

**State of California
Department of Fish and Wildlife**



Governor's Office of Planning & Research

M e m o r a n d u m

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STATE CLEARINGHOUSE

Date: August 31, 2022

To: Krishma Dutta
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Erin Chappell

From: Erin Chappell, Regional Manager

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California Department of Fish and Wildlife-Bay Delta Region, 2825 Cordelia Road, Suite 100, Fairfield, CA 94534

Subject: State Route – 121 Tulucay Creek Bridge Replacement Project, Notice of Completion for Draft Initial Study with Proposed Mitigated Negative Declaration, SCH No. 2022060724, Napa County

The California Department of Fish and Wildlife (CDFW) has reviewed the Notice of Completion (NOC) for the State Route - 121 (SR-121) Tulucay Creek Bridge Replacement Project (Project), Initial Study with proposed Mitigated Negative Declaration (IS/MND) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹ CDFW is submitting comments on the IS/MND as a means to inform the California Department of Transportation (Caltrans) as the Lead Agency, of our concerns regarding potentially significant impacts to sensitive resources associated with the proposed Project.

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's Lake and Streambed Alteration (LSA) regulatory authority. (Fish & G. Code, § 1600 et seq.). Likewise, to the extent

¹ CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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implementation of the Project as proposed may result in “take” as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the Project proponent may seek related take authorization as provided by the Fish and Game Code. Pursuant to our jurisdiction, CDFW has the following concerns, comments, and recommendations regarding the Project.

PROJECT LOCATION AND DESCRIPTION

The California Department of Transportation (Caltrans) as the lead agency under CEQA proposes the SR-121 Tulucay Creek Bridge Replacement Project. The Project is located at Bridge No. 21-0003 from Post Mile (PM) 6.4 to 6.5 in Napa County, California.

Caltrans proposes the replacement of the existing Tulucay Creek Bridge to conform with the existing creek channel alignment. Roadways and sidewalks in both directions will also be aligned and widened to conform to the new bridge approaches. The Project includes the replacement of the existing two-span, concrete Tulucay Creek Bridge with a single-span, precast, pre-stressed, concrete box bridge. The existing bridge is 45 feet long and 77 feet wide and has four 12-foot lanes (two in each direction), two 6-foot outside shoulders (one in each direction), and a 9-foot median. The existing Tulucay Creek Bridge was constructed in 1918 and widened to its existing four-lane width in 1943. The existing bridge does not contain any piles and the existing abutments are situated on top of the soil (spread footings).

The Project initially included three alternatives as well as a no build alternative. Alternative 1 was eliminated from consideration. For Alternative 2, the new bridge will be 77 feet long with an overall width of 100 feet, including the bridge rails. The bridge will have four 12-foot lanes (two lanes in each direction), two 8-foot outside shoulders, two 10-foot sidewalks, and a 14-foot median. The curve of the new bridge would conform to the creek channel alignment. The roadway and sidewalks in both directions will be aligned and widened to conform to the new bridge approaches. For Alternative 3, the new bridge length will be the same as Alternative 2; however, the new bridge width will be 96 feet wide as opposed to 100 feet. In addition, the southbound sidewalk in Alternative 3 would be 6 feet wide as opposed to 10 feet. The alignment of this alternative will shift to the east and require additional right of way (ROW) along the northbound side of SR-121.

Two 14-foot-wide temporary access ramps (36 feet and 50 feet long) will be constructed so equipment can access the creek bed to construct the bridge, abutments, and creekside retaining walls. Access will also be necessary to conduct fish passage improvements. These temporary access ramps will be located east along Tulucay Creek near the Cambria Hotel and on the west by the Computer Engineer Group buildings. The banks of the creek will be graded before a geosynthetic-reinforced embankment is constructed. This method involves placing geosynthetic fabric on the graded channel, adding soil on top of the fabric, and then compacting it to stabilize. Geosynthetic materials are made from hydrocarbons and are used with soil or rock to

strengthen a weak embankment area. Geosynthetic reinforcement may be required to provide additional stability in the construction of the embankment on soft soil by carrying part of the load so that the stress on soft soil is reduced.

Utilities will be temporary relocated or protected in place during construction. Utilities to be relocated include a PG&E underground gas line and overhead electrical line, AT&T overhead telephone line, and a City of Napa underground water line, water meter, and fire hydrant. The existing fiber optic cables under the existing bridge would either be relocated prior to construction or would be protected in place. A sewer line located in the concrete apron is anticipated to be protected in place.

Lake and Streambed Alteration Agreement Notification

CDFW requires an LSA Notification, pursuant to Fish and Game Code section 1600 et. seq., for or any activity that may substantially divert or obstruct the natural flow; change or use material from the bed, channel, or bank (including associated riparian or wetland resources); or deposit or dispose of material where it may pass into a river, lake or stream. Work within ephemeral streams, washes, watercourses with a subsurface flow, and floodplains are generally subject to notification requirements.

Fish and Game Code § 5901

Except as otherwise provided in this code, it is unlawful to construct or maintain in any stream in Districts 1, 1^{3/8}, 1^{1/2}, 1^{7/8}, 2, 2^{1/4}, 2^{1/2}, 2^{3/4}, 3, 3^{1/2}, 4, 4^{1/8}, 4^{1/2}, 4^{3/4}, 11, 12, 13, 23, and 25, any device or contrivance that prevents, impedes, or tends to prevent or impede, the passing of fish up and down stream. Fish are defined as a wild fish, mollusk, crustacean, invertebrate, amphibian, or part, spawn, or ovum of any of those animals (Fish and Game Code § 45).

Fully Protected Species

Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take, except for collecting these species for necessary scientific research and relocation of a fully protected bird species for the protection of livestock. Take of any fully protected species is prohibited, and CDFW cannot authorize their take in association with a general project except under the provisions of a Natural Communities Conservation Plan (NCCP), 2081.7 or a Memorandum of Understanding for scientific research, including efforts to recover fully protected, threatened or endangered species. "Scientific Research" does not include an action taken as part of specified mitigation for a project, as defined in Section 21065 of the Public Resources Code.

California Endangered Species Act

Please be advised that a CESA Permit must be obtained if the Project has the potential to result in "take" of plants or animals listed under CESA, either during construction or over the life of the Project. Issuance of a CESA Permit is subject to CEQA

documentation; the CEQA document must specify impacts, mitigation measures, and a mitigation monitoring and reporting program. If the Project will impact CESA listed species, early consultation is encouraged, as significant modification to the Project and mitigation measures may be required in order to obtain a CESA Permit. CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (CEQA section 21001(c), 21083, and CEQA Guidelines section 15380, 15064, 15065). Impacts must be avoided or mitigated to less-than-significant levels unless the CEQA Lead Agency makes and supports Findings of Overriding Consideration (FOC). The CEQA Lead Agency's FOC does not eliminate the Project proponent's obligation to comply with Fish and Game Code, section 2080. More information on the CESA permitting process can be found on the CDFW website at <https://www.wildlife.ca.gov/Conservation/CESA>.

COMMENTS AND RECOMMENDATIONS

CDFW acting as a Responsible Agency, has discretionary approval under (CESA through issuance of a CESA ITP and LSA Agreement, as well as other provisions of the Fish and Game Code that afford protection to the State's fish and wildlife resources. CDFW would like to thank you for preparing the NOC for the IS/MND. CDFW recommends the following updates, avoidance and minimization measures be incorporated into the IS/MND as conditions of Project approval by the lead agency, Caltrans, to ensure all Project-related impacts are reduced below a level of significance under CEQA.

COMMENT 1: Bridge Design Alternatives

Issue: Page 1-4, Section 1.5 "PROJECT ALTERNATIVES", of the IS/MND states Alternatives 2 and 3 will both replace the existing bridge structure with single span bridges with bridge lengths of 77 feet long. CDFW cannot determine if the bridge length off 77 feet will fully span the creek channel without a geomorphic analysis of the hydraulic geometry of the stream corridor. A bridge structure that fully spans the creek width will promote natural sediment transport patterns, provide unaltered fluvial debris movement, restore functional continuity and connectivity, passage of aquatic species and may provide opportunities for terrestrial animal passage. A bank spanning bridge structure with its abutments placed back behind the creek banks can also help to reduce shear stresses and erosive velocities acting on the abutment embankments which can eliminate the need for rock riprap or other hardened revetments in these areas.

