

State of California
Department of Fish and Wildlife



Memorandum

Date: September 17, 2021

To: Mr. Charles Winter
California Department of Transportation
District 4, Environmental Planning
Post Office Box 24660, MS-8B
Oakland, CA 94623
Charles.Winter@dot.ca.gov

Governor's Office of Planning & Research

September 20 2021

STATE CLEARINGHOUSE

DocuSigned by:

Stephanie Fong

From: Ms. ^{CF047D7F8D234E1}Stephanie Fong, Acting Regional Manager
California Department of Fish and Wildlife-Bay Delta Region, 2825 Cordelia Road, Suite 100, Fairfield, CA 94558

Subject: State Route 84 Arroyo De Laguna Bridge Replacement Project, Notice of Preparation of a Draft Environmental Impact Report, SCH No. 2018082045, Alameda County

The California Department of Fish and Wildlife (CDFW) has reviewed the Notice of Preparation (NOP) of a draft Environmental Impact Report (EIR) for the State Route 84 Arroyo De Laguna Bridge Replacement (Project), pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹ CDFW is submitting comments on the DEIR 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 a Trustee Agency with responsibility under CEQA §15386 for commenting on projects that could impact fish, plant and wildlife resources. CDFW is also considered a Responsible Agency if a project would require discretionary approval, such as the California Endangered Species Act (CESA) Permit, the Native Plant Protection Act, the Lake and Streambed Alteration (LSA) Agreement and other provisions of the Fish and Game Code that afford protection to the State's fish and wildlife trust resources. Pursuant to our jurisdiction, CDFW has the following concerns, comments, and recommendations regarding the Project.

Project Location and Description

Caltrans, as the lead agency, proposes a replacement of the Arroyo De Laguna Bridge (Bridge No. 33-0043) on State Route – 84 (SR-84) from Post Mile (PM) 17.0 to 17.4 in Alameda County, California. The Project proposes to replace an existing 310-foot-long bridge with a new, three-span, 310-foot-long and 64-foot-wide bridge consisting of two through lanes, one in each direction. The bridge profile will be raised by one to three feet to improve the existing non-standard stopping sight distance. The finished structure

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.

Mr. Charles Winters
California Department of Transportation

2

September 17, 2021

will provide 12-foot-wide lanes, a 14-foot-wide shared east-west pedestrian path on the south side of the bridge, standard 42-inch-high barriers, 9-foot-wide shoulders to accommodate 6-foot-wide bicycle lanes and a 2-foot-wide painted median rumble strip. The shared sidewalk will be protected from the roadway by concrete railing. The Build Alternative will also add sidewalks to the eastern side of the SR-84 and Main Street intersection and at the SR-84 and Pleasanton Sunol Road intersection. Construction will take three seasons over a total of three years.

LAKE AND STREAMBED ALTERATION AGREEMENT

The Project has the potential to impact stream resources including mainstems, tributaries and floodplains associated with Arroyo De Laguna and Alameda Creek. If work is proposed that will impact the bed, bank, channel or riparian habitat, including the trimming or removal of trees and riparian vegetation, please be advised that the proposed Project may be subject to LSA Notification. This includes impacts to drainage systems that connect to tributaries of main stem creeks and tributaries that occur within the Project Biological Study Area (BSA). 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, bank or channel 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 section 45).

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

Mr. Charles Winters
California Department of Transportation

3

September 17, 2021

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>.

ENVIRONMENTAL SETTING

Sufficient information regarding the environmental setting is necessary to understand the Project, and its alternative's (if applicable), significant impacts on the environment (CEQA Guidelines, §§15125 and 15360). CDFW recommends that the CEQA document prepared for the Project provide baseline habitat assessments for special-status plant, fish, and wildlife species located and potentially located within the Project area and surrounding lands, including all rare, threatened, or endangered species (CEQA Guidelines, §15380). Threatened, endangered, and other special-status species that are known to occur, or have the potential to occur in or near the Project site, include, but are not limited to:

Common Name	Scientific Name	Status
California red-legged frog	<i>Rana draytonii</i>	FT, SSC
Foothill yellow-legged frog	<i>Rana boylei</i>	SE
Steelhead - Central California Coast – DPS	<i>Oncorhynchus mykiss</i>	FT
Western mastiff bat	<i>Eumops perotis</i>	
Pallid bat	<i>Antrozous pallidus</i>	
Brazilian free-tailed bat	<i>Tadarida brasiliensis</i>	
Alameda whipsnake	<i>Masticophis lateralis euryxanthus</i>	ST
Notes: FT = Federally Threatened; SE = State Endangered; ST = State Threatened; SSC = State Species of Special Concern; DPS = Distinct Population Segment		

Habitat descriptions and species profiles should include information from multiple sources: aerial imagery, historical and recent survey data, field reconnaissance, scientific literature and reports, and findings from "positive occurrence" databases such as California Natural Diversity Database (CNDDDB). Based on the data and information from the habitat assessment, the CEQA document can then adequately assess which special-status species are likely to occur in the Project vicinity.

Mr. Charles Winters
California Department of Transportation

4

September 17, 2021

CDFW recommends that prior to Project implementation, surveys be conducted for special-status species noted in this comment letter with potential to occur, following recommended survey protocols if available. Survey and monitoring protocols and guidelines are available at: <https://www.wildlife.ca.gov/Conservation/Survey-Protocols>.

COMMENTS AND RECOMMENDATIONS

CDFW acting as a Responsible Agency, has discretionary approval under CESA through issuance of a CESA Incidental Take Permit (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 NOP for the draft EIR and CDFW recommends the following updates, avoidance and minimization measures be imposed 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: Project Design Analysis and Coordination

Issue: The Project may cause potentially significant impacts to fish and wildlife resources if the bridge is not designed to allow natural stream flow and sediment transport processes to persist for long term dynamic channel stability (CDFW, 2009). CDFW recommends early coordination with CDFW and incorporation of the following information and design principles into the EIR.

Recommendation: CDFW recommends the following is incorporated into the EIR as conditions of approval:

Recommendation Mitigation Measure 1 – Design Coordination: CDFW recommends incorporation of a condition of approval to engage in early and continued coordination before design commences with CDFW. Early coordination with Habitat Conservation and the CDFW 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 specification planning sheets during the initial design process, prior to design selection and re-initiating design consultation at 30% design at minimum and through the permitting process for review and comment.

Recommendation Mitigation Measure 2 – Bridge Design References: CDFW recommends utilizing the design principles outlined in the California Salmonid Stream Habitat Restoration Manual, Part XII (CDFW, 2009) and NOAA Fisheries Service Guidelines for Salmonid Passage at Stream Crossings (NMFS, 2001) into the bridge design. CDFW strongly recommends incorporation of design concepts such as spans that are at minimum 1.5 times greater than the channel width to allow natural stream flow and sedimentation processes to continue for long term dynamic channel stability.

Mr. Charles Winters
California Department of Transportation

5

September 17, 2021

Recommendation Mitigation Measure 3 – Bridge Design and Stream Analysis:

CDFW recommends incorporating further geomorphic assessment, fish passage performance assessment and longitudinal profile assessment, regarding the current bridge design. The EIR should include the following information:

- Geomorphic assessment of the two proposed piers (consisting of 6 piles each) specified in the current design of the bridge and the placement within the ordinary highwater mark (OHWM) to analyze how this structure may affect channel processes.
- Graphical representation of the location of the OHWM in cross-sectional and planform views in relation to the proposed piers. These graphics should also include the bankfull channel width and flood-prone channel width locations.
- Using nearby U.S. Geological Survey stream gages, provide analysis that develops the frequency of inundation of the OHWM and bankfull channel elevations and how often the proposed piers will interact with the channel and the OHWM/bankfull channel flows.
- A description of how the channel processes (scour/erosion, the movement of sediment and debris, etc.) would be affected by the placement of the piers within or just outside the OHWM and completely within the bankfull channel width.
- Additional assessment of the concrete, channel spanning, structure upstream of the existing bridge alignment. This assessment should focus on impacts to sediment transport and the ability of juvenile and adult steelhead to migrate upstream and downstream of this structure.
- A longitudinal profile survey to inform channel designs (channel re-grading, mimicking of channel bedform, etc.) with references to key channel geomorphic features including locations, depths, and widths. Reference of channel geomorphic features should include large woody debris structures that would hold grade and/or retain sediments; large rock outcroppings; grade breaks; locations of tributary junctions; and any other applicable geomorphic features such as heads of riffles, pools including their maximum depths, and the locations of natural steps including the top and base of the step. The longitudinal profile should also include locations of creek spanning structures (such as the existing bridge, upstream concrete structure, etc.) and provide the locations of measured cross sections.

COMMENT 2: Fish Passage Assessment

Issue: Senate Bill 857 (SB 857), which amended Fish and Game Code 5901 and added section 156 to the Streets and Highways Code states in section 156.3, "For any project using state or federal transportation funds programmed after January 1, 2006, [Caltrans] shall insure that, if the project affects a stream crossing on a stream where anadromous

Mr. Charles Winters
California Department of Transportation

6

September 17, 2021

fish are, or historically were, found, an assessment of potential barriers to fish passage is done prior to commencing project design. [Caltrans] shall submit the assessment to the [Department of Fish and Wildlife] and add it to the CALFISH database. If any structural barrier to passage exists, remediation of the problem shall be designed into the project by the implementing agency. New projects shall be constructed so that they do not present a barrier to fish passage. When barriers to fish passage are being addressed, plans and projects shall be developed in consultation with the [Department of Fish and Wildlife].

Evidence the impact would be significant: A potential barrier exists within the defined Project limits, as described in the recommendations section below (Fish Passage Assessment Database ID# 758613) in a system where anadromous fish are or were historically found such as steelhead. If the potential barrier noted within the Project limits identified below is found to be a barrier to fish passage, remediation of the problem should be designed into the Project by the implementing agency as a Project feature in consultation with the San Francisco Public Utilities Commission (SFPUC), CDFW and other natural resource agencies.

Recommendations: CDFW recommends discussing the following location as it pertains to fish passage. Location 1, Arroyo De Laguna (Latitude: 37.59307; Longitude: -121.88337; Alameda County), