrade, or otherwise interfere substantially with the structure or function of these wildlife movement corridors, though some temporary disruption of wildlife movement may occur during the construction period. Impacts are considered less than significant, and no mitigation is required.

e) **Less than significant with mitigation.** The Shasta County General Plan, Fish and Wildlife Element provides guidance for the protection of creeks, riparian areas, and special-status species as well as for watershed management and water quality. The proposed project has been designed to avoid Moody Creek, and impacts to the associated riparian corridor will be minimized to the maximum extent feasible. With the implementation of **Mitigation Measures BIO-7** and **BIO-8**, Moody Creek and its associated riparian corridor will be further protected.

f) **No Impact.** The proposed project is not included in a Habitat Conservation Plan or Natural Community Conservation Plan. Therefore, the proposed project would have no impact.

3.4.3 Mitigation Measures

Mitigation Measure BIO-1. A qualified biologist shall conduct a preconstruction survey for special-status plant species within 30 days prior to construction. If special-status plant species are not found, then no further measures are necessary. If special-status plant species are found in the PIA, CDFW will be notified at least 10 days prior to dewatering or construction impacts in the vicinity of any special-status plant species in accordance with the California Native Plant Protection Act of 1977 (CFGC Section 1900-1913) to allow sufficient time to transplant the individuals to a suitable location.

Mitigation Measure BIO-2. The following measures, subject to approval during acquisition of regulatory permits, shall be fully implemented to avoid take of CV steelhead and CV spring-run chinook salmon:

- To avoid conflicts with fish, construction activities shall be planned for periods between June 15 and October 31 when fish are less likely to be in the vicinity of the work area, or periods when the work area is dry.
- A pre-construction survey shall be completed to verify presence/absence of this species within the construction work area.
- If surface water is present when instream construction must be conducted, stream diversion shall be implemented such that diverted surface flow is returned to Moody Creek immediately downstream of the work area. Any pumps used to divert live stream flow, outside the dewatered work area, will be screened and maintained throughout the construction period to comply with NOAA Fisheries' Fish Screening Criteria for Anadromous Salmonids (NOAA Fisheries 1997a).

- If surface water is present, the City will retain qualified biologists with expertise in the areas of anadromous salmonid biology, including relocating salmonids; salmonid/habitat relationships; and biological monitoring of salmonids. The biologists will monitor the construction site during placement and removal of diversion dams, and channel diversions to ensure that any adverse effects to salmonids are minimized. In the event a salmonid is found within the work area prior to dewatering, a qualified biologist(s) will be on site to capture, handle, and safely relocate salmonids.
- In areas where concrete is used, a dry work area must be maintained to prevent conveyance of runoff from curing concrete to the surface waters of the adjacent stream at all times. Water that inadvertently contacts uncured concrete must not be discharged into surface waters.
- Once construction is completed, all project-introduced material (pipe, gravel, cofferdam, etc.) must be removed, restoring the creek as it was before construction. Excess materials will be disposed of at an appropriate disposal site.
- If pumping is required to dewater the construction work area, pump intakes shall be fitted with a wire mesh screen with a 5 mm mesh or smaller.
- Flow to downstream reaches shall be maintained during dewatering or flow diversion.
- If surface water is present, appropriate sediment collection devices (silt fence, straw wattles, or equivalent) shall be installed downstream of the construction work area to prevent siltation of downstream reaches.
- The diversion berm and pipeline shall be in place prior to beginning diversion of surface flow.
- Non-erosive materials (e.g., sandbags, sheet pile, rubber/plastic tubes) shall be used to construct the diversion berm.
- An energy dissipater and sediment trap (fiber rolls, or equivalent) shall be used at the diversion pipeline outlet.
- Excavated material shall be stored away from the low-flow channel to prevent incidental discharge.
- Any streambed access points shall be stabilized using a pad of coarse aggregate underlain by filter cloth to reduce erosion and tracking of sediment.
- Silty or turbid water produced from dewatering or other activities shall not be discharged into Moody Creek until filtered or allowed to settle prior to discharge.
- Use of heavy equipment in flowing water shall be prohibited.
- Riparian habitat removed by the project shall be restored and/or enhanced to improve fish habitat. A revegetation and monitoring plan to restore native riparian habitat in

the Project vicinity to a self-sustaining, ecologically functioning plant community is required. This action will be sensitive to the habitat needs of CV steelhead, CV spring-run chinook salmon, and FYLF and thus will require input from the CDFW. The revegetation plan will be approved during the permitting process.

Mitigation Measure BIO-3. The following measures along with mitigation measure Bio-2 that address dewatering and water quality shall be implemented in order to reduce potential impacts to FYLF:

- A qualified biologist will conduct a preconstruction survey within 24 hours prior to the start of construction activities within the riparian and aquatic habitat in the PIA.
- A qualified biologist will monitor any vegetation removal in Moody Creek. The biologist will monitor the installation of water diversion structures placed in Moody Creek.
- The upstream and downstream limits of the project will be flagged and/or signed to prevent the encroachment of construction personnel and equipment into any sensitive areas during project work.
- Prior to construction, environmental awareness training will be conducted for construction personnel to brief them on how to recognize FYLF. Construction personnel should also be informed that if a FYLF is encountered in the work area, construction should stop and CDFW contacted for guidance. A training log sign-in sheet will be maintained.
- If frogs are found at any time during project work, construction will stop and CDFW will be contacted immediately for further guidance.
- The project proponent shall submit the name and credentials of the project's biologist(s) to CDFW for review and approval at least 15 days prior to the onset of construction activities.
- Staging areas as well as fueling and maintenance activities shall be a minimum of 100 feet from riparian or aquatic habitats. The project proponent will prepare a spill prevention and clean-up plan.
- If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than five millimeters.
- Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.

Mitigation Measure BIO-4. The following measures shall be implemented to reduce potential impacts to western pond turtle:

- No more than two weeks prior to the commencement of ground-disturbing activities, the City shall retain a qualified biologist to perform surveys for western pond turtle

within suitable aquatic and upland habitat within the Project site. Surveys will include western pond turtle nests as well as individuals. The biologist (with the appropriate agency permits) will temporarily move any identified western pond turtles upstream of the construction area, and temporary barriers will be placed around the construction area to prevent ingress. Construction will not proceed until the work area is determined to be free of turtles. The results of these surveys will be documented in a technical memorandum that will be submitted to CDFW (if turtles are documented).

- High-visibility temporary fencing shall be placed along the limits of construction to prevent individual turtles from entering the construction zone.
- *Standard construction BMPs shall be implemented throughout construction to avoid and minimize adverse effects to the water quality within the BSA*

Mitigation Measure BIO-5. The following avoidance and minimization measures shall be implemented in order to reduce potential Project effects to American peregrine falcon:

- To avoid and minimize impacts to tree and shrub nesting species, the following measures shall be implemented:
    - Conduct all tree and shrub removal and grading activities during the non-breeding season (generally September 1 through January 31).
    - If grading and tree removal activities are scheduled to occur during the breeding and nesting season (February 1 through August 31), pre-construction surveys shall be performed prior to the start of Project activities.
- If construction, grading or other Project-related activities are scheduled during the nesting season (February 1 to August 31), preconstruction surveys for other migratory bird species shall take place no less than 14 days and no more than 30 days prior to the beginning of construction within 250 feet of suitable nesting habitat.
    - If the pre-construction surveys do not identify any nesting migratory bird species within areas potentially affected by construction activities, no further mitigation shall be required.
    - If the pre-construction surveys do identify nesting bird species within areas that are within 250 feet of construction activities, the following measures shall be implemented:
        - Project-related construction impacts shall be avoided by establishment of appropriate no-work buffers to limit Project-related construction activities near the nest site. The size of the no-work buffer zone shall be determined in consultation with the CDFW. The no-work buffer zone shall be delineated by highly visible temporary construction fencing. In consultation with CDFW, monitoring of nest activity by a qualified biologist shall be required

if the Project-related construction activity has potential to adversely affect the nest or nesting behavior of the bird. No Project-related construction activity shall commence within the no-work buffer area until a qualified biologist and CDFW confirms that the nest is no longer active.

Mitigation Measure BIO-6. The following measures shall be implemented in order to reduce potential impacts to the pallid and Townsend's big-eared bats.

- Pre-construction surveys for bat activity shall be conducted within 30 days prior to the start of Project activity within the Project work area by a qualified biologist. If no roosting bats are found, no further mitigation would be necessary. If bats are found roosting in trees within 50 feet of construction activities, CDFW will be consulted and at a minimum, a qualified bat biologist will monitor the bats during initial ground disturbing activities.

Mitigation Measure BIO-7. During construction, water quality will be protected by implementation of best management practices (BMPs) of the California Stormwater Quality Association (2016). BMPs designed to address water quality (and related special status species) impacts are described below and will be finalized in consultation with the Project Engineer, City, RWQCB, and other appropriate agencies.

- The contractor will develop and implement a toxic materials control and spill response plan to regulate the use of hazardous materials, such as the petroleum-based products used as fuel and lubricants for equipment and other potentially toxic materials associated with Project construction.
- Standard construction BMPs will be described in full in the Project's Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP). These BMPs will be implemented throughout construction to avoid and minimize adverse effects to the water quality within the Project site. Appropriate erosion control measures will be used (including, but not limited to, straw wattles, filter fences, vegetative buffer strips, or other accepted equivalents) to reduce siltation and contaminated runoff from project sites. All erosion control materials, including straw wattles and erosion control blanket material, used on-site will be biodegradable. Use of erosion control containing plastic monofilament will not be allowed as wildlife may become entrapped in this material. Wattles should be wrapped with 100 percent biodegradable materials like burlap, jute, or coir.
- Measures will be implemented during ground-disturbing activities to reduce erosion and sedimentation. These measures can include, but are not limited to, mulches, soil binders/ erosion control blankets, silt fencing, fiber rolls, and temporary berms.
- Exposed soils will be covered by loose bulk materials or other materials, such as visqueen, to reduce erosion and runoff during rainfall events.

- Exposed soils will be stabilized, through watering or other measures, to prevent the movement of dust at the Project site caused by winds and construction activities such as traffic and grading activities.
- All erosion control measures, and storm water control measures will be properly maintained until the site has returned to a pre-construction state.
- Protective fencing will be constructed around existing vegetation, environmentally sensitive areas, habitats of special concern, and natural communities to prevent temporary or permanent impacts to these areas.
- All disturbed areas will be restored to pre-construction conditions or better and revegetated, either through hydroseeding or other means, with native or approved non-invasive exotic species.
- All construction materials will be hauled off-site after completion of construction activities.

Mitigation Measure BIO-8. The following measures shall be implemented prior to and during construction to avoid and minimize potential impacts on riparian habitat.

- Riparian habitat located in the vicinity of the Project will be protected by installing high-visibility construction fencing. Fencing will be installed along the edge of construction areas including temporary and permanent access roads where construction will occur within 200 feet of the edge of riparian habitat (as determined by a qualified biologist). The location of fencing will be marked in the field with stakes and flagging and shown on the construction drawings. The construction specifications will contain clear language that prohibits construction-related activities, vehicle operation, material and equipment storage, trenching, grading, or other surface-disturbing activities outside of the designated construction area.
- Where riparian vegetation occurs along the edge of the construction easement, the City will minimize the potential for long-term loss of riparian vegetation by trimming vegetation rather than removing the entire plant. Trimming will be conducted per the direction of a biologist and/or Certified Arborist.
- Impacts to riparian habitat within the PIA shall be mitigated by a replacement ratio of 2:1, or at a similar ratio as appropriate in consultation with CDFW.
- Where avoidance of riparian vegetation is not shown on the project plans, a revegetation plan and monitoring plan to restore native riparian habitat in the Project vicinity to a self-sustaining, ecologically functioning plant community is required. This action will be sensitive to the habitat needs of CV steelhead and CVSR chinook salmon, and thus will require input from the CDFW. The revegetation plan will be approved during the permitting process.

3.4.4 References

Caltrans. 2021a. Biological Assessment (BA) Cascade Boulevard over Moody Creek Bridge Replacement Project.

Caltrans. 2021b. Natural Environment Study (NES) Cascade Boulevard over Moody Creek Bridge Replacement Project.

3.5 Cultural Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Cultural Resources - Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

3.5.1 Setting

A cultural resource is a broad term that includes prehistoric, historic, and traditional cultural properties that reflect the physical evidence of past human activity across the landscape. Cultural resources, along with prehistoric and historic human remains and associated grave goods, must be considered under various federal, state, and local regulations, including the CEQA and the National Historic Preservation Act of 1966 (NHPA). Cultural resources that are listed on, or eligible for inclusion in, the National Register are also considered eligible for listing in the California Register of Historical Resources (California Register).

Cultural and historical survey reports for this project were prepared in compliance with Caltrans and FHWA, NEPA, and the NHPA and include a Historic Properties Survey Report (HPSR) and an Archeological Survey Report (ASR). Some information from these studies is considered confidential under the California Public Resources Code (PRC) and the Code of Federal Regulations (CFRs) in compliance to the Freedom of Information Act and the California Public Records Act in order to protect the integrity of tribal cultural resources, and, thus would not be available to the public (7 PRC 21082.3 and 36 CFR 800.11).

<u>Environment</u>

The proposed project is located at the northern end of the Great Valley of California, in the Southern Cascade Foothills at an elevation of approximately 760 feet above sea level. Moody Creek, a branch of Stillwater Creek, bisects the Area of Potential Effects (APE) in a southeast to northwest direction. The terrestrial habitat types in the study area include barren, mixed riparian, montane hardwood, non-native grassland, and urban (developed). Moody Creek comprises the riverine habitat which provides water and a migration corridor for a variety of amphibians, reptiles, and fish species. The dominate soil type in the study area is Auburn very stony loam with

8 to 30 percent slopes and a surface layer of approximately 5 to 10 inches with stones that cover 3 to 15 percent of the surface (Dewberry | Drake Haglan 2021a).

History

Ethnographic Context

Based on archaeological evidence, the arrival of the Wintu people to the region occurred approximately 1,500 years ago (Dewberry | Drake Haglan 2021a). Jeremiah Curtain, a linguist fluent in 70 languages from the Smithsonian Institute, interviewed a Wintu Indian chief Norel-putis' between 1884 and 1889 who provided extensive data on village names and locations, and the interrelationship between the 239-village system. The named villages were primarily located along the Sacramento, Pit and McCloud Rivers, Churn Creek, Stillwater Creek, and Cow Creek, none of which are in the vicinity of the project area. Much of the Wintu territory and major village sites were subsequently flooded by the creation of Shasta Dam (Dewberry | Drake Haglan 2021a).

Local History

Moody Creek, which bisects the APE, is named after M.G. Elizabeth Moody who filed a land patent along Waugh Road in 1852. The first land patent in the APE was granted to Lorenzo D. Bickford, who purchases via cash 160 acres of public land in Section 29 of Township 33 North, Range 4 West in 1872 (Dewberry | Drake Haglan 2021a).

In 1937 the United Stated Bureau of Reclamation (BOR) announced that a large concrete dam would be constructed in Shasta County, which brought a new influx of hopeful job seekers. Three distinct residential and commercial developments were built by the summer of 1938: Project City, Summit City, and Central Valley.

The City of Shasta Lake, previously known as Project City, is located at the intersection of I-5, previously Highway 99, and Shasta Dam Boulevard. The town was quickly developed by entrepreneurs who purchased large tracts of land with the idea of subdividing it into housing. A commercial district was established immediately in front of the housing blocks along Shasta Dam Boulevard and the group of buildings became known as Central Valley. At the intersection of Shasta Dam Boulevard and Kennett-Buckeye Road (now Lake Boulevard) began another boomtown—Summit City. Summit City consisted of dozens of beer halls, saloons, taverns, dance halls, grocery stores, smoke shops, cafes, and dry good stores, thus making the community the hub of commercial activity. By 1980 the population of these thriving towns was 1,139 in Summit City, 1,659 in Project City, and 3,424 in Central Valley. In 1993 the area legally changed its designation to the City of Shasta Lake (Rocca 2002). More information on the history of the Central Valley Project, Shasta Division, and the construction history of Shasta Dam, is available online through the BOR (Dewberry | Drake Haglan 2021).

Local Archaeological Investigations

Archaeological investigations at many sites in what is now under modern-day Shasta Lake, describe ashy middens located on stream terraces with house pits, small projectile points (Gunther Barbed and Desert Side-Notched), food remains from mussels shells, bi-pointed fish gorges, tipped harpoons, bone gaming pieces, shells, beads, ornaments, and large amounts of fire cracked rock. These sites represent the Shasta Complex and date from approximately 1,500 years ago to around the year 1850, when the Gold Rush began in the region.

Located approximately 3.6 miles southeast of the APE is CA-SHA-484, a Wintu village site along the west bank of Stillwater Creek (Dewberry | Drake Haglan 2019a). The site is situated on an 8 to 10-foot-wide grass-covered alluvial terrace with a scattering of Valley oak trees. The 2,484 artifacts recovered included predominantly Gunther Series and Desert Side-Notched obsidian projectile points, Ollivella shell beads, clamshell disk beads, Haliotis ornaments, bone artifacts (awls, game pieces, harpoon points and gorges), pestles, hopper mortars, and multiple features (house floors, post pits, hearths), glass trade beads, and 10 human burials, representing 600 years of occupation. The midden matrix also included fresh-water mussel shell, ash lenses, debitage, and faunal remains. Stratigraphically, the constituents are found beneath ordinary ground at about one meter (3.3 feet) below surface.

Known Resources

Dewberry | Drake Haglan conducted a cultural resource investigation that included a records search conducted in 2018 at the North East Information Center (NEIC), archival and background research, a Sacred Lands File check and Native American outreach, see **Section 3.18**, **Tribal Cultural Resources**, and an intensive pedestrian survey for the Cascade Boulevard over Moody Creek Bridge (No. 06C0060) Replacement Project.

No known ethnographic, traditional or contemporary Native American sites of religious or cultural significance have been identified in or adjacent to the proposed project APE. No potentially significant prehistoric or historically significant archaeological resources were observed during field survey conducted for the proposed project. There is a low probability to encounter buried or surficial prehistoric or historic archaeological deposits.

3.5.2 Discussion

g) **No Impact.** Substantial adverse change in the significance of an historical resource means the physical demolition, destruction, relocation, or alteration of the resource, or its immediate surroundings, such that the significance would be materially impaired. The HPSR, and ASR were completed in order to identify potentially significant historical resources in the APE. No prehistoric or historic archaeological resources were identified during the field survey conducted for the proposed project. As thus, the proposed project

would not cause a substantial adverse change in the significance of a historical resource. There would be no impact and no mitigation is required.

h) **Less than Significant with Mitigation.** No prehistoric or historic archaeological resources were discovered during the background research or observed during the field survey conducted for the proposed project. Additionally, based on the background research, field survey, the topography, soil profile, and the underlying landform, the APE has a low potential to encounter buried archaeological deposits during construction.

   The likelihood of encountering previously undocumented buried archaeological deposits in the proposed project site is considered low. Nonetheless, there remains a chance that construction activities associated with the proposed project could result in accidentally discovering archaeological resources. With implementation of **Mitigation Measure CUL-1**, the proposed project would result in a less-than-significant impact on archaeological resources.

i) **Less than Significant with Mitigation.** No formal cemeteries or human remains were identified during the field investigation and no burial sites are likely to be encountered during construction activities (Dewberry | Drake Haglan 2019a). However, in the event of an unanticipated discovery of human remains, implementation of **Mitigation Measure CUL-1** would reduce this potential impact to less than significant. Therefore, the proposed project impacts would be less than significant with mitigation incorporated.

3.5.3 Mitigation Measures

Mitigation Measure CUL-1: If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. Depending on the nature of the find, a qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric or historic archaeology, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, as necessary:

- If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately, and no agency notifications are required.
- If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, he or she shall immediately notify the lead agency. If the find is determined to be eligible for inclusion in the National Register or California Register, the lead agency shall consult on a finding of eligibility and implement appropriate treatment measures. Work may not resume within the no-work radius until the lead agency, through consultation as appropriate, determines that the

site either: 1) is not eligible for the National Register or California Register; or 2) that the treatment measures have been completed to its satisfaction.

- If the find includes human remains, or remains that are potentially human, he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Shasta County Coroner (in accordance with § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented.
- If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the Native American Heritage Commission (NAHC), which then will designate a Native American Most Likely Descendant (MLD) for the project (§ 5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or the appropriate information center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

3.5.4 References

Dewberry | Drake Haglan. 2021a. Historical Properties Survey Report
Dewberry | Drake Haglan, 2021b. Archaeological Survey

3.6 Energy

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Energy –Would the project:				
a) Results in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

3.6.1 Setting

In 1975, the California State Legislature adopted Assembly Bill (AB) 1575 in response to the oil crisis of the 1970s. Public Resources Code Section 21100(b)(3) and CEQA Guidelines Appendices F and G require a description of the wasteful, inefficient, and unnecessary consumption of energy caused by a project. CEQA Guidelines Appendix F provides guidance for assessing potential impacts within Environmental Impact Reports (EIRs) that a project could have on energy supplies. Appendix G provides guidance related to energy resources within the context of the Initial Study (IS). Both aim to focus on conservation energy by ensuring projects consider efficiency of energy use.

The production of electricity requires the consumption or conversion of energy stored in natural resources such as water, wind, oil, gas, coal, solar radiation, certain minerals (for nuclear power), and geothermal energy. The use of energy from transportation facilities in the vicinity of the proposed project is currently caused by vehicles traveling along Cascade Boulevard. Production of energy and energy use both result in pollution and depletion of these renewable and nonrenewable resources.

Electricity and Natural Gas

The City provides its own retail electric service to customers located within the City's corporate limits, as well as certain adjacent areas. In total, the City serves approximately 4,516 retail customers (meters), of which 4,100 are residential customers. The City incorporated in 1993, which included an electric enterprise formally known as the Shasta Dam Area Public Utility District. The City is now the load serving entity and distribution provider. The City's power and energy requirements are greatly influenced by residential customers, with year-to-year variations in peak demand and energy sales representative, in part, of the local weather conditions. Annual energy use is 205.8 gigawatt-hours. In Shasta County, the California Energy

Consumption (CEC) reported an annual electrical consumption of approximately 1,535.591 million kWh in 2019. Of the 1,535 million kWh consumed, approximately 738.040 million kWh was from residential use and approximately 797.551 million kWh was from non-residential use (CEC, 2019a).

Pacific Gas and Electric Company (PG&E) provides natural gas service to the City. PG&E is regulated by the California Public Utilities Commission (CPUC). The CPUC regulates California natural gas and natural gas services, including in-state transportation over transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. Biogas (e.g., from wastewater treatment facilities or dairy farms) is just beginning to be delivered into the gas utility pipeline systems, and the State has been encouraging its development (CPUC, 2021). In Shasta County, the CEC reported an annual natural gas consumption of approximately 35.337 million therms in 2019. Of the 35.337 million therms consumed, approximately 18.583 million therms was from residential use and approximately 16.754 million therms was from non-residential use (CEC, 2019b).

3.6.2 Discussion

a) **Less than Significant.** The proposed project is a bridge replacement project and would not create new energy demand beyond the construction period. The proposed project would not require creation of new energy sources. Operation at the proposed project site would be similar to existing conditions. The proposed project, upon completion, would not increase energy use at the proposed project site, result in a change in traffic patterns, increase in average daily trips (ADT) per vehicle, or increase in VMT. Maintenance activities for the road and the bridge would be similar to pre-project conditions. Therefore, once completed, the proposed project would have no impact on energy use.

   Energy in the form of gasoline and diesel fuel would be consumed by large construction equipment and worker vehicles during the demolition and construction period. During construction, minor and temporary increases in energy use may occur as traffic control may increase travel time for motor vehicles travelling on Cascade Boulevard. Diesel equipment would be used during construction; however, compliance with local, state, and federal regulations (eg., limit engine idling times, require the recycling of construction debris, etc.) would reduce short-term energy demand during the proposed project's construction to the extent feasible. All standard BMPs to minimize energy waste would be implemented. This allows the equipment to be more fuel efficient as well as not waste fuel while idling. Construction of the Project would not result in a wasteful, inefficient, or unnecessary consumption of energy resources during construction. Impacts are considered less than significant in this regard. No mitigation is required.

b) **No Impact.** The proposed project does not conflict with any local, state, or federal regulations regarding energy use, energy efficiency, or construction regulations. All BMPs and existing industry-standard measures would be implemented by the City's contractor to reduce impacts to energy use to the extent feasible. The proposed project has no impact and no mitigation is required.

3.6.3 Mitigation Measures

No mitigation measures regarding impacts to energy are required.

3.6.4 References

California Energy Commission (CEC). 2019a. Electricity Consumption by County. Online: https://ecdms.energy.ca.gov/elecbycounty.aspx. Date Accessed: June 18, 2021.

California Energy Commission (CEC). 2019b. Gas Consumption by County. Online: http://www.ecdms.energy.ca.gov/gasbycounty.aspx. Date Accessed: June 18, 2021.

California Public Utilities Commission (CPUC). 2021. Natural Gas and California. Online: https://www.cpuc.ca.gov/natural_gas/. Date Accessed: June 18, 2021.

3.7 Geology and Soils

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

3.7.1 Setting

<u>Geomorphic and Geologic Setting</u>

The proposed project is located near the City's eastern boundary, in Shasta County. Shasta County has some of the most diverse rock types and complex geology within California. It contains portions of five of the eleven geomorphic provinces in California, including the Coast Range, the Klamath Mountains, the Great Valley, the Cascade Range, and the Modoc Plateau

(Shasta County 2004b). The topography of Shasta County is determined by these provinces and varies widely from very steep rugged peaks and ridges of the Klamath Mountains Province to low rolling hills and flat bottom lands of the Redding Basin in the south-central portion of Shasta County (CDOC 1997b). The City of Shasta Lake has portions in both the Klamath Mountains and Great Valley geomorphic provinces. The proposed project is located near the northern border of the Great Valley geomorphic province. The proposed project site is only approximately 3,000 feet south of the Klamath Mountains geomorphic province.

Sacramento Valley forms the northern half of the Great Valley geomorphic province from Stockton to Redding. This northern segment of the Great Valley geomorphic province extends northwards into south central Shasta County and is characterized as a plain of low topographic relief interrupted by rivers and stream drainages. Extensive deposits of alluvial sand and gravel occupy these streams and river drainages. Two regionally large non-marine fluvial units of the Great Valley geomorphic province blanket much of the underlying rocks in the Redding Basin, which is bounded on the north by the City. The two units are the Pliocene Tehama Formation, and the Pleistocene Red Bluff Formation. The Tehama and the Red Bluff formations are predominately alluvium that had eroded from the eastern Klamath Mountains and northern Coast Ranges.

The Klamath Mountains geomorphic province includes numerous mountain ranges with ridges oriented in seemingly all different directions. Typically, the eastern-most Klamath Mountains geomorphic province that occurs within Shasta County is composed of geologically complex, rugged terrain that is difficult to access and is drained by the Sacramento River, the McCloud River, Squaw Creek, and Clear Creek. The portion of the Klamath Mountains Province within Shasta County is predominately made up of a thick sequence of structurally disrupted, intermixed metavolcanic and metasedimentary rocks with intrusions of large masses of granitic and ultramafic rocks. The metasedimentary and metavolcanic rocks range from Early Devonian to Middle Jurassic and represent the oldest rocks within the Klamath Mountains Province. The accretionary process that formed the Klamath Mountains in western Shasta County was accompanied by the intrusion of granitic plutonic rocks. Many of these granitic plutons are Jurassic and Cretaceous in age.

The geology of Shasta County is very complex and is arguably the most complex of any county in California. Portions of Shasta County are underlain by sedimentary rocks that are known to produce valuable, scientifically significant vertebrate and invertebrate fossils. Vertebrate and certain invertebrate fossils are recognized as significant, nonrenewable paleontological resources and are protected under Federal, State, and local environmental laws (Shasta County 2004b). The proposed project lies in the metavolcanic rocks of Paleozoic age geologic unit (Pzv), which consists of undivided Paleozoic metavolcanic rocks. The materials include mostly flows, breccia, and tuff, including greenstone, diabase, and pillow lavas; minor interbedded sedimentary rocks (CGS 2015).

Soils

The Natural Resources Conservation Service (NRCS) identified 3 soil types in the proposed project area. All three soil types are of the Auburn Series, which consists of well-drained clay loams that are underlain by basic metavolcanic rock, mainly greenstone. Most areas of Auburn soils are used as range or dryland pasture. The soils identified in the proposed project are and their characteristics relevant to the study are included in **Table 3.7-1**:

Table 3.7-1. Soil Types within the Proposed Project Area

Soil Map Symbol and Name	Description	Source Material	Drainage	Slopes	Hazard of Erosion	Percent of Project Area
AnB: Auburn Loam	Permeability is moderate; Runoff is slow to medium.	Residuum weathered from metavolcanics	Well drained	0-8%	Slight to moderate	30.1%
ArD: Auburn very stony loam	Permeability is moderate; Runoff is medium to rapid.	Residuum weathered from metavolcanics	Well drained	8-30%	Moderate to high	66.9%
AsD2: Auburn clay loam	Permeability is moderate; Runoff is medium to rapid.	Residuum weathered from metavolcanics	Well drained	8-30%	Moderate to high	3.0%
Source: NRCS 2021; USDA 1974.						

Seismicity

The potential for seismic ground shaking in California is expected. As a result, the State requires special design considerations for all structural improvements in accordance with the seismic design provisions in the California Building Code. The proposed project site is located in the City of Shasta Lake (City), Shasta County, California. Although Shasta County is not as active as some regions in California, Shasta County is a seismically active region. Earthquake activity has not been a serious hazard in the County's history, nor is it probable that it would become a serious hazard in the future. The Fault Map of California places Quaternary faults in the eastern and southern portion of Shasta County. Most of the stronger intensity seismic activity in Shasta County has occurred in the eastern half of the County around Lassen Peak, which is approximately 45 miles southeast of the proposed project site (Shasta County 2004c).

Landslides occur throughout Shasta County, although they have not been considered a major problem. Landslides are more prevalent in the eastern and northern portions of the County and are commonly related to the sedimentary and volcanic rocks in these vicinities. The City is not located in the more prevalent landslide areas as the proposed project is located in the southwestern portion of Shasta County. Landslides in the western portion of the County are not

as widespread but occur in areas of sedimentary and volcanic rocks. Seismically induced landslides area not considered a significant hazard in Shasta County (Shasta County 2004c).

Paleontological Setting

Paleontological resources are the fossilized evidence of organisms preserved in the geologic (rock) record. Fossils are considered nonrenewable resources that are protected by federal, state, and local environmental laws and regulations. Sedimentary rocks, and some volcanic and metamorphic rocks, have potential to yield significant fossiliferous deposits. The potential paleontological importance of the Project area can be assessed by identifying if the rock units are Pleistocene or older (older than 11,000 years) sedimentary deposits within the underlying landform. Based off the rock unit's potential for having significant paleontological resources, the following standard assessments are applied:

- *High Potential.* Rock units in which vertebrate or significant invertebrate, plant, or trace fossils have been previously recovered and Rock units that include sedimentary formations, low-grade metamorphic rocks, and volcaniclastic formations that are temporally (over 11,000 years old) and lithological suitable for fossil preservation.
- *Low Potential.* Rock units that have been previously determined by scientific consensus to have a low probability to yield significant paleontological resources.
- *No Potential.* Certain rock units have no potential to preserve organisms in the fossil record, such as high-grade metamorphic rocks, intrusive igneous rocks, and most volcanic rocks.
- *Undetermined Potential.* Unknown or undetermined sensitivity indicates that the rock unit has not been sufficiently studied or lacks good exposures to warrant a definitive rating (Society of Vertebrate Paleontology 2010).

The University of California Museum of Paleontology (UCMP) identified 11,050 paleontological specimens and 826 paleontological localities within Shasta County (UCMP 2021).

3.7.2 Discussion

a) (i-iv) **Less than Significant.** The proposed project site does not lie within or in the proximity to an Alquist-Priolo Earthquake Fault Zone. Active faulting has not been mapped as occurring across or adjacent to the proposed project site. There are a number of small pre-quaternary fault lines (older than 1.6 million years) around the City; the closest being approximately 1 ¼ mile northwest of the proposed project site. There is a late quaternary fault located approximately 22 miles southeast of the proposed project site and a quaternary fault located approximately 20 miles south of the proposed project.

The proposed project would comply with all the Caltrans Seismic Design Criteria to reduce seismic ground shaking impacts. The risk of loss of life and property damage due to seismic activity is minimal if the design of the new bridge is compliant with the Caltrans

Seismic Design Criteria. The proposed project would not increase the risk of loss, injury, or death beyond what already exists because the proposed project would replace the existing functionally obsolete bridge with a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Surface rupture is not expected to occur. Therefore, the impact is considered less than significant unless an unknown fault were to rupture.

Liquefaction of granular soils can be caused by strong vibratory motion due to earthquakes. Soils that are susceptible to liquefaction are water-saturated granular soils. Liquefaction of soils causes surface distress, loss of bearing capacity, and settlement of structures that are founded on the soils. According to the NRCS, there are three soil types, all of the Auburn series, in the proposed project area. **Table 3.7-1** summarizes the characteristics of each soil type present. None of the soils present at the proposed project area are known for their susceptibility to liquefaction. The potential for liquefaction at the proposed project site is considered to be low. The proposed project would remove the existing structurally deficient bridge and replace it with a new bridge designed to meet applicable City, AASHTO and Caltrans design criteria and standards, including the current Caltrans Seismic Design Criteria. Therefore, the risk of the proposed project causing loss, injury or death involving seismic-related ground failure, including liquefaction, would be similar to existing conditions. Impacts would be less than significant. No mitigation is required.

Landslides occur throughout Shasta County, although they have not been considered a major problem. Seismically induced land sliding is not considered a significant hazard in Shasta County. Landslides are more prevalent in the eastern and northern portions of the County and are commonly related to the sedimentary and volcanic rocks in these vicinities. Landslides in the western portion of the County are not as widespread but occur in areas of sedimentary and volcanic rocks. The proposed project is located in the western half of Shasta County and the general topography of the proposed project area is relatively flat with gently rolling hills. The proposed project is a bridge replacement and would not expose additional people or structures to substantial adverse effects. The new bridge would be designed to comply with the Caltrans Seismic Design Criteria, which would minimize the potential effects from ground shaking. No mitigation is required.

b) **Less than Significant.** The proposed project site contains soils designated as slight to moderate and moderate to high for hazardous soil erosion potential. The proposed project involves removing the existing bridge along Cascade Boulevard over Moody Creek and constructing a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Construction of the proposed project has the potential to expose bare soil. Activities involving soil disturbance, excavation, cutting/filling, and grading could result in increased erosion. Additionally, the use of large construction equipment

may compress soil within the staging areas, which could lead to an increase in erosion. Compliance with the Shasta County Erosion Control Study guidelines and the Caltrans stormwater and erosion control requirements would ensure soil erosion during construction is compliant with existing county and State requirements.

Based on adherence to, and implementation of, permitting requirements, building/grading standards, and site-specific BMPs, the proposed project would result in less than significant impacts to erosion. Therefore, the proposed project operations would not result in the loss of topsoil and substantial erosion.

c) **Less than Significant.** The proposed project involves the demolition of the existing Cascade Boulevard Bridge over Moody Creek and the construction of a new bridge. Construction of the proposed project would involve clearing and grubbing, demolition, and grading activities. These construction methods were determined based on the proposed project site soils and the potential for liquefiable soil to be within the construction limits. Therefore, the engineering design of the proposed project would address liquefactions and other seismically induced hazards. Implementation of the proposed project would not cause unstable soil conditions. Additionally, no habitable structures are included in the proposed project, and the hazard to life from lateral spreading, subsidence, liquefaction, or collapse would be like existing conditions along the exiting segments of the County's active transportation network. These impacts are less than significant, and no mitigation is required.

d) **Less than Significant.** The extent of shrinking and swelling is influenced by the environment, such as the extent of wet or dry cycles, and by the amount of clay in the soil. This physical change in the soils can react unfavorably with building foundations, concrete walkways, swimming pools, roadways, and masonry walls. The proposed bridge and approach roads would be designed with consideration of the expansive soils in the final design according to existing Caltrans engineering design standards and would not represent a risk to life or property. Therefore, this impact is considered less than significant, and no mitigation is required.

e) **No Impact.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. The proposed project does not involve the construction of septic tanks or alternative wastewater disposal systems. There is no impact.

f) **Less than Significant with Mitigation.** As discussed above, there are 11,050 known paleontological specimens and 826 known paleontological localities within Shasta County (UCMP 2021). Portions of Shasta County are underlain by sedimentary rocks that are

known to produce valuable, scientifically significant vertebrate and invertebrate fossils. The proposed project area is generally within an urban setting with highly disturbed areas such as local roadways and highways. The subsurface material is heavily disturbed due to surface and hard rock mining activities. Thus, the presence of unique geologic features within the proposed project are not anticipated. There is always a possibility of inadvertent discovery of fossils and or other artifacts during grading and deep excavation construction activities. For these reasons, this impact is considered potentially significant. Implementation of **Mitigation Measure GEO-1** would reduce this impact to less than significant levels.

3.7.3 Mitigation Measures

Mitigation Measure GEO-1: Immediately Halt Construction Activities if Any Paleontological Materials Are Discovered. Should paleontological resources be discovered during ground disturbing activities for the bridge project, work shall be halted in the area within 50 feet of the find. The City of Shasta Lake Department of Public Works will retain a qualified paleontologist to inspect the discovery. If deemed significant under criteria established by the Society for Vertebrate Paleontology with respect to authenticity, completeness, preservation, and identification, the resource(s) shall then be salvaged and deposited in an accredited and permanent scientific institution (e.g., University of California Museum of Paleontology [UCMP] or Chico State University), where the discovery would be properly curated and preserved for the benefit of current and future generations. The language of this mitigation measure shall be included on any future grading plans, utility plans, and improvement plans approved by the City of Shasta Lake Department of Public Works for the proposed project, where excavation work would be required. Construction may continue in areas outside of the buffer zone.

3.7.4 References

California Department of Conservation (CDOC). 1997b. Mineral Land Classification of Alluvial Sand and Gravel, Crushed Stone, Volcanic Cinders, Limestone, and Diatomite within Shasta County, California (Report). Date Accessed: July 28, 2021.

International Conference of Building Officials (ICBO). 1994. Uniform Building Code Volume 2. Online: https://digitalassets.lib.berkeley.edu/ubc/UBC_1994_v2.pdf. Date Accessed: August 5, 2021.

Shasta County. 2004b. General Plan: Minerals. Online: https://www.co.shasta.ca.us/docs/libraries/resource-management-docs/docs/63minerals.pdf?sfvrsn=fa6a99fe_0. Date Accessed: July 28, 2021.

Shasta County. 2004c. General Plan: Seismic and Geologic Hazards. Online: https://www.co.shasta.ca.us/docs/libraries/resource-management-docs/docs/51seismic.pdf?sfvrsn=3dc59a95_0. Date Accessed: August 3, 2021.

United States Department of Agriculture (USDA). 1974. Soil Survey of Shasta County Area, California. Online: https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA607/0/shasta.pdf. Date Accessed: August 4, 2021.

3.8 Greenhouse Gas Emissions

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

3.8.1 Setting

Greenhouse Gas (GHG) is used to describe atmospheric gases naturally contained within the earth's atmosphere that absorb solar radiation and subsequently emit radiation in the thermal infrared region of the energy spectrum, trapping heat in the Earth's atmosphere. These gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapor, among others. A growing body of research attributes long-term changes in temperature, precipitation, and other elements of the earth's climate to large increases in GHG emissions since the mid-nineteenth century, particularly from human activity related to fossil fuel combustion. Anthropogenic GHG emissions of particular interest include CO_2, CH_4, N_2O, and fluorinated gases.

CO_2, CH_4, and N_2O trap solar radiation and the earth's own radiation in the atmosphere, preventing it from passing through the earth's atmosphere and into space. GHGs are vital to life on earth; however, increasing GHG concentrations are causing an increase in average global temperatures. In general, CH_4 has 21 times the warming potential of CO_2, and N_2O has 310 times the warming potential of CO_2. CO_2e represents CO_2 plus the additional warming potential from CH_4 and N_2O. The common unit of measurement for CO_2e is metric tons ($MTCO_2e$).

As the average temperature of the earth increases, climate patterns may be affected, including changes in precipitation patterns, accumulation of snowpack, and intensity and duration of spring snowmelt, as well as increased intensity of low precipitation and droughts. Human-made GHG emissions occur primarily through the combustion of fuels, mainly associated with transportation, residential energy, and agriculture.

Parts of the earth's atmosphere act as an insulating "blanket" for the planet. This "blanket" of various gases traps solar energy, which keeps the global average temperature in a range suitable for life. The collection of atmospheric gases that comprise this blanket are called "greenhouse gases," based on the idea that these gases trap heat like the glass walls of a greenhouse. These

gases, mainly water vapor, CO_2, CH_4, N_2O, ozone (O_3), and chlorofluorocarbons (CFCs), all act as effective global insulators, reflecting visible light and infrared radiation back to earth. Most scientists agree that human activities, such as producing electricity and driving internal combustion vehicles, have contributed to the elevated concentration of these gases in the atmosphere. As a result, the earth's overall temperature is rising.

California's primary legislation for reducing GHG emissions is the California Global Warming Solutions Act (AB 32), which set a goal for the state to reduce GHG emissions to 40 percent of 1990 emission levels by 2030. The CARB, among other state agencies, has enacted regulation in order to achieve these targets. In December 2008, CARB adopted its Climate Change Scoping Plan, which contains the main strategies California would implement to reduce California's projected 2020 CO_2e emission levels by approximately 21.7 percent under a business-as-usual scenario. In November 2017, CARB adopted the second update; California's 2017 Climate Change Scoping Plan Update lays the framework for achieving the 2030 reductions as established in more recent legislation (CARB 2017). The 2017 Scoping Plan Update identifies the GHG reductions needed by each emissions sector to achieve a statewide emissions level 40 percent below 1990 levels before 2030.

The Shasta County Air Quality Management District (SCAQMD) is the local agency with primary responsibility for compliance with the federal and state standards. Air quality districts are public health agencies whose mission is to improve the health and quality of life for all residents through effective air quality management strategies. In 2010, the Shasta County Air Quality Management District (SCAQMD) initiated the regional climate action planning (RCAP) process. The primary objectives of the RCAP process are to contribute to the State's climate protection efforts and to provide CEQA review streamlining benefits for development projects within the region's four jurisdictions: the City of Anderson, the City of Redding, the City of Shasta Lake, and the unincorporated areas of Shasta County. The SCAQMD prepared a community specific, independent climate action plan that contains greenhouse gas (GHG) emission inventories and forecasts, emission reduction measures, and implementation and monitoring programs for the City of Shasta Lake.

The City developed a Climate Action Plan (CAP) in order to contribute to the State's climate protection efforts and to provide CEQA streamlining benefits for new residential and commercial developments within the community. The City's GHG reduction targets are to reduce community emissions to 15% below 2008 levels by 2020, to 49% below 2008 levels by 2035, and to 83% below 2008 levels by 2050. To meet its adopted emissions reduction targets, the City would implement policies, programs, and other projects related to energy, solid waste, water, transportation, and carbon sequestration.

3.8.2 Discussion

a) **Less than Significant.** The proposed project is a bridge replacement project and would not increase capacity along Cascade Boulevard, nor would it increase traffic or congestion. The proposed project would not create a new demand for energy, alter surrounding land use, or create a permanent source of GHG emissions. The proposed project would not change operational GHG emissions compared to existing conditions.

GHG emissions associated with the proposed project would occur over the short term from construction activities, consisting primarily of emissions from equipment exhaust. Construction activities, such as site preparation, site grading, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, and motor vehicles transporting the construction crew would produce combustion emissions from various sources. During the construction of the proposed project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically uses fossil-based fuels to operate. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

Construction emissions were modelled using the Road Construction Emissions Model (RCEM), Version 9.0.0, which was developed by the Sacramento Metropolitan Air Quality Management District (SMAQMD). For the purpose of this analysis, it was assumed that proposed project construction would last 8 months, the total project area would be 2.81 acres, and the maximum area disturbed/day would be 2.81 acres. See **Appendix A** for the full RCEM.

The RCEM projected that a maximum of approximately 15,820 pounds of CO_2e would be emitted per day, totaling approximately 874 $MTCO_2e$ over the 8-month construction period. The SCAQMD does not have specific thresholds for reducing GHG emissions from construction. The proposed project would implement BMPs as outlined in **Section 3.3**, **Air Quality**, that would reduce emissions generated from diesel engines that would lower GHG emissions. In addition, the proposed project construction is considered small, short-term, and would not generate substantial air quality pollutant concentrations, including GHG emissions, as discussed in **Section 3.3**, **Air Quality.** Therefore, the proposed project construction activities would result in a less than significant impact and no mitigation would be required.

b) **Less than Significant.** As discussed in **Section 3.3, Air Quality,** above, the proposed project would not increase automobile capacity or create other permanent new sources of GHG emissions. The proposed project would add pedestrian and bicyclist accessibility on the bridge, which would be consistent with applicable air quality plans. The proposed

project would not conflict with or obstruct implementation of the Regional Transportation Plan & Sustainable Communities Strategy for the Shasta Region or the Shasta Regional Climate Action Plan. As discussed in subsection a), above, the proposed project would result in a maximum of approximately 15,820 pounds of CO_2e per day, totaling approximately 874 $MTCO_2e$ over the 8-month construction period. Given the levels of emissions during construction, and the implementation of BMPs, along with compliance with federal, State, and local regulation policies, the proposed project would be consistent with the Shasta Regional Climate Action Plan. The proposed project would not conflict with any identified plans adopted for the reduction of GHG emissions. Impacts are less than significant, and no mitigation is required.

3.8.3 Mitigation Measures

No mitigation measures are required related to GHG emissions. BMPs would be in place, refer to **Section 3.3**, **Air Quality**.

3.8.4 References

Shasta Regional Transportation Agency. 2018. Regional Transportation Plan & Sustainable Communities Strategy for the Shasta Region. Online: https://www.srta.ca.gov/DocumentCenter/View/4285/2018-Regional-Transportation-Plan--Sustainable-Communities-Strategy-adopted-Oct-9-2018?bidId=. Date Accessed: June 24, 2021.

Shasta County. 2012. Draft Shasta Regional Climate Action Plan. Online: https://www.co.shasta.ca.us/index/drm/air-quality/programs/rcap/draft-rcap. Date Accessed: June 24, 2021.

Shasta County. 2021. Air Quality Services. Online: https://www.co.shasta.ca.us/index/drm/air-quality/services. Date Accessed: June 25, 2021.

California Air Resources Board. 2017. California's 2017 Climate Change Scoping Plan. Online: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf. Date Accessed: June 30, 2021.

3.9 Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Hazards and Hazardous Materials –Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☒	☐	☐

3.9.1 Setting

An Initial Site Assessment (ISA) was prepared for the proposed project (Dewberry | Drake Haglan 2021). The ISA was performed in general conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Practice E 1527-13.

Recognized Environmental Conditions (RECs[1]) for the proposed project that may adversely affect roadway and/or bridge construction or right-of-way acquisition. A database report was obtained from Environmental Database Resources, Inc. (EDR) consisting of information compiled from various government records, such as Geotracker, National Priorities List, and EnviroStor, for information regarding the proposed project area. Based on the results of the records review, no potential RECs have been found in the Project site (Dewberry | Drake Haglan 2021).

The Occupational Safety & Health Administration (OSHA) requires that all thermal systems insulation, surfacing materials, and resilient flooring materials installed prior to 1981 be considered Presumed Asbestos Containing Materials (ACM) and treated accordingly. Bridges built prior to 1981 sometimes have ACMs within their rail shim sheet packing, bearing pads, support piers, and/or expansion joint materials. Structures constructed prior to 1978 are presumed to contain lead-based paint (LBP) unless proven otherwise, although structures constructed after 1978 may also contain lead-based paints.

An Asbestos and Lead-Containing Paint Survey Report and a Soil Sampling and Analysis Report were completed for the proposed project (Entek 2018). Asbestos was found to be present in the white pipe wrap around the pipe on the south east side of the Moody Creek Bridge. The white colored paint on the concrete end pillars of the bridge was found to contain lead in concentrations of 24,000 parts per million and is classified as lead-based paint.

Aerially Deposited Lead (ADL) is commonly located adjacent to heavily traveled roadways in service prior to 1987 as lead has been used as a gasoline additive prior to this time. Based on the review of air photos and topographical maps, the alignment of Cascade Boulevard has remained stationary dating back to circa 1918 but has mainly been used by local traffic with historical low traffic volumes. Aerially deposited lead would not likely be considered to be present at the proposed project site.

3.9.2 Discussion

a) **Less than Significant.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. The proposed project would not create a significant hazard to the public or environment through the routine transport, use, or disposal of hazardous materials. There would be no increased likelihood of the "routine" transport, use, or disposal of hazardous materials once the proposed project is complete. The proposed project would replace the existing bridge over Moody Creek and

[1] RECs are defined by the ASTM Practice E 1527-05 as: "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

conditions would be similar to existing conditions upon construction completion. The proposed project would not result in the routine transport of hazardous materials.

Construction of the proposed project would potentially require the use of various types and quantities of hazardous materials. Hazardous materials that are typically used during construction include, but are not limited to, hydraulic oil, diesel fuel, grease, lubricants, solvents, and adhesives. Although, equipment used during construction activities could contain various hazardous materials, these materials would be used in accordance with the manufacturer's specifications and all applicable regulations. Minor fuel or oil spills could occur during construction activities. The release, if accidental, of hazardous materials into the environment is regulated through existing federal, State, and local laws. These regulations require emergency response from local agencies to contain hazardous materials in the event of an accidental release. The use of handling of hazardous materials during construction activities would occur in accordance with applicable federal, State, and local laws, including California OSHA (Cal OSHA) requirements. Implementation of construction BMPs, compliance with vehicle manufacturer's specifications, and compliance with applicable regulations would result in impacts that are less than significant, and no mitigation is required.

b) **Less than Significant with Mitigation.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Operation of the proposed project would be similar to existing conditions. The proposed project would not change the use of Cascade Boulevard, nor would it increase the number of vehicles using the roadway. The potential for release of hazardous materials into the environment upon proposed project completion would be similar to existing conditions and impacts would be less than significant and no mitigation is required.

Construction of the proposed project could result in the disturbance of hazardous materials.

<u>Asbestos</u>

Within the proposed project site there is no significant occurrence of ultramafic rock where naturally occurring asbestos minerals (NOA) are likely to occur as reported in the General Location Guide for Ultramafic Rocks in California.

The site survey found asbestos present in the white pipe wrap around the pipe on the south east side of the existing bridge. The chrysotile asbestos had a content of 70-80% with an estimated 10 linear feet (Dewberry | Drake Haglan 2021). Implementation of **Mitigation Measures HAZ-1** would reduce impacts related to the uncovering of ACMs during the demolition of the existing bridge along Cascade Boulevard over Moody Creek

to less than significant levels. New uses of ACMs were banned by the EPA in 1989, thus new ACMs would not be used in construction of the replacement bridge.

Lead

The white colored paint on the concrete end pillars of the existing bridge was found to contain lead in concentrations of 24,000 parts per million (ppm) and is classified as LBP. Lead related construction work practices in accordance with Cal/OSHA Title 8 1532.1 Lead in Construction would be required for any work impacting these painted systems.

Based on our review of air photos and topographical maps, the alignment of Cascade Boulevard has remained stationary dating back to circa 1918 but has mainly been used by local traffic with historical low traffic volumes. Aerially Deposited Lead (ADL) would not likely be considered an issue at the proposed project site.

The proposed project has the potential to use a variety of hazardous materials during construction activities. These materials would be stored, handled, and transported per federal, State, and local regulatory requirements. Implementation of construction BMPs, compliance with vehicle manufacturer's specifications, and compliance with applicable regulations would result in impacts that are less than significant with implementation of **Mitigation Measure HAZ-2**.

c) **Less than Significant.** The proposed project is located within 0.25 miles of a school. The nearest school to the proposed project site is Grand Oaks Elementary, which is located approximately 650 feet northwest of the proposed project site. Construction activities would not emit hazardous emissions that would impact these schools. Common materials used at construction sites, gasoline, diesel fuel, and other materials would not be stored on site. As stated above, implementation of construction BMPs, compliance with vehicle manufacturers' specifications, and compliance with applicable regulations would reduce the potential for hazardous materials or emissions to be released. Upon construction completion, the use of Cascade Boulevard would not be changed. With implementation of the BMPs, impacts would be less than significant. No mitigation is required.

d) **No Impact.** The proposed project is not located on a site included in the Hazardous Waste and Substances Site List pursuant to Government Code Section 65962.5 (DTSC 2021). According to the ISA, one ENVIROSTOR site does occur within approximately one mile of the proposed project, Shasta Lake Middle School. However, the site was investigated, and no contamination was found (Dewberry | Drake Haglan 2021). The site was closed with "no further action" on May 19, 2004. Therefore, the proposed project would have no impact.

e) **No Impact.** The proposed project is not located within an airport land use plan. Construction and operation of the proposed project would not result in a safety hazard or excessive noise for people residing or working within an airport land use plan or within two miles of an airport. No impact would occur and no mitigation is required.

f) **Less than Significant.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Operations would be similar to existing conditions upon construction completion. The proposed project would not increase capacity along Cascade Boulevard that could increase traffic or congestion. The proposed project would not impair an adopted emergency response plan or emergency evacuation plan in the long term, as operations of the replacement bridge would be similar to existing conditions. Therefore, the proposed project would have no impact to emergency response plans or emergency evacuations plans upon the completion of construction.

During construction, the existing bridge would be closed, and Cascade Boulevard would be detoured just west of the existing bridge onto a temporary creek crossing (**Figure 1-3**). The temporary detour would provide for a 12-foot wide vehicle lane in each direction and consist of a low water crossing. Signage would be posted on both sides of the existing bridge to inform drivers of the construction schedule and timing, road closures, and other necessary information. While minor impacts to circulation may occur, access for emergency vehicles, trucks, and other roadway users would be maintained throughout the construction period. City staff would provide public outreach prior to construction to keep residents informed of the project's status and schedule throughout construction. The proposed project would be coordinated with the Shasta Lake Fire Protection District (SLFPD), Shasta County Sheriff's Office, and other law enforcement or emergency service providers within the area. The proposed project would not impair an adopted emergency response plan or emergency evacuation plan because a traffic control plan would be submitted by the contractor and approved by the City prior to the start of construction to ensure traffic flow in the area. Impacts would be less than significant, and no mitigation is required.

g) **Less than Significant with Mitigation.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, City and Caltrans design criteria and standards. The proposed project would not result in new additional structures, nor would it increase the number of people within the proposed project site once construction is complete. Therefore, the proposed project operations would not expose people or structures to a significant risk from wildland fires, beyond what is currently present. Impacts would be less than significant in this regard. No mitigation is required.

During construction, workers would be present on site; however, this increase in workers would be temporary in nature. The proposed project site is served by the SLFPD. The SLFPD operates out of 1 fire station staffed by nine fulltime professionals, 1 admin clerk (SLFPD 2021). The proposed project would be coordinated with the SLFPD, as well as school districts and bus services that use Cascade Boulevard, as well as the County's Sheriff's Office and other law enforcement or emergency service providers within the proposed project area. With the implementation of **Mitigation Measure FIRE-01**, impacts would be less than significant with mitigation incorporated regarding wildland fire threat.

3.9.3 Mitigation Measures

Mitigation Measure HAZ-1: *Asbestos.* The proposed project could generate airborne asbestos fibers found in the white pipe wrap around the pipe on the south east side of the existing bridge that would be removed as part of the proposed project and would be regulated by Cal/OSHA. Cal/OSHA worker health and safety regulations in 8 CCR Part 1529 apply during any disturbance of asbestos, regardless of the percentage, by a person while in the employ of another.

Mitigation Measure HAZ-2: *Lead Based Paint.* The white colored paint on the concrete end pillars of the existing bridge was found to contain lead in concentrations of 24,000 ppm and is classified as LBP. Lead related construction work practices in accordance with Cal/OSHA Title 8 1532.1 Lead in Construction will be required for any work impacting these painted systems.

3.9.4 References

California Department of Transportation (Caltrans). 2021. Initial Site Assessment (ISA).

Department of Toxic Substances Control (DTSC). 2021. Hazardous Waste and Substances Site List. Online: https://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST. Date Accessed: August 13, 2021.

3.10 Hydrology and Water Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Hydrology and Water Quality – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of a site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i. result in substantial erosion or siltation on- or off-site;	☐	☒	☐	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	☐	☒	☐	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☒	☐	☐
iv. impede or redirect flood flows?	☐	☒	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

3.10.1 Setting

A Design Hydraulic Study (Avila 2021) and a Water Quality Technical Memorandum (Dewberry | Drake Haglan 2021) were prepared for the proposed project. These studies provide information regarding the hydraulic characteristics at the proposed project site, scour potential for the proposed bridge, design flow characteristics, hydrologic information, and water quality analysis for the proposed project.

<u>Hydrology (surface water)</u>

The proposed project is located in an undefined hydrologic sub-area (HSA) of the Stillwater Creek hydrologic area (HA), within the Mountain Gate hydrologic unit (HU) of the Sacramento River

hydrologic region (HR). It is located within the West Fork Stillwater Creek subwatershed within the Stillwater Creek watershed (**Figure 3.10-1**).

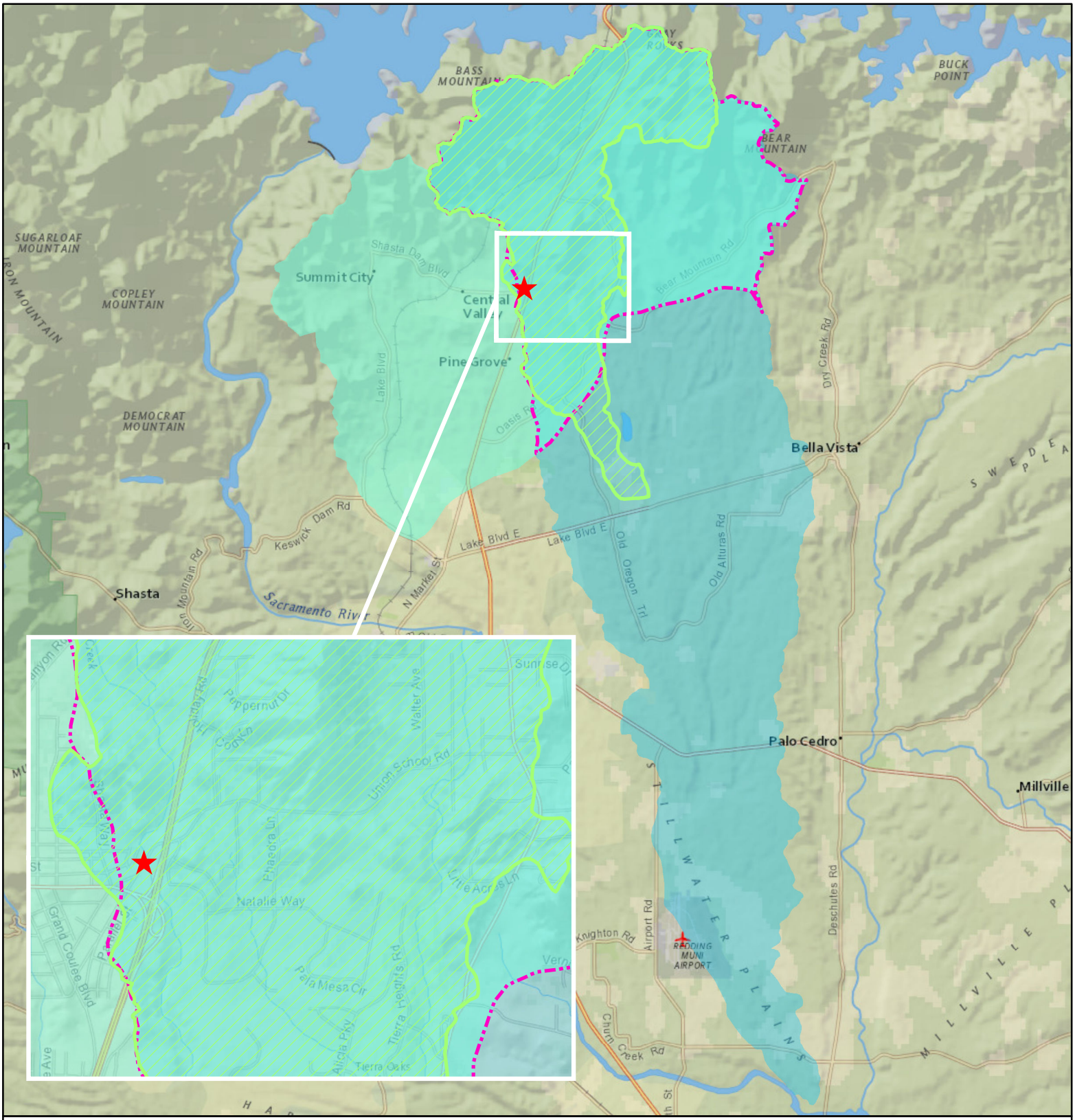
The undefined HSA drains an area of approximately 26 square miles and the Stillwater Creek HA drains approximately 26 square miles. The West Fork Stillwater Creek subwatershed drains approximately 18 square miles within the 67 square mile Stillwater Creek watershed. The Mountain Gate HU drains approximately 48 square miles within the 27,200 square mile Sacramento River HR.

The Sacramento River HR covers approximately 27,200 square miles. The region includes all or large portions of Modoc, Siskiyou, Lassen, Shasta, Tehama, Glenn, Plumas, Butte, Colusa, Sutter, Yuba, Sierra, Nevada, Placer, Sacramento, El Dorado, Yolo, Solano, Lake, and Napa counties. Small areas of Alpine and Amador counties are also within the region. Geographically, the region extends south from the Modoc Plateau and Cascade Range, at the Oregon border, to the Sacramento-San Joaquin River Delta. The Sacramento Valley, which forms the core of the region, is bounded to the east by the crest of the Sierra Nevada and southern Cascades and to the west by the crest of the Coast Range and Klamath Mountains. Other significant features include Mount Shasta and Lassen Peak in the southern Cascades; the Sutter Buttes in the south-central portion of the valley, and the Sacramento River and its major tributaries, the Pit, Feather, Yuba, Bear, and American Rivers (DWR 2003).

Within the proposed project, Moody Creek is classified as a riverine habitat and contains flowing water for only part of the year. At the time of the survey in May 2019, water was present and flowing within Moody Creek, with a depth of six inches to one foot and the average width of the OHWM was approximately nine feet; however, at the bridge it ranged from 11 to 14 feet. The banks of Moody Creek range from gently sloping to relatively steep and are primarily vegetated with mixed riparian species. In some areas, the banks are undercut or consist of large chunks of bedrock.

The precipitation for the proposed project site is based on rainfall data from the Shasta Dam and Mountain Gate areas. Annual average rainfall is approximately 64 inches per year. The 25-year 24-hour storm event produces approximately 9.03 inches of rainfall. The 25-year six-hour storm event produces approximately 4.6 inches of rainfall (Shasta County Development Standards).

Moody Creek is an intermittent stream that flows south through the proposed project. Moody Creek is classified as a riverine intermittent streambed seasonally flooded feature on the current National Wetland Inventory (NWI) map (USFWS 2021). Flows in Moody Creek are supplemented by urban runoff and landscape irrigation.



Legend

- Project Location
- Stillwater Creek Hydrologic Area
- West Fork Stillwater Creek Subwatershed
- Mountain Gate Hydrologic Unit
- Stillwater Creek Watershed

Dewberry | drakehaglan

N

0 0.75 1.5 3 Miles

Source: ESRI Online Basemap, World Imagery Map; Shasta County Coordinate System NAD 83 State Plane California I FIPS 0401 Feet
Notes: This map was created for informational and display purposes only

Cascade Boulevard over Moody Creek Bridge Replacement Project
City of Shasta Lake, CA

Hydrology and Watershed

Figure 3.10-1

Groundwater

The proposed project is not situated within a recognized California groundwater basin or subbasin. The nearest recognized groundwater basin is the Enterprise subbasin within the Redding groundwater basin, located approximately 1.7 miles southeast of the proposed project. However, some groundwater likely occurs in isolated pockets, including the shallow alluvial materials associated with surface waters or fractures in the underlying bedrock.

No records of wells in the vicinity of the proposed project were found on the California Department of Water Resources (DWR) Water Data Library website. Nearby monitoring wells at a Former Texaco Service Station, located at the intersection of Cascade Blvd and Shasta Lake Blvd, approximately 400 feet south of the proposed project, were identified on the Geotracker website. The wells recorded groundwater at approximately 18 feet below ground surface (bgs). Groundwater is anticipated to correspond to the elevation of water in the creek (BSK Associates 2021).

Existing Water Quality

Water quality standards for all surface waters in the region are discussed in the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin (Basin Plan), which covers the entire area included in the Sacramento and San Joaquin river drainage basins. The Sacramento River Drainage Basin covers 27,210 square miles and includes the entire area drained by the Sacramento River. The California Clean Water Act Section 303(d) list identifies water bodies with impaired water quality. According to this list, Moody Creek is not designated as impaired (SWRCB 2010).

According to the California Department of Water Resources (DWR) (2004) Bulletin 118, groundwater in the Redding Groundwater Basin is characterized as magnesium sodium bicarbonate and sodium magnesium bicarbonate-type waters. Total dissolved solids concentrations range from 109 to 320 milligrams per liter (mg/L), averaging 194 mg/L. Impairments include localized areas with high iron, manganese, and nitrate (DWR 2004).

Beneficial Uses and Water Quality Objectives/Standards

Beneficial uses are not set in the Basin Plan explicitly for Moody Creek, but standards are established for the Sacramento River, which Moody Creek is a tributary to. The Basin Plan states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Water Quality Control Plan for the California Regional Water Quality Control Board, Central Valley Region defines beneficial uses of surface water body “Shasta Dam to the Colusa Basin Drain”, which is the section of the Sacramento River from the Shasta Lake Dam approximately 162 miles south to the Colusa Basin Drainage Canal, near Sacramento, CA.

Beneficial uses include municipal and domestic supply, irrigation, stock watering, service supply, power, contact, canoeing and rafting recreation, other noncontact recreation, warm freshwater habitat, cold freshwater habitat, warm migration habitat, cold migration habitat, warm spawning habitat, cold spawning habitat, wildlife habitat, and navigation (CVRWQCB 2018). These waterbodies are not sediment sensitive.

Water quality objectives for surface waters in the region have been set for bacteria, bioaccumulation, biostimulatory substances, mercury and methylmercury, chemical components, color, dissolved oxygen (DO), floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, sulfide, tastes and odors, temperature, toxicity, and turbidity (CVRWQCB 2018).

3.10.2 Discussion

a) **Less than Significant.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge designed to applicable City, AASHTO and Caltrans design criteria and standards. Implementation of the bridge replacement would not substantially modify the character of the proposed project site in terms of sources of water pollutants. Vehicles traveling on Cascade Boulevard and urban land uses would remain the primary sources of water pollutants at the proposed project site. Although the proposed bridge would be approximately three feet higher than the existing bridge, the proposed bridge would not include additional lanes and would not change the number of vehicles traveling on Cascade Boulevard or other nearby land uses in the watershed. Therefore, the proposed project, once completed, would not result in any violations of water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. Impacts would be less than significant, and no mitigation is required.

   Construction activities would include the series of activities described above, under Project Description, that would result in disturbance within and adjacent to Moody Creek. Proposed channel disturbance during construction, including installation of rock slope protection (if required), could result in a temporary increase in turbidity in and around the area of the in-channel construction footprint. In addition, the use of construction equipment and other vehicles could result in spills of oil, grease, gasoline, brake fluid, antifreeze, or other vehicle-related fluids and pollutants. Improper handling, storage, or disposal of fuels and materials, or improper cleaning of machinery could cause surface water and groundwater quality degradation.

   A temporary diversion system would be installed in order to isolate and dewater the work area so that the proposed construction activities can occur, and the temporary onsite detour can be installed. Approximately 0.029 acres of Moody Creek will be temporarily

impacted due to the installation of the stream diversion system and temporary onsite detour. Installation of the temporary diversion system could result in a temporary increase in turbidity. Dewatering discharge could result in an adverse effect to water quality if the effluent contains chemical pollutants or high levels of sediment. While sediment is the primary pollutant of concern, all dewatering effluents such as nitrogen, oil and grease, total petroleum hydrocarbons, and sulfides could potentially impact water quality. Temporary impacts will be restored to pre-project conditions.

Large pieces of construction equipment may compress soil within the proposed project work area, which could lead to a reduction in permeability and an increase in site runoff. The proposed project would implement construction BMPs, as discussed in **Section 3.4, Biological Resources**, and **Section 3.9, Hazards and Hazardous Materials**. The proposed project would also be required to obtain and comply with the necessary permits, including National Pollutant Discharge Elimination System (NPDES) General Construction, Section 404, and Section 401 permits. Adherence to these permitting requirements and building/grading standards would include incorporation of appropriate, site-specific BMPs. With implementation of appropriate BMP, construction impacts to surface water and groundwater quality would be less than significant.

b) **Less than Significant.** The proposed project is not actively used for groundwater recharge. The proposed project is similar in size and scale to the existing bridge and roadway approaches. No wells would be constructed nor would new connections to existing water facilities be required. Construction activities would not intercept or alter groundwater recharge, discharge, or flow conditions, as the proposed project would replace the existing bridge. Any increase in impervious surface as a result of the proposed project would be negligible in association with groundwater recharge. Construction activities may require the use of water for dust control or other activities. Water used during construction would not include groundwater and would be trucked to the proposed project site. Water use at the proposed project site would cease upon construction completion. Therefore, the proposed project would not substantially decrease water supply or reduce groundwater recharge. Impacts would be less than significant, and no mitigation is required.

c) **Less than Significant with Mitigation**. The proposed project would remove the existing bridge and construct a new bridge designed to applicable City, AASHTO and Caltrans design criteria and standards. Operation of the proposed project would be similar to existing conditions. The proposed project would not alter the course of Moody Creek nor would it alter the existing drainage pattern of the site.

Construction activities involving soil disturbance, excavation, cutting/filling, and grading activities could result in increased erosion and sedimentation into Moody Creek. In

addition, the use of large construction equipment may compress soil within the staging areas, which could lead to a redirection in permeability, an increase in site water runoff, and an increase in erosion or siltation to occur. The proposed project would comply with City, Caltrans standards, and BMPs pertaining to erosion control prevention, such as the use of silt fencing and fiber rolls, through the development of a SWPPP. The SWPPP would also comply with NPDES General Construction, Section 404, and Section 401 permitting requirements for preventing erosion and siltation at the construction site. Any temporary construction areas would be revegetated, as required through **Mitigation Measure BIO-7.** Therefore, after implementation of **Mitigation Measure BIO-7,** impacts related to erosion or siltation on- or off-site would be reduced to less than significant.

Standard stormwater and erosion control BMPs, such as silt fences and fiber rolls, would be implemented during construction to reduce any runoff at or around the proposed project site. The proposed project does not include features that would contribute to flooding on- or off-site, nor would it exceed the capacity of existing or planned stormwater drainage systems. The proposed project would not substantially increase additional sources of polluted runoff. Construction and operational impacts related to runoff would be considered less than significant and no mitigation is required.

As stated in response a, a temporary diversion system would be installed in order to isolate and dewater the work area so that the proposed construction activities can occur. Approximately 0.029 acres of Moody Creek would be temporarily impacted due to the installation of the stream diversion system and temporary onsite detour. During the temporary stream diversion, Moody Creek water flows would be redirected as a result. Moody Creek would be returned to pre-project conditions after construction completion and impacts to Moody Creek related to flows would be considered less than significant.

d) **Less than Significant.** The proposed project site is not located within a tsunami or seiche zone; therefore, no impacts would occur during construction or operation. The proposed project is within hazard area AE, 1% Annual Chance Flood Hazard, designated by the Federal Emergency Management Agency (FEMA) on the Flood Insurance Rate Map (FIRM) Panel 06089C1236G (FEMA 2020). The proposed project would remove the existing bridge and construct a new bridge designed to applicable City, AASHTO and Caltrans design criteria and standards. Specifically, the proposed bridge would be constructed 3 feet higher than the existing bridge. The proposed bridge would improve hydraulics due to longer span, higher minimum soffit elevation, and removal of an existing pier from the channel. Therefore, impacts would be less than significant, and no mitigation is required.

Construction of the proposed project has the potential to expose bare soil and potentially generate other water quality pollutants that could be released into Moody Creek during a flood event. Construction materials, such as asphalt and concrete, and equipment fluids

could be exposed during a flood event. A flood event could result in the release of pollutants due to project inundation. The proposed project would implement construction BMPs, as discussed in **Section 3.4, Biological Resources**, and **Section 3.9, Hazards and Hazardous Materials**, above. The proposed project would also be required to obtain and comply with the necessary permits. Adherence to these permitting requirements and building/grading standards would include incorporation of appropriate, site-specific BMPs. Therefore, the proposed project would not result in the release of pollutants due to inundation. Impacts would be less than significant, and no mitigation is required.

e) **No Impact.** The proposed project would be subject to the *Shasta Lake Storm Water Quality Management Program.* Shasta Lake Municipal Code (SLMC) Chapter 13.36 (Storm Water Quality Management) was adopted to protect and enhance the water quality of watercourses and water bodies and ensure compliance with the Federal CWA and Porter-Cologne Water Quality Control Act. SLMC Chapter 13.36 provides the City with the legal authority to fully implement and enforce provisions set under NPDES General Permit CAS000004, *Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4)* (Water Quality Order 2013-0001-DWQ, as amended).

SLMC Chapter 15,08 (Grading, Erosion Control, and Hillside Development), §15.08.210(A)(8) requires that all construction projects involving site grading shall include erosion control plans prepared by a registered civil engineer, qualified SWPPP developer (QSD), or other licensed or certified stormwater professional. Temporary and permanent erosion control devices designed and constructed in accordance with the California Stormwater Quality Association (CASQA) BMPs, and the City's Construction Standards, shall be provided to control erosion. The construction contractor must provide sufficient equipment and qualified personnel to conduct emergency erosion control as identified in the SWPPP and/or erosion control plan.

The proposed project would meet the requirements through implementation of required BMPs. Therefore, the proposed project would not conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan. The proposed project would result in no impact and no mitigation is required.

3.10.3 Mitigation Measures

Please refer to **Section 3.4, Biological Resources, Mitigation Measure BIO-7** for mitigation related to hydrology and water quality.

3.10.4 References

Avila & Associates. 2021. Design Hydraulic Study for the Cascade Boulevard Bridge at Moody Creek.

Dewberry Engineers Inc. 2021.Water Quality Technical Memorandum for the Cascade Boulevard Bridge (06C0060) over Moody Creek Replacement Project (Federal Project No. BRLO 5474 (015)).

California Department of Transportation (Caltrans). 2003. Storm Water Quality Handbooks: Construction Site Best Management Practices (BMPs) Manual.

California Department of Water Resources. 1997. Feasibility Report, American Basin Conjunctive Use Project. June 1997.

California Department of Water Resources. 2018. California's Groundwater Update 2003. Bulletin 118, Last updated January 20, 2006.

Central Valley Regional Water Quality Control Board (CVRWQCB). 2018. Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Sacramento, California.

Department of Water Resources. 2006. California's Groundwater Bulletin 118: Sacramento Valley Groundwater Basin Eastern Duck Subbasin. California Department of Water Resources.

Sacramento River Watershed Program. 2010. The Sacramento River Basin: A Roadmap to Watershed Management. Chico CA.

State Water Resources Control Board. 2018. 2014-2016 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report. Available online at:

BSK Associates. 2021. *Preliminary Foundation Report for the Moody Creek Bridge Rehabilitation Report.*

City of Shasta Lake. 2020. Draft 2040 General Plan Policy Document. Circulation Element. Available at: https://planshastalake.com/circulation/. Accessed on February 9, 2021.

City of Shasta Lake. 2021. Traffic Counts Report.

Bridge Hunter. 2012. Moody Creek Bridge Report. Available at: https://bridgehunter.com/ca/shasta/moody-creek/. Accessed on February 9, 2021.

Bridge Reports. 2012. Cascade Blvd over Moody Creek Bridge Report. Available at: https://bridgereports.com/1039320. Accessed on February 9, 2021.

3.11 Land Use and Planning

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Land Use and Land Use Planning – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

3.11.1 Setting

The proposed project is located in the City, near the eastern boundary. The City's General Plan designated the surrounding land uses at the proposed project site as Commercial, Mixed Use, Public Facilities, Urban Residential, Rural Residential A, and Rural Residential B. The proposed project site is within land designated by the General Plan as Commercial. This designation provides for commercial uses, and more specific categories are defined by the City's Zoning classifications. The City's Zoning Ordinance classifications surrounding the proposed project site include Community Commercial Design Review (C-2-DR), Commercial Planned Development (CPD), One-Family Residential (R-1), Planned Development Specific Plan (PD-SP), Public Facilities (PF), Multiple-Family Residential (R-3), Residential Rural Design Review (R-R-DR), and Interim Residential Design Review (IR-DR). The proposed project site is within land zoned as Community Commercial Design Review.

3.11.2 Discussion

a) **No Impact.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Operation of the new bridge would be similar to existing conditions as no new lanes are being added. The proposed project would improve safety for vehicular, pedestrian, and bicycle traffic along Cascade Boulevard at the proposed project site. The proposed project would not change the physical arrangement of the area or physically divide an established community as it is replacing an already existent bridge. No impacts would occur, and no mitigation is required.

b) **No Impact.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge. No permanent right-of-way acquisition is anticipated from any parcels near the proposed project. The proposed

project would not require changes to any land use designation or zoning classification. The proposed project would not conflict with the General Plan, General Plan Land Use Designations, or the City Zoning Ordinance. Therefore, the proposed project would have no impact and no mitigation measures are required.

3.11.3 Mitigation Measures

No mitigation measures are required for the proposed project as related to Land Use and Planning.

3.11.4 References

City of Shasta Lake. 2021. Shasta Lake Map Viewer. Online: https://www.arcgis.com/apps/webappviewer/index.html?id=6e08b7cb14aa4302ab9f3da3a89d7d8e. Accessed: October 19, 2021.

3.12 Mineral Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Mineral Resources – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

3.12.1 Setting

The proposed project is located near the City's eastern boundary in Shasta County. Mining and mineral resource are important to the economy of the County and also to the daily lives of all of Shasta County's citizens. Mining has been an important industry in the County since gold was discovered on Clear Creek in 1848. Shasta County was one of the two most important centers of mining in California during the 1849 Gold Rush and continuing through the late 19th century. There are fourteen metallic minerals that have been historically mined in Shasta County: cadmium, chromite, copper, gold, iron, lead, manganese, molybdenite, platinum, pyrite, mercury, silver, tungsten, and zinc. In addition, there are fourteen non-metallic minerals that have been mined in Shasta County: coal, alluvial sand and gravel, asbestos, barite, clay, crushed stone, diatomite, dimension stone, graphite, limestone, olivine, pumice and volcanic cinders, sulfur, and talc (Shasta County 2004b).

As of 2004, there were six different mineral resources under production in Shasta County, including alluvial sand and gravel, crushed stone, volcanic cinders, limestone, diatomite and gold.

The California Surface Mining and Reclamation Act (SMARA) was enacted by the California legislature to regulate activities related to mineral resource extraction. The act requires the prevention of adverse environmental effects caused by mining, the reclamation of mined lands for alternative land uses, and the elimination of public health and safety hazards from the effects of mining activities.

A provision of SMARA requires the California Geological Survey (formerly California Division of Mines and Geology) to classify the regional significance of mineral resources and create mineral land classification reports. Classification is the process of identifying lands containing significant mineral deposits, based solely on geologic factors, and without regard to present land use or

ownership. (CDOC 1997b). The guidelines for establishing the Mineral Resource Zones (MRZs) are as follows:

MRZ-1: Areas where available geologic information indicated that little likelihood exists for the presence of significant mineral resources.

MRZ-2a: Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. Land included in the MRZ-2a category is of prime importance because it contains known mineral resources.

MRZ-2b: Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present.

MRZ-3a: Areas containing known mineral occurrences of undetermined mineral resource significance.

MRZ-3b: Areas containing inferred mineral occurrences of undetermined mineral resource significance.

MRZ-4: Areas of no known mineral occurrences where geologic information does not rule out either the presence or absence of significant mineral resources.

The proposed project site is not located within an area of identified mineral resource significance (CGS 1997). The proposed project site is located within both an unlabeled area and a MRZ-3 (CDOC 1997a). There are no active mining facilities within the proposed project area. The City's General Plan does not designate any mineral resource recovery sites located in the City limits.

3.12.2 Discussion

a) **No Impact.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. There are no mining operations in the proposed project's vicinity. The proposed project site does not include regional or statewide significant mineral lands. Construction activities would be temporary in nature and would not conflict with or limit access to mineral resources. Operation of the proposed project would be similar to existing conditions. The proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State. Therefore, the proposed project would have no impact to known mineral resources. No mitigation is required.

b) **No Impact.** The proposed project is not located near a mineral resource recovery site delineated by the General Plan or any other applicable land use plan. The proposed project would not result in the loss of availability of a locally important mineral resource

recovery site delineated on a local general plan, specific plan or other land use plan. The project site is not identified in the General Plan Minerals Element as containing a locally important mineral resource. There is no other land use plan which addresses minerals. The proposed project site is located both an unlabeled area and a MRZ-3 (CDOC 1997a). Construction activities would be temporary in nature and would not conflict with or limit access to mineral resources. Operation of the proposed project would be similar to existing conditions. There would be no impact to a locally important mineral resource recovery site. No mitigation is required.

3.12.3 Mitigation Measures

No mitigation is required in regard to Mineral Resources.

3.12.4 References

California Department of Conservation (CDOC). 1997a. Composite Mineral Land Classification Map Showing Areas Classified MRZ-2 for alluvial sand and gravel, crushed stone, volcanic cinders, and limestone resources, and Areas Classified MRZ-3 for alluvial sand and gravel, and limestone resources in Western Shasta County, California (Plate 9A).

California Department of Conservation (CDOC). 1997b. Mineral Land Classification of Alluvial Sand and Gravel, Crushed Stone, Volcanic Cinders, Limestone, and Diatomite within Shasta County, California (Report). Date Accessed: July 28, 2021.

California Geologic Survey (CGS). 1997. Mineral Land Classification Map. Online: https://maps.conservation.ca.gov/cgs/informationwarehouse/mlc/. Date Accessed: July 28, 2021.

Shasta County. 2004b. General Plan: Minerals. Online: https://www.co.shasta.ca.us/docs/libraries/resource-management-docs/docs/63minerals.pdf?sfvrsn=fa6a99fe_0. Date Accessed: July 28, 2021.

3.13 Noise

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Noise – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or airport land use plan area, or, where such a plan has not been adopted within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☒

3.13.1 Setting

A Noise Technical Memorandum (Dewberry | Drake Haglan 2021a) was prepared for the proposed project. The memorandum was prepared to discuss the proposed project's potential noise related impacts to the surrounding community and potentially sensitive land use in the vicinity of the proposed project site. The surrounding landscape is characterized by riparian habitat, oak woodland, and the existing residences. Primary land uses include residential, greenbelt/open space, and commercial/professional uses. Some land uses are considered more sensitive to ambient noise levels than others because of the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, transient lodging, schools, rest homes, and hospitals are generally more sensitive to noise than commercial and industrial land uses. Four sensitive noise receptors are identified within 500 feet of the proposed project area – the Shasta Dam Motel, the residence at 1457 Buena Vista Street, the residence at 1530 Cascade Boulevard, and the residence at 5373 Grand Avenue (**Figure 3.13-1).**

Noise is defined as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. A frequency weighting measure that simulates human perception is commonly used to describe noise environments and to assess impacts on noise-sensitive areas. It has been found that A-weighting of sound levels best reflects the human ear's reduced sensitivity to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. The decibel notation used for sound levels describes a logarithmic relationship of acoustical energy, for

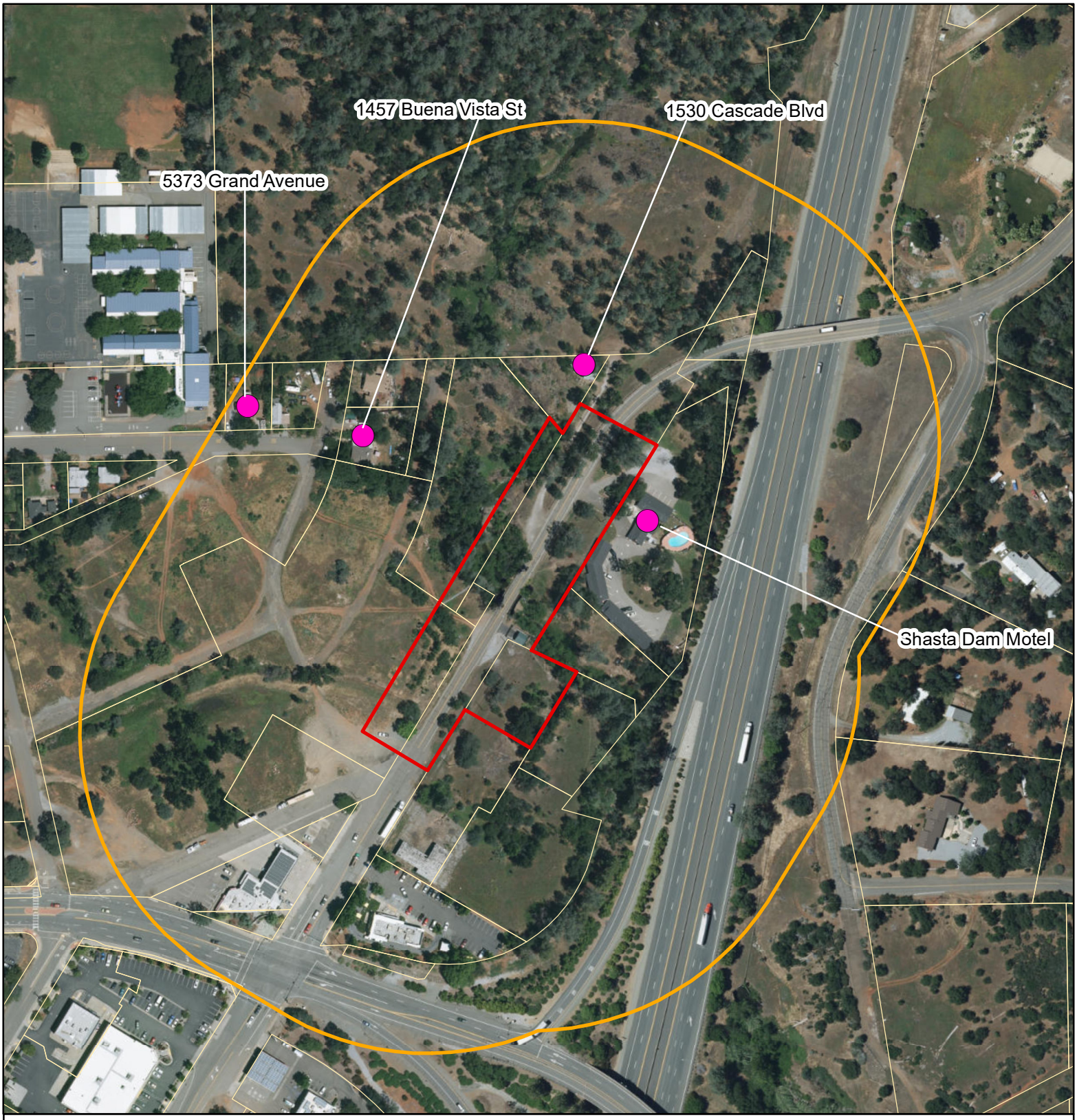
example, a doubling of acoustical energy results in an increase of three dB, which is considered barely perceptible. A ten-fold increase in acoustical energy equals a ten dB change, which is subjectively like a doubling of loudness. **Table 3.13-1**, Typical Noise Levels, identifies decibel levels for common sounds heard in the environment.

Table 3.13-1 Typical Noise Levels

Common outdoor activity	Noise level (dBA)	Common indoor activity
Jet flyover at 1,000 feet	110	Rock band
Gas lawnmower at three feet	100	
Diesel truck at 50 feet at 50 mph	90	Food blender at three feet
Noisy urban area, daytime	80	Garbage disposal at three feet
Gas lawnmower, 100 feet	70	Vacuum cleaner at ten feet
Commercial area		Normal speech at three feet
Heavy traffic at 300 feet	60	Large business office
Quiet urban daytime	50	Dishwasher next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime		
Quiet rural nighttime	30	Library
		Bedroom at night, concert hall (background)
	20	Broadcast/recording studio
	10	
Lowest threshold of human hearing	0	Lowest threshold of human hearing

Source: Caltrans, 2013

Several time-averaged scales represent noise environments and consequences of human activities. The most commonly used noise descriptors are equivalent A-weighted sound level over a given time period (Leq); average day-night 24 hour average sound level with a nighttime increase of ten dBA to account for sensitivity to noise during the nighttime; and community noise equivalent level (CNEL), also a 24 hour average that includes both an evening and a nighttime weighting. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be adverse levels of noise with respect to public health because of sleep interference.



Legend

- Sensitive Receptors
- Project Extent
- 500-foot Buffer
- Parcels

Dewberry | drakehaglan

N

0 65 130 260 Feet

Source: ESRI Online Basemap, World Imagery Map; Shasta County Coordinate System NAD 83 State Plane California I FIPS 0401 Feet
Notes: This map was created for informational and display purposes only

Cascade Boulevard over Moody Creek Bridge Replacement Project
City of Shasta Lake, CA

Sensitive Receptor Map

Figure 3.13-1

3.13.2 Discussion

a) **Less than Significant Impact.** Land use within and adjacent to the proposed project corridor consists of four sensitive receptors, the Shasta Dam Motel, the residence at 1457 Buena Vista Street, the residence at 1530 Cascade Boulevard, and the residence at 5373 Grand Avenue. Noise at the project site is currently dominated by nearby I-5 and SR 151. During construction of the proposed project, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. The majority of construction noise would be from clearing of the project area along with the placement of the new bridge abutments and structure. Based on the loudest activity (scrapers: 89 dBA at 50 feet), the Shasta Dam Motel is within 50 feet and would experience maximum noise levels of about 89 dBA. The other residences located approximately 350 - 500-feet west and northwest of the project site would experience maximum noise levels of approximately 73 dBA at 350 feet and approximately 67 at 500 feet. The proposed project would implement BMPs and construction noise minimization measures. With the implementation of Mitigation Measures, noise and vibration impacts would be reduced to a less than significant level.

Table 3.13-2 summarizes the estimated overall noise levels of general construction phases for typical roadway/highway projects.

Table 3.13-2. Construction Phases and Noise Levels

Construction Activity/Phase	Leq (dBA) at 50 Feet from Roadway Centerline
1 - Ground Clearing	84 (dBA)
2 - Excavation	88/78 (dBA)
3 - Foundation	88 (dBA)
4 - Erection	79/78 (dBA)
5 - Finishing	84 (dBA)
Source: US EPA, 1971.	

Table 3.13-3 summarizes noise levels produced by construction equipment that is commonly used on bridge replacement projects and is representative of the equipment necessary for proposed project construction. Construction equipment is expected to generate noise levels ranging from 80 to 89 dBA at a distance of 50 feet, and noise produced by construction equipment would be reduced over distance at a rate of about 6 dBA per doubling of distance.

Table 3.13-3. Typical Construction Equipment Noise

Equipment	Maximum Noise Level (dBA at 50 feet)
Scrapers	89 (dBA)
Bulldozers	85 (dBA)
Heavy Trucks	88 (dBA)
Backhoe	80 (dBA)
Pneumatic Tools	85 (dBA)
Concrete Pump	82 (dBA)
Source: Federal Transit Administration, 2015.	

b) **Less than Significant Impact**. The majority of construction noise would be from clearing of the project site. Construction of the proposed project will not include the of use pile drivers which can be a significant source of groundbourne vibration levels. Proposed project equipment will be located approximately 180 feet from the nearest sensitive receptor. Any groundbourne noise and vibration levels would be temporary in nature, ceasing upon construction completion. With the implementation of BMPs and compliance with the federal, State, and local policies, regulations, and standards, the proposed project would have a less than significant impact with respect to groundbourne vibration and noise levels and no mitigation measures are required.

c) **No Impact**. The closest public airport to the proposed project area is Redding Municipal Airport which is located approximately 12.4 miles south of the project site. In addition, the Redding Critical Care Medical Group helipad is located approximately 7 miles southwest of the project, and two private airstrips, the Tews Field-CA53 Airstrip and the Benton Airpark, are located approximately 0.75 miles southeast and 8 miles southwest of the project, respectively. Tews Field-CA53 airstrip is located under a mile from the project site but is not a significant concern for proposed project area noise levels because it is a small private airport that is not used for commercial flights. The proposed project is a transportation project and would not involve the introduction of residential or employment uses in the project area. Therefore, the proposed project would not expose people residing or working in the project vicinity to excessive noise levels from aircraft noise, and no impacts would occur.

3.13.3 Mitigation Measures

No mitigation measures regarding impacts to Noise are required.

3.13.4 References

Dewberry | Drake Haglan. 2021a. Noise Technical Memorandum. Date Accessed: July 21, 2021.

3.14 Population and Housing

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
Population and Housing – Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing people or housing units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.14.1 Setting

The proposed project is located in the city of Shasta Lake in Shasta County, CA. According to the California Department of Finance, the City has a total population of 10,657 individuals and a total of 4,330 housing units (SCDP, 2021). The proposed project site is located in Census Tract 117.03, which has an estimated population of 3,363 and a total of 1,384 housing units (FFIEC, 2020).

The highest population annual average growth rate (AAGR) between the years of 2000 and 2018 was a modest 3.8 percent in the City. The Shasta Regional Transportation Agency (SRTA) estimated that the City's population would increase by approximately 1,600 people between 2020 and 2040.

The proposed project site is located within land designated by the General Plan as Commercial. The nearest residence is located approximately 400 feet northwest of the proposed project site, located in land use designation Mixed Use.

3.14.2 Discussion

a) **No Impact**. The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Operation of the new bridge would be similar to existing conditions as no new lanes are being added. The proposed project would not increase capacity along Cascade Boulevard that could encourage population growth within the surrounding communities. The proposed project would not permanently increase the population in the area either directly or indirectly. No impact would occur, and no mitigation is required.

   Due to the temporary nature of construction, it is assumed that the construction personnel would come from the City and surrounding areas and would not relocate to

the area for work. The proposed project would not temporarily increase the population in the surrounding area as a result of construction and no impact would occur.

b) **No Impact**. The proposed project would remove the existing bridge along Cascade boulevard over Moody Creek and construct a new bridge designed to applicable City, AASHTO and Caltrans design criteria and standards. Operations would be similar to existing conditions upon construction completion. The new bridge would not displace housing units or people and replacement housing would not be required. There would be no impact in this regard, and no mitigation is required.

3.14.3 Mitigation Measures

No mitigation measures regarding impacts to population and housing are required.

3.14.4 References

State of California: Department of Finance (SCDP). 2021. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2021 with 2010 Census Benchmark. Online: https://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/. Date Accessed: June 18, 2021.

Federal Financial Institutions Examination Council (FFIEC). 2020. FFIEC Geocode Map. Online: https://geomap.ffiec.gov/FFIECGeocMap/GeocodeMap1.aspx. Date Accessed: June 18, 2021.

City of Shasta Lake. 2020. General Plan: Background Report Housing. Online: https://www.cityofshastalake.org/DocumentCenter/View/2693/Shasta-Lake-2020-2028-HE-Background-Report. Date accessed: June 18, 2021.

3.15 Public Services

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Public Services —				
a) Would the project result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

3.15.1 Setting

Emergency fire and medical services within the Mandatory fire and medical service within the study area are provided by the Shasta Lake Fire Protection District (SLFPD). The SLFPD is a separate agency from the City (City of Shasta Lake 2021). The SLFPD currently employs nine fulltime professionals, 1 admin clerk, and provides 24-hour coverage of the City and surrounding areas. The SLFPD currently operates out of one active fire station, located at 4126 Ashby Court, and two non-active stations that serve primarily as storage. The active fire station is located approximately 1.2 miles west of the proposed project site.

Law enforcement within the City is contracted with the Shasta County Sheriff's Office (SCSO) (Shasta County 2004a). The Shasta Lake Sheriff's Station is comprised of 1 Lieutenant, 2 Sergeants, 10 Deputies, 1 Community Service Officer and 2 Cadets. The Shasta Lake Sheriff's station is located at 4488 Red Bluff Street, which is approximately 4,600 feet west of the proposed project site.

The closest school district to the proposed project site is the Gateway Unified School District (GUSD). GUSD consists of six schools, varying from high schools, elementary, and schools of art. The nearest school to the proposed project site is Grand Oaks Elementary, which is located approximately 800 feet northwest of the proposed project site.

3.15.2 Discussion

a) (i) **Less than Significant Impact.** The proposed project is a bridge replacement project. Operations would be similar to existing conditions upon construction completion. The proposed project would not increase the need for fire protection, as service needs would be similar to existing conditions. Therefore, the project would have no impact to fire protection services upon the completion of construction.

Access along Cascade Boulevard would be maintained during construction. Temporary lane closures and the installation of a temporary onsite detour would be required to complete construction. Construction traffic control is not anticipated to significantly interfere with fire response times.

Construction of the proposed project could result in accident or emergency incidents that would require emergency response, such as fire, police, medical, or hazardous waste services; however, construction activities would be short in duration. Traffic control would be present while traffic is moved onto the new alignment. Basic safety measures and BMPs would be implemented to reduce impacts to less than significant levels.

(ii) **Less than Significant Impact.** The proposed project is a bridge replacement project. Operations would be similar to existing conditions upon construction completion. The proposed project would not increase the need for police protection, as service needs would be similar to existing conditions. Therefore, the proposed project would have no impact to Shasta County Sheriff protection services upon the completion of construction.

Access along Cascade Boulevard would be maintained during construction. Temporary lane closures and the installation of a temporary onsite detour would be required to complete construction. Construction traffic control is not anticipated to significantly interfere with police response times.

During construction, construction workers would be present on-site, which could result in the need for public services. Construction of the proposed project could result in accidents or emergency incidents that would require emergency response; however, construction activities would be short in duration. Any increase in Shasta County Sheriff services due to construction activities would be temporary, ceasing upon completion of the project. Potential impacts would be mitigated through the coordination with the County Sheriff Department, which would ensure that the proposed project would not increase the need for police protection services and impacts would be less than significant.

(iii) **No Impact.** The proposed project is a bridge replacement project and would not increase population, refer to Section 4.14, Population and Housing, and thus, would not generate any additional demand for schools.

(iv) **No Impact.** The proposed project is a bridge replacement project and would not increase the demand on park services. Please refer to Section 4.16, Recreation, for more information.

(v) **No Impact.** The proposed project is a bridge replacement project and would not increase the need for other public services, as service needs would be similar to existing conditions. Therefore, the proposed project would have no impact to other public services upon the completion of construction. The proposed project would not increase the population, refer to Section 4.14, Population and Housing, and thus, would not result in an increase in the number of people that would use other public services such as libraries, public transportation, and other City services. Construction workers are anticipated to come from the surrounding areas and thus would not relocate to the proposed project vicinity.

3.15.3 Mitigation Measures

No mitigation measures are required related to public services.

3.15.4 References

City of Shasta Lake, California. 2021. Sheriff's Office. Available at https://www.cityofshastalake.org/187/Sheriffs-Office. Date Accessed: July 16, 2021.

City of Shasta Lake, California. 2021. Shasta Lake Fire Protection Department. Available at https://www.cityofshastalake.org/Directory.aspx?did=34. Date Accessed: July 16, 2021.

3.16 Recreation

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Recreation —				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☒
a) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

3.16.1 Setting

According to the Shasta County General Plan (2004), Shasta County includes numerous federal, state, local, and private opportunities for recreation. Major recreational opportunities include the Shasta-Trinity National Forest, the Whiskeytown-Shasta-Trinity-National Recreation Area, Lassen National Park and Forest, managed by the U.S. Forest Service; numerous State Parks including Latour State Forest, Castle Crags State Park, and smaller, specialized park lands; and local parkland throughout Shasta County.

Currently, the City is the primary provider of parks and recreational facilities in the City, however, the GUSD also provides a variety of athletic facilities that contribute to the diversity of recreational facilities in the City (City of Shasta Lake, 2005). The nearest park to the proposed project site is the Clair Engle Park, located at 4621 Front Street, approximately 0.6 miles west of the proposed project site (City of Shasta Lake, 2005). Clair Engle Park is one of four special use areas in the City's planning area.

The nearest recreation area to the proposed project is Shasta Lake, approximately 4 miles northwest of the proposed project. Shasta Lake is a main feature in the Whiskeytown-Shasta-Trinity National Recreation Area that provides opportunities for boating, water-skiing, swimming, fishing, camping, picnicking, hiking, hunting, and mountain biking (USDA Forest Service, Shasta Lake Area).

3.16.2 Discussion

a) **No Impact**. The proposed project would replace the existing Cascade Boulevard Bridge over Moody Creek and construct a new bridge designed to applicable City, AASHTO and Caltrans design criteria and standards. Operations would be similar to existing conditions upon construction completion. The proposed project would not involve the construction

of new housing or other facilities beyond those already planned for the Shasta County General Plan or the City of Shasta Lake General Plan; therefore, it would not increase the demand for recreational facilities. The proposed project would not by itself increase the use of existing neighborhood and regional parks or other recreational facilities and would not affect the long-term continued use of existing recreational facilities. No mitigation measures are required.

b) **No Impact.** The proposed project does not include the creation of recreational facilities. The proposed project would replace the existing Cascade Boulevard Bridge over Moody Creek with a new bridge designed to applicable City, AASHTO and Caltrans design criteria and standards. Operations would be similar to existing conditions upon construction completion. The proposed project would not contribute to an increase in population, nor would it result in an increase in demand on existing recreational facilities. No additional recreational facilities would be required to be created as a result of the proposed project. Construction workers brought to the area for the temporary construction period are anticipated to come from the surrounding area and would not relocate. Therefore, an increased demand on recreational facilities would not occur. No mitigation measures are required.

3.16.3 Mitigation Measures

No mitigation measures are required for the proposed project as related to recreation.

3.16.4 References

City of Shasta Lake. 2005. Park System Master Plan. Online: https://www.cityofshastalake.org/DocumentCenter/View/34/Park_System_Master_Plan?bidId=. Accessed: October 20, 2021.

Official Website of County of Shasta, CA. 2021. Sports & Recreation. Available at https://www.co.shasta.ca.us/index/community/sports-recreation. Date Accessed: July 16, 2021.

Shasta County Resource Management Documents. 2001. Open Space and Recreation. Available Online:https://www.co.shasta.ca.us/docs/libraries/resource-management docs/docs/69open.pdf?sfvrsn=0. Date Accessed: July 16, 2021.

United States Department of Agriculture (USDA) Forest Service. 2014. Shasta Lake Area. Available at https://www.fs.usda.gov/recarea/stnf/recarea/?recid=6420. Date Accessed: July 16, 2021.

United States Department of Agriculture (USDA) Forest Service. 2014. Shasta Unit. Available at https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5130542.pdf. Date Accessed: July 16, 2021.

3.17 Transportation

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Transportation – Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

3.17.1 Setting

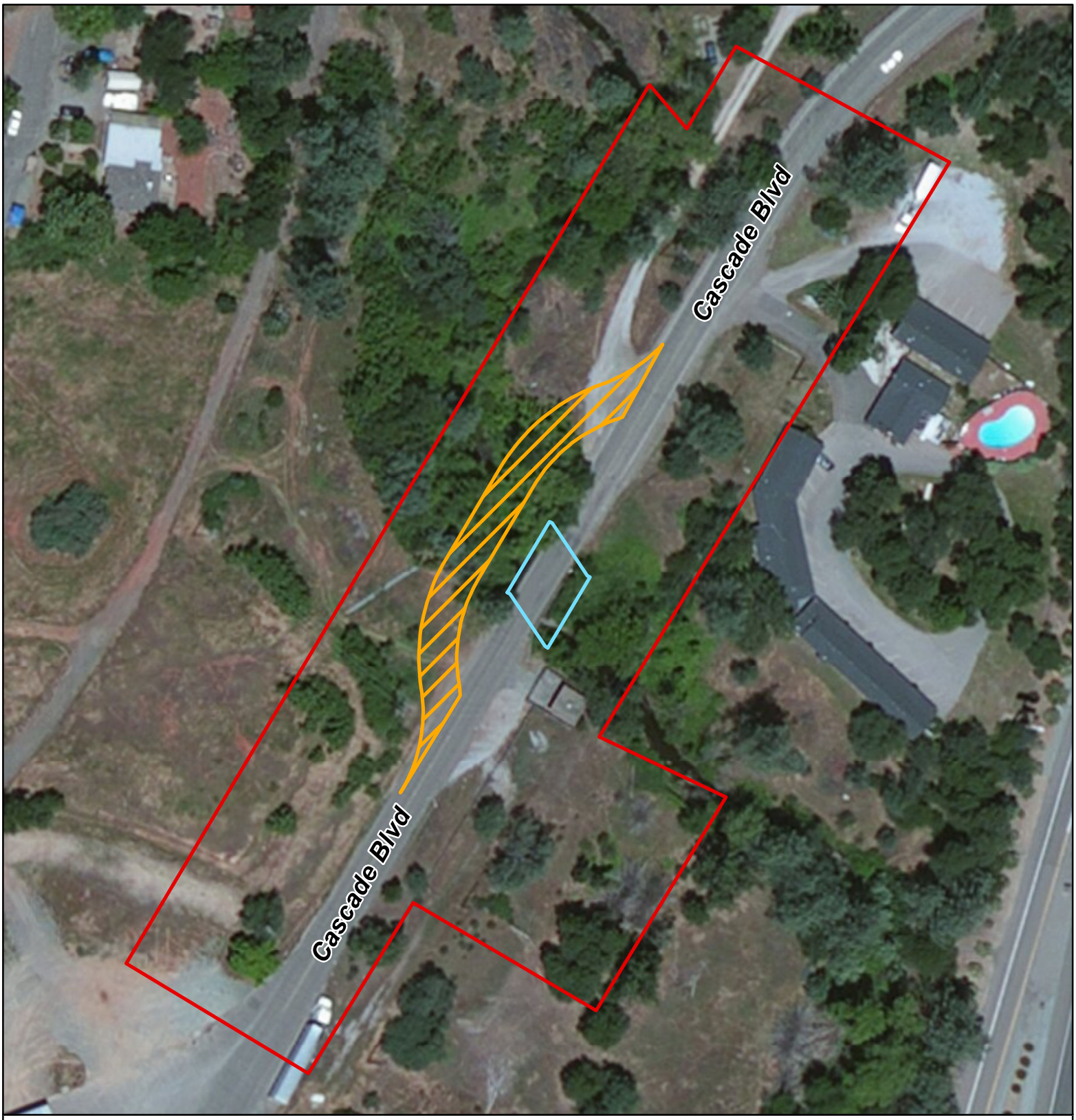
A Traffic Technical Memorandum (Dewberry | Drake Haglan 2021b) was prepared for the proposed project. Cascade Boulevard is a two-lane roadway located approximately 0.4 miles north of SR 151, within the eastern portion of the City. Cascade Boulevard is classified as a "Major Collector" roadway and accommodates approximately 2,025 vehicles per day (Dewberry | Drake Haglan 2021b). Cascade Boulevard is not a designated bicycle route.

3.17.2 Discussion

a) **Less than Significant Impact**. The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge designed to applicable City, AASHTO and Caltrans design criteria and standards. The new structure would remain a collector road as designated in the County General Plan. During construction, traffic flow would be detoured along a temporary creek crossing constructed just west of the existing bridge structure (**Figure 3.17-1**). While minor impacts to circulation may occur as a result of project construction, access for emergency vehicles, trucks, and other roadway users would be maintained throughout the construction period. The proposed project would incorporate Class 2 bicycle lanes on either side of the bridge. The proposed project would not add additional automobile lanes and would therefore not add automobile capacity.

b) The proposed project would not conflict with any program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian

facilities. The proposed project would have a less than significant impact on circulation operations or plans and no mitigation is required.



Legend

- Proposed Temporary Detour
- Proposed Bridge
- Project Extent

Dewberry | drakehaglan

N

0 25 50 100 Feet

Source: ESRI Online Basemap, World Imagery Map; Shasta County Coordinate System NAD 83 State Plane California I FIPS 0401 Feet
Notes: This map was created for informational and display purposes only

Cascade Boulevard over Moody Creek Bridge Replacement Project
City of Shasta Lake, CA

Detour Map

Figure 3.17-1

c) **Less than Significant Impact**. CEQA Guidelines Section 15064.3 (b) provides criteria for analyzing transportation impacts. As stated in Section 15064.3(b)(2), transportation projects that reduce, or have no impact on, VMT should be presumed to cause a less than significant impact. The proposed project would remove the existing bridge along Cascade Boulevard and construct a new structure designed to applicable City, AASHTO and Caltrans design criteria and standards. Operations would be similar to existing conditions upon completion of construction. The proposed project would not add vehicle capacity, induce land use changes, or otherwise affect traffic patterns or VMT; impacts from the proposed project would thus be less than significant pursuant to 15064(b). No mitigation measures are required.

d) **No Impact**. The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and replace it with a new bridge designed to applicable City, AASHTO and Caltrans design criteria and standards that would provide adequate, reliable, and safe service for traffic. The new bridge would be designed to improve safety for vehicular, pedestrian, and bicycle traffic along Cascade Boulevard at the proposed project site. No mitigation measures are required.

e) **No Impact**. The proposed project would construct a temporary onsite detour route just west of the existing bridge structure using a temporary creek crossing (**Figure 3.17-1**). This detour would be used to route local traffic during demolition of the existing bridge and construction of the new bridge around the proposed project site. The onsite detour would accommodate the current ADT at the same level as the existing Cascade Boulevard Bridge over Moody Creek. Access for all roadway users, including emergency vehicles, would be maintained. A traffic control plan would be submitted by the contractor and approved by the City prior to the start of construction. No mitigation measures are required.

3.17.3 Mitigation Measures

No mitigation measures are required for the proposed project as related to transportation.

3.17.4 References

Dewberry | Drake Haglan. 2021b.Traffic Technical Memorandum. Date Accessed: October 20, 2021.

City of Shasta Lake GIS. 2021. Traffic Flow Map. Available Online: https://shastalake.maps.arcgis.com/apps/webappviewer/index.html?id=720371a198cc42c1baada2063947a882. Date Accessed: July 19, 2021.

3.18 Tribal Cultural Resources

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

3.18.1 Setting

A tribal cultural resource (TCR) is defined as a site, feature, place, cultural landscape, or sacred place or object that has cultural value to California Native American tribes (Public Resource Code [PRC § 21073, 21074]. In order to be considered a TCR, the resource must be included in or determined eligible for inclusion in the California Register or is in included in a local register of historical resources. Pursuant to Public Resource Code (PRC) §2107, a TCR is defined as either:

1. A site, feature, place, cultural landscape, sacred place, or object that has cultural value to California Native American Tribes that is included or determined to be eligible for inclusion in the California Register or a local register of historical resources.

2. A resource determined by the lead agency to be significant and is supported by substantial evidence.

3. A geographically defined cultural landscape that meets the criteria set forth in PRC §21074.

4. A historical resource described in PRC §21084.1, a unique archeological resource or “nonunique archaeological resource” described in PRC §21083.2 (g) and (h).

The CEQA Guidelines state that California Native American tribes traditionally and culturally affiliated with a geographic area may have expertise concerning their TCRs. Lead agencies shall consult with these tribes who respond in writing and requests the consultation within 30 days of receipt of the formal notification of the project (PRC §21080.3.1). Traditionally and culturally affiliated tribes of a project area may suggest mitigation measures, including, but not limited to, those recommended in §21084.3.

Assembly Bill (AB) 52 Consultation

As part of the effort to identify any TCRs that may be within the proposed project area, a Sacred Lands File search was conducted by the NAHC in May 2019. The search found no known TCRs in or near the proposed project site.

Assembly Bill 52 (AB 52) went into effect on July 1, 2015 and established a consultation process with all California Native American Tribes on the NAHC List for federal and non-federal tribes (13.5 PRC §§ 21073, 21074, 21080.3, 21084). Once the tribe is notified of a project, the tribe has 30 days to request a consultation. The consultation process ends when either the parties agree to mitigation measures or avoid a significant effect on tribal cultural resources or a party, acting in good faith and after reasonable effect, concludes that mutual agreement cannot be reached.

The NAHC provided a list of eight Native American representatives. Pursuant to PRC § 21080.3, formal notification and invitation to consult letters were sent on behalf of the County to the tribes or individuals listed in Table 4.18-1, below, in May 2021. Native American consultation efforts are documented in the ASR (Dewberry | Drake Haglan).

Table 3.18-1. Formal Assembly Bill 52 Notification Letter Recipients

Name	Organization
Kyle Self	Greenville Rancheria of Maidu Indians
Frieda Bennett	Quartz Valley Indian Community
Jack Potter	Redding Rancheria
Sami Jo Difuntorum	Shasta Indian Nation
Roy Hall	Shasta Nation
Caleen Sisk	Winnemem Wintu Tribe
Mark Miyoshi	Winnemem Wintu Tribe
Wade McMaster	Wintu Tribe of Northern California

There were no responses to the outreach letters, emails and phone calls to date.

Field Survey

The field survey of the proposed project on May 14, 2019. Much of the APE is very disturbed and the creek was likely placer mined during the gold rush era; however, there are no distinct tailings or other mining related features with enough distinction or integrity to warrant recordation. The

survey identified no prehistoric or historic-era resources in the APE. No suitable creek terraces or other habitable landforms are present in the APE. Additionally, no known ethnographic, traditional or contemporary Native American sites of religious or cultural significance have been identified in or adjacent to the proposed project APE.

3.18.2 Discussion

a) **Less than Significant.** A record search was conducted at the California Historical Resources Information System (CHRIS) NEIC to identify previous cultural resources studies and site records for the proposed project area. The search identified no previously recorded archaeological or historic sites in the APE or within a ¼-mile radius of the APE. The search identified a portion of the APE has been previously inventoried in 1996. Five previous cultural resource studies have been conducted within ¼ of a mile of the proposed project site and a geoarchaeological overview of Caltrans District 2 was included in the records search (Dewberry | Drake Haglan 2019a). Nor were any listed properties were found in the National or California Register or local registers in the APE or within the ¼-mile study radius. The survey identified no prehistoric or historic-era resources in the APE. Therefore, impacts would be less than significant, and no mitigation is required.

b) **Less than Significant with Mitigation**. As mentioned above, the NAHC was contacted on May 13, 2019 requesting a search of their Sacred Lands File and a list of Native Americans that may have knowledge of the proposed project area. The NAHC search was negative for sacred lands. The field survey conducted in May 2019 did not identify any tribal cultural resources, artifacts, or culturally modified soil indicators.

No tribal cultural resources were identified as a result of the field survey, record searches or consultation. However, due to the nature of the proposed project, there is the potential to encounter previously unknown tribal cultural resource. Therefore, through the implementation of **Mitigation Measure CUL-1**, the proposed project would have a less than significant impact on tribal cultural resources.

3.18.3 Mitigation Measures

Implement **Mitigation Measure CUL-1**, as described in **Section 3.5**, **Cultural Resources**, above.

3.18.4 References

Dewberry | Drake Haglan. 2021a. Archaeological Survey Report.
Dewberry | Drake Haglan. 2021b. Historic Property Survey Report.

3.19 Utilities and Service Systems

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Utilities and Service Systems – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c) Result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

3.19.1 Setting

The Cascade Boulevard bridge over Moody Creek is located in a relatively urban area of the City. The City provides water, sewer, recycled water, and electric services to its residents. Water service is provided to all residential, commercial, and industrial customers, and for fire protection services (City of Shasta Lake, 2016). The City provides wastewater collection services to approximately 3,800 residential, commercial, industrial, and institutional accounts. The City's wastewater collection system consists of approximately 54 miles of up to 21-inch gravity sewer pipes that convey flows towards the Shasta Lake Wastewater Treatment Plant (WWTP). The City has mandatory residential solid waste service, which is provided through a contract with Waste Management on behalf of the City. Waste Management provides solid waste, green waste, and recyclable material services to residential areas. The nearest landfill is the Richard W. Curry West Central Landfill (West Central Landfill), located at 14095 Clear Creek Road, Igo, CA 96047, approximately 17 miles southwest of the proposed project site. This landfill is jointly operated by

Shasta County and the City of Redding and serves the cities of Redding, Anderson, Shasta Lake and unincorporated areas of the County.

Existing overhead utilities at the proposed project site include overhead electrical lines and telephone lines on wooden poles both on the upstream and downstream sides of the existing bridge. The existing overhead transmission lines run parallel to Cascade Boulevard; however, the electrical lines do cross Cascade Boulevard approximately 65 feet south of the existing bridge and approximately 200 feet north of the existing bridge. These lines are set back from Cascade Boulevard and are not anticipated to require relocation. Underground utilities at the proposed project site include sewer, gas, reclaimed water, and water lines. There is a 6-inch sewer line and a 2-inch gas line attached along the west side of the bridge. On the east side of the bride, the 12-inch reclaimed water line and 4-inch water line are attached. These utility lines cross the bridge and would need to be temporarily relocated and attached to the new bridge. The reclaimed waterline no longer services any properties north of the existing bridge and may be removed from the existing bridge during construction. There is a sewer lift station located approximately 55 feet south east of the proposed project site. There is a utility pole with a street light next to the sewer lift station that would need be relocated to accommodate the realigned driveway for the sewer lift station. There is a sanitary sewer manhole (SSMH) inside the fencing around the sewer lift station.

3.19.2 Discussion

a) **Less than Significant**. The proposed project is a transportation project and would not cause conflicts with local wastewater treatment plants in the City. The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Operations would be similar to existing conditions upon construction completion. Cascade Boulevard would continue to serve as a major collector.

   The replacement bridge would be longer and wider than the existing bridge, which would result in an increase in impervious surfaces which could cause an increase in surface water runoff leaving the proposed project site. Modifications to the existing drainage features would be conducted to handle the incremental increase in runoff. The proposed project would not generate wastewater, nor would it increase water demand. Therefore, the proposed project would not require the construction of additional wastewater or water treatment facilities. Operations would not increase the demand for water, electrical power, natural gas, or other telecommunication facilities; thus, the Project would not require the expansion or construction of new facilities. Operation impacts would be less than significant, and no mitigation measures are required.

Non-potable water use would be required for fugitive dust control during the construction of the proposed project. See **Section 3.3**, **Air Quality**, for more information regarding fugitive dust control BMPs. Water supplies during construction are typically trucked to the site from outside sources that supply water for construction activities. This use of water would occur during the construction period of the proposed project and would cease upon construction completion. Potable water would be required during construction for workers. Typically, potable water is brought to the site in bottles or other potable water vessels. Water use at the proposed project site would cease upon completion of construction. No new or expanded water facilities would be required.

During construction, port-a-potties are typically used at construction sites; however, they are removed once construction is completed. These facilities are operated by private companies that provide cleaning services; thus, the proposed project would not increase wastewater service demand during construction. No new or expanded facilities would be required.

There are several utilities in the immediate vicinity of the project site, including overhead, and underground utilities. Overhead electrical and telecommunications lines run parallel to Cascade Boulevard on both sides of the roadway. These lines are set back from Cascade Boulevard and are not anticipated to require relocation except for a utility pole with a street light on it next to the sewer lift station that would need be relocated to accommodate the realigned driveway for the sewer lift station. Additionally, there is currently a 6-inch sewer line, 2-inch gas line, and 4-inch waterline attached to the existing bridge, which would need to be temporarily relocated and attached to the new bridge. There is also a 12-inch reclaimed water line attached to the existing bridge that no longer services any properties north of the bridge and would be removed off of the existing bridge during construction and abandoned. No increased demand on utilities would occur during construction or once construction is completed such that new or expanded facilities would be required.

The proposed project would not result in the need for new or expanded water, wastewater treatment, or other utility facilities. Impacts from the proposed project would be less than significant, and no mitigation is required.

b) **No Impact**. The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. The proposed project would not result in new, permanent water demand directly or indirectly. Use of non-potable water would be used for fugitive dust control measures (see **Section 3.3**, **Air Quality**, for more information regarding dust control). Potable water supplies during construction are used for construction workers. Water supplies during construction are typically trucked to the

site from outside sources that supply water to construction activities. This use of water would occur during the construction period and would cease upon construction completion. No impact would occur to existing water supplies. No mitigation is required.

c) **No Impact.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Upon construction completion, the proposed project would not generate wastewater; thus, it would not require wastewater treatment services. During construction, port-a-potties are typically used at construction sites; however, they are removed once construction is completed. These facilities are operated by private companies that provide cleaning services; thus, the proposed project would not increase wastewater service demand during construction. There would be no temporary or permanent impacts and no mitigation measures are required.

d) **Less than Significant.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. The proposed project would generate waste from construction activities and bridge demolition; however, the proposed project would not result in long-term demands for solid waste disposal services, as operations of Cascade Boulevard would be similar to existing conditions. Demolition of the existing bridge would generate a substantial amount of construction debris. The debris would be transported to a waste transfer station in Redding, where waste is sorted and recycled prior to being transferred to the West Central Landfill. The proposed project's impact on solid waste generation would be less than significant and no mitigation measures are required.

e) **Less than Significant.** The proposed project would comply with all federal, State, and local statutes and regulations related to solid waste, including compliance with the 1989 California Integrated Waste Management Act (AB 939) requiring specific waste diversion goals for local agencies. All recyclables and organics collected from the proposed project site would be taken to the appropriate facilities. The proposed project would comply with all federal, State, and local statutes and regulations related to solid waste, therefore, impacts in this regard are less than significant and no mitigation measures are required.

3.19.3 Mitigation Measures

No mitigation measures are required for the proposed project related to Utilities and Service Systems.

3.19.4 References

City of Shasta Lake. 2016. 2016-2026 Water Master Plan. Online: https://www.cityofshastalake.org/DocumentCenter/View/1299/2016-2026-Water-Master-Plan?bidId=. Date Accessed: June 30, 2021.

City of Shasta Lake. 2016. 2015 Urban Water Management Plan Update. Online: https://www.cityofshastalake.org/DocumentCenter/View/1375/Shasta-Lake-2015-UWMP-update-final?bidId=. Date Accessed: June 30, 2021.

City of Shasta Lake. 2016. 2016-2026 Wastewater Master Plan. Online: https://www.cityofshastalake.org/DocumentCenter/View/1374/Final_2016-2026-Wastewater-Master-Plan?bidId=. Date Accessed: June 30, 2021.

City of Shasta Lake. General Plan. Online: https://cityofshastalake.org/DocumentCenter/View/115/General-Plan---City-of-Shasta-Lake---June-1999?bidId=. Date Accessed: June 30, 2021.

Waste Management. 2021. City of Shasta Lake. Online: https://www.wm.com/location/california/north-valley/shasta-lake/index.jsp. Date Accessed: June 30, 2021.

City of Shasta Lake. 2021. Welcome to the City of Shasta Lake. Online: https://cityofshastalake.org/DocumentCenter/View/2387/Welcome-Document-Revised-8-21-19. Date Accessed: June 30, 2021.

3.20 Wildfire

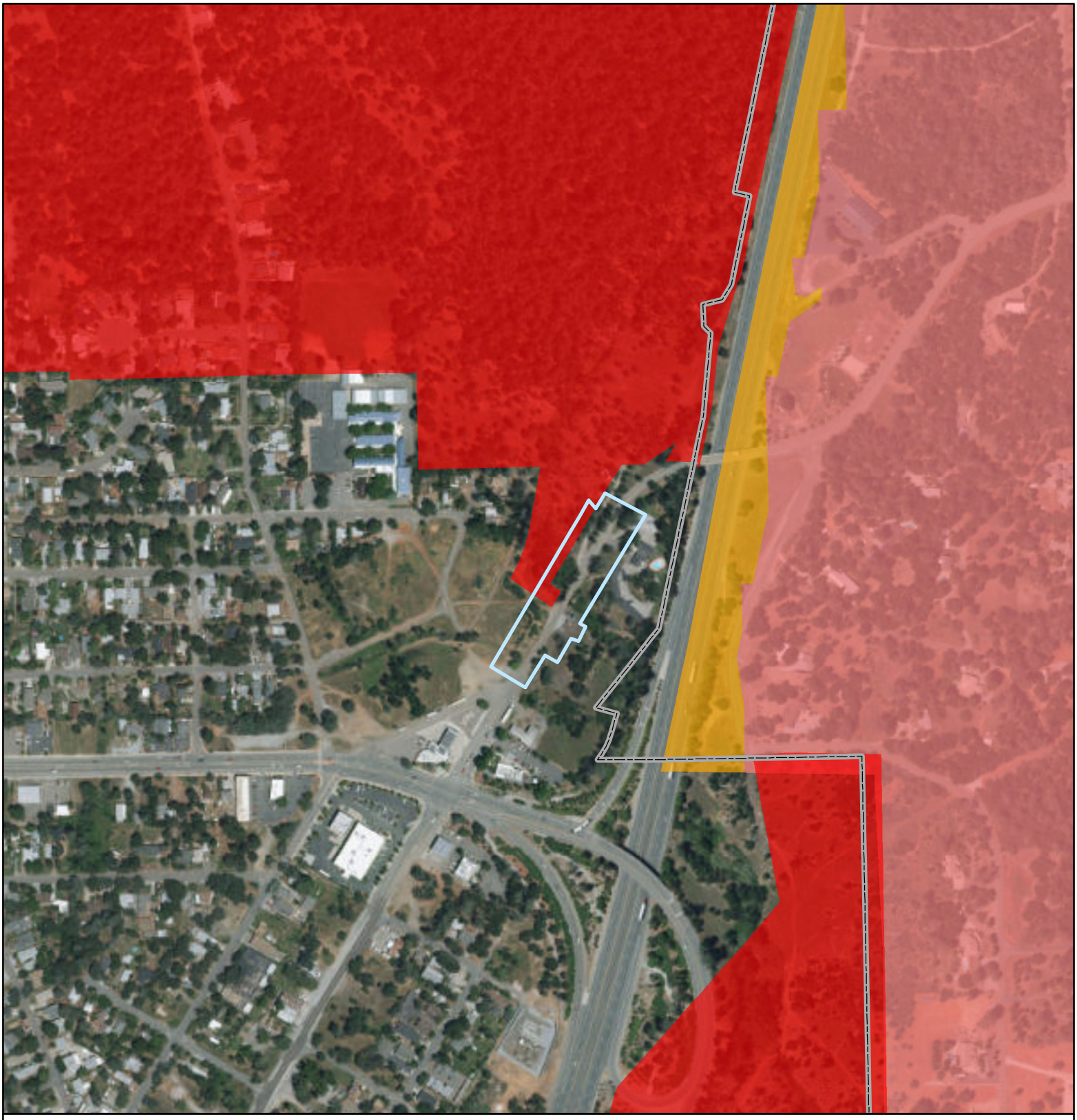
Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Wildfire – If located in or near sate responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☒	☐	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☒	☐	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

3.20.1 Setting

The proposed project is located within the bed and banks of Moody Creek and dry vegetation surrounds the bridge during summer. The immediate area near the bridge is natural vegetation. The proposed project is located within a Local Responsibility Area (LRA) designated by California Department of Forestry and Fire Protection (CalFire). The nearest State Responsibility Area (SRA) is located approximately 300 feet east of the proposed project site. A portion of the proposed project extent is designated as a Very High Fire Hazard Severity Zone (VHFHSZ) within the LRA, see **Figure 3.20-1** (CalFire 2008). The proposed project site is approximately 300 feet from a High Fire Hazard Severity Zone (HFHSZ) and 550 feet from a VHFHSZ in a State Responsibility Area (SRA) (OSFM 2021).

The proposed project site is served by the SLFPD. Fire protection for emergencies within the City boundaries is the responsibility of the SLFPD. The SLFPD is a separate agency from the City (City of Shasta Lake 2021). The SLFPD currently employs nine fulltime professionals, 1 admin clerk, and provides 24-hour coverage of the City and surrounding areas. The SLFPD runs approximately 1500 incidents a year with its 5 fire engines, water tenders, breathing support, patrol and two quads as well as superb fire suppression with constant training and rapid response (SLFPD 2021). The SLFPD currently operates out of one active fire station, located at 4126 Ashby Court, and two

non-active stations that serve primarily as storage. The active fire station is located approximately 1.2 miles west of the proposed project site.



Legend

Local Responsibility Area (LRA)

- Very High

State Responsibility Area (SRA)

- Moderate
- High
- Very High

- Project Extent
- City Limit

Dewberry | drakehaglan

N

0 175 350 700 Feet

Source: ESRI Online Basemap, World Imagery Map; Shasta County Coordinate System NAD 83 State Plane California I FIPS 0402 Feet
Notes: This map was created for informational and display purposes only

Cascade Boulevard over Moody Creek Bridge Replacement Project
City of Shasta Lake, CA

Fire Hazard Severity Zones

Figure 3.20-1

3.20.2 Discussion

a) **Less than Significant**. The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Operations would be similar to existing conditions upon construction completion. The proposed project would not increase capacity along Cascade Boulevard that could increase traffic or congestion. The proposed project would not impair an adopted emergency response plan or emergency evacuation plan in the long term, as operations of the replacement bridge would be similar to existing conditions. Therefore, the proposed project would have no impact to emergency response plans or emergency evacuations plans upon the completion of construction.

During construction, the existing bridge would be closed, and Cascade Boulevard would be detoured just west of the existing bridge onto a temporary creek crossing (**Figure 3.17-1)**. The temporary detour would provide for a 12-foot wide vehicle lane in each direction and consist of a low water crossing. Signage would be posted on both sides of the existing bridge to inform drivers of the construction schedule and timing, road closures, and other necessary information. While minor impacts to circulation may occur, access for emergency vehicles, trucks, and other roadway users would be maintained throughout the construction period. City staff would provide public outreach prior to construction to keep residents informed of the project's status and schedule throughout construction. The proposed project would be coordinated with the SLFPD, Shasta County Sheriff's Office, and other law enforcement or emergency service providers within the area. The proposed project would not impair an adopted emergency response plan or emergency evacuation plan because a traffic control plan would be submitted by the contractor and approved by the City prior to the start of construction to ensure traffic flow in the area. Impacts would be less than significant, and no mitigation is required.

b) **Less than Significant with Mitigation.** The proposed project would remove the existing bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Operations would be similar to existing conditions upon construction completion. The proposed project would replace the existing bridge and is not anticipated to increase the slope or adversely affect other factors that exacerbate wildfire risks in the proposed project area. The proposed project site's slope, prevailing winds, or other factors that exacerbate wildfire risks and expose the proposed project site and surrounding area to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire would be similar to existing conditions upon completion of construction. Therefore, operation of the proposed project would have no impact in this regard.

Construction activities involving vehicles, heavy machinery, and personnel smoking at the proposed project site could result in the ignition of a fire. During construction, heavy equipment and passenger vehicles driving on vegetated areas prior to clearing and grading could increase the risk of fire. Heated mufflers and improper disposal of cigarettes could potentially ignite surrounding vegetation. Implementation of **Mitigation Measure FIRE-1** would reduce the potential for construction activities to result in severe fires by requiring the preparation of a Fire Safety Plan that would outline safe construction and maintenance practices. Impacts would remain less than significant after implementation of mitigation measures.

c) **Less than Significant with Mitigation**. See discussion under response b, above.

d) **Less than Significant**. The proposed project would remove the existing functionally obsolete bridge along Cascade Boulevard over Moody Creek and construct a new bridge that meets applicable City, AASHTO and Caltrans design criteria and standards. Operations would be similar to existing conditions upon construction completion. The proposed project would not construct habitable structures. The proposed project would not significantly increase stormwater runoff, result in drainage pattern changes, or result in a population increase that would ultimately expose people or structures to significant risk (refer to **Section 3.10**, **Hydrology and Water Quality**, for details).

   The proposed project site is located in Flood Zone AE, 1% Annual Chance Flood Hazard, designated by the Federal Emergency Management Agency (FEMA) on the Flood Insurance Rate Map (FIRM) Panel 06089C1236G (FEMA 2020). Moody Creek is an intermittent creek that contains flowing water for only a portion of the year, and flows are not anticipated to be present during the construction period. Should water be present at the commencement of construction, a creek diversion system would be established to divert flow through the construction zone and dewater the area around the proposed bridge and temporary detour route. Any temporary changes associated with the diversion system would be removed at the end of construction, returning the creek to its original condition.

   During construction, workers would be present onsite; however, this increase in workers would be temporary in nature. The risks associated with runoff, slope instability, and drainage changes within the proposed project site during construction would be similar to existing conditions. Therefore, the proposed project would have a less than significant impact in this regard and no mitigation measures are required.

3.20.3 Mitigation Measures

Mitigation Measure FIRE-1: Fire Safety Plan. Prior to the start of construction, the contractor shall coordinate with the SLFPD/CalFire to prepare a Fire Safety Plan for use during construction. The Fire Safety Plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following:

- Dry grass shall be cut low or removed from construction equipment staging areas.
- All internal combustion engines, stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order.
- Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. Said vehicle types shall maintain their factory-installed (type) muffler in good condition.
- Equipment parking areas (staging areas) shall be cleared of all extraneous flammable materials.
- Personnel shall be trained in the practices of the Fire Safety Plan relevant to their duties. Construction personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats.
- Smoking shall be prohibited in wildland areas and shall be limited to paved areas or areas cleared of all vegetation.

3.20.4 References

California Department of Forestry and Fire Protection (CalFire). 2008. Very High Fire Hazard Severity Zones in LRA. Online: https://osfm.fire.ca.gov/media/5993/shasta_lake.pdf. Date Accessed: July 16, 2021.

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City of Shasta Lake. 2021. Shasta Lake Fire Protection District (SLFPD). Online: https://www.cityofshastalake.org/Directory.aspx?did=34. Date accessed: July 19, 2021.

Federal Emergency Management Agency (FEMA). 2020. National Flood Hazard Layer (NFHL) Viewer. Online: https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd. Date Accessed: March 5, 2021.

Office of the State Fire Marshall (OSFM). 2021. Fire Hazard Severity Zones Map: Shasta County. Online: https://osfm.fire.ca.gov/divisions/wildfire-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/. Date Accessed: July 16, 2021.

Shasta Lake Fire Protection District (SLFPD). 2021. About Us: The History of Shasta Lake Fire District. Online: https://www.shastalakefpd.us/about-us. Date Accessed: July 19, 2021.

3.21 Mandatory Findings of Significance

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Mandatory Findings of Significance –				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

3.21.1 Setting

Per CEQA regulations and guidelines, the Lead Agency must summarize the finding of significance from earlier sections and must consider potential cumulatively considerable effects for environmental impact reports (EIRs) and in the discussion section below. Even though this environmental document is an IS/MND and not an EIR, the potential for cumulatively considerable effects are analyzed below.

3.21.2 Discussion

a) **Less than Significant with Mitigation**. Per the impact discussions in the Biological, Cultural Resources, and Tribal Cultural Resources sections, the potential of the proposed project to substantially degrade the environment or eliminate major periods of California history or prehistory would be less than significant with mitigation incorporated; Mitigation **Measures BIO-1** through **BIO-8**, and **CUL-1**.

b) **Less than Significant**. The proposed project is located in the City of Shasta Lake, Shasta County. The purpose of the proposed project is to provide adequate, reliable, and safe

service for vehicular, pedestrian, and bicycle traffic along Cascade Boulevard at the proposed project site. The proposed project would remove the existing Cascade Boulevard bridge over Moody Creek and construct a new bridge designed to current federal, state, and local structural and geometric standards. Operations would be similar to existing conditions upon construction completion. The impacts would be site specific and would be mitigated to less than significant levels. No other projects are proposed that would overlap or interact with the proposed project. Therefore, the proposed project would not be cumulatively considerable, and no mitigation measures are required for cumulative impacts.

c) **Less than Significant with Mitigation**. The proposed project would remove the existing Cascade Boulevard bridge over Moody Creek and construct a new bridge designed to current federal, state, and local structural and geometric standards. The proposed project would not cause substantial adverse effects on human beings. As discussed in the Hazards and Hazardous Materials, and Wildfire sections, the potential impacts to human beings during construction would be mitigated to a less than significant level. Effects related to biological resources, cultural resources, hazards and hazardous materials, hydrology and water quality, and tribal cultural resources are discussed above and would be temporary in nature and would incorporate mitigation measures. Impacts would be less than significant with mitigation incorporated.

3.21.3 Mitigation Measures

Refer to **Mitigation Measures BIO-1** through **BIO-8**, **CUL-1**, **GEO-1**, **HAZ-1**, **HAZ-2**, and **FIRE-1**, as described above.

4 LIST OF PREPARERS AND REVIEWERS

This Draft IS/MND was prepared by Dewberry | Drake Haglan in cooperation with the other members of the environmental study team. Dewberry | Drake Haglan was responsible for project management and Draft IS/MND preparation. The Draft IS/MND technical team and other environmental study team members provided technical expertise, as presented below.

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Environmental Planner	Courtney Van Winkle

ACRONYMS AND ABBREVIATIONS

The following is a list of acronyms and abbreviations used within this document. Each term is defined in full once within the document before the abbreviation is used.

AAGR	Average Annual Growth Rate
AASHTO	American Association of State Highway and Transportation Officials
AB	Assembly Bill
ACM	Asbestos containing material
ADL	Aerially deposited lead
ADT	Average daily vehicular traffic trips
APE	Area of Potential Effects
APN	Assessor's Parcel Number
AQAP	Air Quality Attainment Plan
AQMD	Air Quality Management District
ASR	Archaeological Survey Report
ASTM	American Society for Testing and Materials
BA	Biological Assessment
BMP	Best Management Practices
BOR	Bureau of Reclamation
PIA	Biological Study Area
CAAQS	California Ambient Air Quality Standards
CalFire	California Department of Forestry and Fire Protection
California Register	California Register of Historical Resources
CalOSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation

CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Regulations
CGS	California Geological Survey
CH_4	Methane
CHRIS	California Historical Resources Information System
CIDH	Cast-in-Drilled Hole
City	City of Rancho Cordova
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2e	Carbon dioxide equivalent
Corps	U.S. Army Corps of Engineers
County	Shasta County
CPUC	California Public Utilities Commission
CWA	Clean Water Act
dBA	A-weighted decibel
DO	Dissolved Oxygen
DWR	Department of Water Resources
EDR	Environmental Database Resources, Inc.
EIR	Environmental Impact Report
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
General Plan	City of Lake Shasta General Plan
GHG	Greenhouse Gas
GUSD	Gateway Unified School District
HBP	Highway Bridge Program
HFHSZ	High Fire Hazard Severity Zone
HPSR	Historic Properties Survey Report

HSA	Hydrologic Sub Area
HU	Hydrologic Unit
IS	Initial Study
ISA	Initial Site Assessment
LBP	Lead-based paint
LRA	Local Responsibility Area
Leq	Equivalent A-weighted sound level
LRA	Local Responsibility Area
MBTA	Migratory Bird Treaty Act
mg/L	Milligrams per liter
MLD	Most Likely Descendant
mph	Miles per Hour
MRZ	Mineral Resource Zone
$MTCO_2e$	Metric tons of carbon dioxide equivalent
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NEIC	Northeast Information Center
NEPA	National Environmental Protection Act
NHPA	National Historic Preservation Act of 1966
NO_x	Nitrogen Oxides
NOA	Naturally Occurring Asbestos
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NSVPA	Northern Sacramento Valley Planning Area
NWI	National Wetland Inventory
O_3	Ozone
OHWM	Ordinary High Water Mark
OSHA	Occupational Safety and Health Administration
Pb	Lead

PG&E	Pacific Gas and Electric Company
PIA	Project Impact Area
PM	Particulate Matter
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
ppb	Parts per Billion
ppm	Parts per Million
PRC	Public Resources Code
QSD	Qualified SWPPP Developer
RCAP	Regional Climate action Plan
RCEM	Road Construction Emissions Model
RECs	Recognized Environmental Conditions
ROG	Reactive Organic Gas
RWQCB	Regional Water Quality Control Board
SCAQMD	Shasta County Air Quality Management District
SLFPD	Shasta Lake Fire Protection District
SLMC	Shasta Lake Municipal Code
SMARA	Surface Mining and Reclamation Act
SMAQMD	Sacramento Metropolitan Air Quality District
SR	State Route
SRA	State Responsibility Area
SRTA	Shasta Regional Transportation Agency
SSMH	Sanitary Sewer Manhole
SVAB	Sacramento Valley Air Basin
SVAQEEP	Sacramento Valley Air Quality Engineering and Enforcement Professionals
SWPPP	Stormwater Pollution Prevention Plan
TCR	Tribal Cultural Resource
UCMP	University of California Museum of Paleontology
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHFHZS	Very High Fire Hazard Severity Zone
VMT	Vehicle miles traveled
WWTP	Wastewater Treatment Plant

APPENDICES

APPENDIX A: ROAD CONSTRUCTION EMISSIONS MODEL

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Moody Creek Bridge Replacement Project

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.62	13.04	1.93	28.21	0.11	28.10	5.93	0.09	5.84	0.02	2,100.60	0.58	0.04	2,128.04
Grading/Excavation	4.77	90.34	10.55	28.72	0.62	28.10	6.35	0.50	5.84	0.16	15,640.37	4.69	0.21	15,820.16
Drainage/Utilities/Sub-Grade	3.15	59.84	7.64	28.54	0.44	28.10	6.20	0.36	5.84	0.11	10,692.05	2.72	0.16	10,807.15
Paving	0.62	14.71	2.54	0.14	0.14	0.00	0.10	0.10	0.00	0.03	2,474.29	0.56	0.10	2,517.79
Maximum (pounds/day)	4.77	90.34	10.55	28.72	0.62	28.10	6.35	0.50	5.84	0.16	15,640.37	4.69	0.21	15,820.16
Total (tons/construction project)	0.29	5.47	0.67	2.14	0.04	2.10	0.47	0.03	0.44	0.01	952.77	0.27	0.01	963.75

Notes:

Project Start Year ->	2023
Project Length (months) ->	8
Total Project Area (acres) ->	3
Maximum Area Disturbed/Day (acres) ->	3
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	200	40
Grading/Excavation	34	0	60	0	1,120	40
Drainage/Utilities/Sub-Grade	38	0	60	0	720	40
Paving	33	11	60	30	320	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Moody Creek Bridge Replacement Project

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.01	0.11	0.02	0.25	0.00	0.25	0.05	0.00	0.05	0.00	18.49	0.01	0.00	16.99
Grading/Excavation	0.19	3.58	0.42	1.14	0.02	1.11	0.25	0.02	0.23	0.01	619.36	0.19	0.01	568.34
Drainage/Utilities/Sub-Grade	0.08	1.58	0.20	0.75	0.01	0.74	0.16	0.01	0.15	0.00	282.27	0.07	0.00	258.83
Paving	0.01	0.19	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.66	0.01	0.00	30.15
Maximum (tons/phase)	0.19	3.58	0.42	1.14	0.02	1.11	0.25	0.02	0.23	0.01	619.36	0.19	0.01	568.34
Total (tons/construction project)	0.29	5.47	0.67	2.14	0.04	2.10	0.47	0.03	0.44	0.01	952.77	0.27	0.01	874.31

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.