Recommendation: CDFW strongly recommends incorporation of the following design principles to any new bridge structure alternative to ensure the replacement structure allows the full functionality of fluvial geomorphic processes within Tulucay Creek as it passes under SR-121.

Recommendation 1: Channel Width Design Consideration: Design of the bridge structure should incorporate a larger than overbank channel width of the existing channel to support a self-sustaining stream-floodplain corridor throughout the Project

footprint. CDFW recommends a bridge width that is at least 1.3 times the overbank channel width. This will allow the abutment embankments to follow the natural channel stream banks thus reducing any abrupt hydraulic transitions that could increase velocities and shear stresses through the bridge footprint.

Recommendation 2: Biotechnical Engineering: Integrate biotechnical engineering revetments in lieu of any hardened revetments (such as rock slope protection) into the Project design to avoid any permanent impacts that result in an anthropogenic, hardscape structure with no habitat value within the bed, bank, and channel.

COMMENT 2: Project Design Coordination and Encased 16-inch Sewer Line

Issue: Page 1-13, Section 1.5.2 “FISH PASSAGE”, of the IS/MND notes that fish passage improvements will be incorporated into the design of the new bridge crossing at Tulucay Creek. The proposed fish passage improvements will incorporate the use of willow cuttings, large woody debris, and bioengineered materials within the creek to provide more natural flows and pools to accommodate fish passage. Page 1-13, Section 1.5.2 “CREEK IMPROVEMENTS”, of the IS/MND indicates a previously existing 16-inch sewer line is located 18 feet upstream of the existing bridge. The sewer line is concrete encased with a concrete channel lining that extends approximately 18-feet upstream of the existing bridge to the downstream end of the bridge with concrete cutoff walls on both ends. The lead agency proposes to leave the line protected in place after completion of the new bridge. The concrete encased 16-inch sewer line was previously identified as an impediment to fish passage as specified on Page 1-14 of the IS/MND.

Recommendation: A site-specific basis of design report should be developed and included in an updated IS/MND. This report should include a detailed technical hydraulic and sediment load analysis to better understand the site-specific stream conditions. Information derived from those analyses should also be used to inform future fish passage and Project design elements and to justify protecting the existing 16-inch concrete lined sewer pipe in place if it will not be removed. This site-specific information is needed for CDFW to provide focused fish passage and Project design review with consideration to the existing concrete encased sewer line. The lead agency should disclose sufficient analysis and data to support the concept that leaving the concrete encased sewer line in place will not create or maintain a barrier to fish passage. In absence of this site-specific information, CDFW recommends removal and relocation of the existing sewer system to avoid a future potential fish passage barrier.

Recommendation 1: Design Coordination: Early coordination with CDFW’s Habitat Conservation and the Conservation Engineering Branch is recommended to provide review and analysis of any proposed structures or Project elements with the potential to impact fish and wildlife resources. CDFW Conservation Engineering Branch should be provided engineered drawings and design specifications during the initial design process, prior to design selection and re-initiating design consultation at 30% design at minimum. Updated designs should also be provided throughout the permitting process

for review and comment as identified in the Interagency Agreement (Agreement Number 43A0398).

Recommendation 2: Site Specific Stream Analysis: The hydraulic analysis within the basis of design report should include field measurements using cross-section stations twenty to thirty times the overbank channel width upstream and downstream of the bridge. Each cross-section station should occur in at least twenty-foot intervals with a minimum of ten stations upstream and downstream of Tulucay Creek from the bridge as the center-point.

Recommendation 3: Roughened in Water Structures for Lamprey: Page 2-15 of the IS/MND indicates that three species of lamprey, the western brook lamprey (*Lampetra planeri*), western river lamprey (*Lampetra ayresii*), and Pacific lamprey (*Entosphenus tridentatus*), all California special species of concern, have potentially suitable habitat within the Project limits. Any proposed fish passage structures should be designed with anadromous fish and species of lamprey in mind for design considerations. Lamprey require slightly different velocity criteria and stream conditions such as smooth concrete surfaces without sharp cornered edges to locomote up and downstream. Coordination with CDFW Conservation Engineering, Habitat Conservation and Fisheries Staff is recommended in developing successful design elements to improve passage for lamprey.

COMMENT 3: Geosynthetic Fabric Install

Issue: Page 1-8, Section 1.5.1 "IN-CREEK WORK", of the IS/MND proposes the use of geosynthetic fabrics within the bed, bank and channel of Tulucay Creek. Please clarify if the design proposal is for temporary access or permanent use in the updated IS/MND. CDFW considers permanent placement of geosynthetic fabric with the bed, bank and channel to be considered a permanent impact. CDFW strongly suggests to not install permanent geosynthetic fabric within the bed, bank and channel of Tulucay Creek. Geosynthetic fabric as noted on page 1-8 of the IS/MND is a hydrocarbon. A hydrocarbon is a material derived from petroleum and natural gas, more specifically, geosynthetic fabric is a polypropylene woven fabric. Polypropylene is a geothermal plastic, if the geosynthetic fabric is exposed to extreme weather or heat conditions it has the potential to deteriorate and become brittle and fragment. This could therefore constitute a potential violation of Fish and Game Code 5650 which prohibits the discharge of specified substances including the residuary products of petroleum.

Recommendation: CDFW strongly prefers incorporation of a granular filter design to be placed under any proposed revetments instead of installing geosynthetic fabric:

Recommendation for Project Impacts to Fish and Wildlife Resources 1: Granular Filter Design: CDFW recommends a granular filter design is employed for proposed locations in lieu of filter fabric. See the *Federal Highway Administrations' Hydraulic Engineering Circular No. 23 (HEC-23) - Bridge Scour and Stream Instability Countermeasures-Third Edition Volume 2* (Lagasse et al, 2009) and *Caltrans' Design*

Information Bulletin No. 87-01 – Hybrid Streambank Revetments (Caltrans, 2014) for design guidance on granular filter designs.

Recommended Mitigation Measure for Project Impacts to Fish and Wildlife

Resources 2: Geosynthetic Fabric Removal: All geosynthetic fabrics used for bank stabilization for the pre-construction of temporary access ramps shall be fully removed from the bed, bank, and channel of Tulucay Creek once construction activities are completed.

COMMENT 4: Hardened Revetment along the Stream Corridor

Issue: Page 1-13, Section 1.5.2 “GRADING of CREEK BANKS and PROTECTION”, of the IS/MND proposes after grading is completed to install rock slope protection (RSP) to accommodate the larger spanned structure. A bridge structure that fully spans the natural channel overbanks would reduce velocities and shear stresses by allowing the banks to run unimpeded through the proposed structure. The velocities and shear stresses acting on these unimpeded banks would conform to the existing velocities and shear stresses acting on the upstream and downstream channel banks. The proposed installation of RSP may not be warranted.

Recommendation: CDFW recommends a Project-specific basis of design report as described above, and detailed hydraulic analysis is provided for the creek corridor and bridge footprint over Tulucay Creek. This analysis should be used to determine if the proposed bridge structure will cause adverse velocities and shear stresses acting along the abutment embankments to justify the need for a revetment design due to a significant scouring environment. If the hydraulic analysis determines that the proposed bridge continues to develop velocities and shear stresses that are detrimental to the abutment embankments, then CDFW strongly recommends that the lead agency explores other design alternatives in lieu of rock slope protection. CDFW recommends that the lead agency explores more biotechnical engineering revetments such as the “Vegetated Mechanically Stabilized Earth” design or other such designs that move away from hardscape structures that do not provide any or limited habitat value. See **Recommendation 2: Biotechnical Engineering** from the **Bridge Design Alternatives** section of this comment letter.

COMMENT 5: Site-Specific Impact Analysis and Enhancements

Issue: The updated IS/MND should disclose focused on-site enhancement and/or restoration plans for consideration by the natural resource agencies and the public. Providing a more Project specific description will provide the natural resource agencies and the public an opportunity to provide comments on any proposed enhancements. The updated IS/MND should also include an analysis of the potentially significant impacts that may occur from nightwork and provide an estimate as to the projected number of nights necessary to complete work at the Tulucay Bridge location.

Recommendation: Early development of an on-site restoration plan should be incorporated into the IS/MND.

Recommendation for Project Impacts to Fish and Wildlife Resources 1:

Restoration and Mitigation Planning: CDFW strongly recommends that the lead agency develop a mitigation plan in coordination with CDFW for any permanent Project impacts that cannot be avoided that will be subject to LSA permitting and include that plan as part of the updated IS/MND. The mitigation plan should include in detail any proposed on and/or off-site mitigation needs necessary to compensate for net-loss of river or stream resources including but not limited to hardscape materials and geotextile fabric within the bed, bank or channel of a stream, loss of riparian vegetation and mature trees and expansion of existing infrastructure footprint(s). CDFW recommends proposed mitigation plan(s) include details such as mitigation location(s), proposed actions, monitoring, success criteria and any corrective actions.

Recommendation for Project Impacts to Fish and Wildlife Resources 2: Night-

Work Analysis: The updated IS/MND should identify the proposed number of nights necessary to complete work in order to adequately describe the potentially significant impacts that night work may have on surrounding fish and wildlife resources.

COMMENT 6: Bridge Runoff Capture Systems

Issue: Page 1-14, Section 1.5.2 “Drainage Systems”, of the IS/MND notes that existing drainages will be improved and replaced but no specific alteration to the existing runoff that travels directly from the road will be intercepted into any bio-swale filtration pond or mechanical filtration system before discharging directly into Tulucay Creek. Impervious surfaces, stormwater systems, and storm drain outfalls have the potential to significantly affect fish and wildlife resources from polluted water and by altering the hydrograph of natural streamflow patterns via concentrated run-off that enters creeks and systems from the road. This project proposes no significant changes to drainage systems that have the potential to introduce pollutants and additional flows directly into the channel at Tulucay Creek.

Evidence the impact would be significant: Urbanization (e.g., impervious surfaces, stormwater systems, storm drain outfalls) can modify natural streamflow patterns by increasing the magnitude and frequency of high flow events and storm flows (Hollis 1975, Konrad and Booth 2005). A review by Eisler (1987) indicates elevated incidence of tumors and hyperplastic diseases, and some circumstantial evidence about cancers, in fish in areas with high sediment Polycyclic Aromatic Hydrocarbon (PAH) levels. Arsenic, cadmium, chromium, lead, mercury, nickel, and zinc have been detected in streambed sediments and Stormwater Runoff from Bridges in the tissue of fish, indicating bioaccumulation of these metals in the environment (MacCoy and Black, 1998). Lead concentrations in benthic insects, and nickel and cadmium levels in certain fish were found to be related to traffic density and sediment levels of these constituents

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(Van Hassel, 1980). Acute toxicity and mortality have also been tied to immediate road runoff from a compound occurring in tires, 6PPD-Quinnone (Tial, 2021).

Recommendation 1: Bridge Capture Runoff System: CDFW recommends the Project design be updated to include a bridge capture runoff system to prevent direct runoff of untreated water on the bridge decks from entering Tulucay Creek. The bridge runoff system should direct runoff to a land-based bio-filtration system or a mechanical filter system to avoid, minimize and treat any discharge water. Reference the *Bridges Stormwater Runoff from Bridges Final Report to Joint Legislation Transportation Oversight Committee*, beginning on page 2-12 of the report for examples of an appropriate runoff capture system design.

CONCLUSION

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California's fish and wildlife resources. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

Questions regarding this letter or further coordination should be directed to Mr. Robert Stanley, Senior Environmental Scientist (Specialist), at (707) 339-6534 or Robert.Stanley@wildlife.ca.gov; or Mr. Wesley Stokes, Senior Environmental Scientist (Supervisory), at (707) 339-6066 or Wesley.Stokes@wildlife.ca.gov.

cc: State Clearinghouse #2022060724

REFERENCES

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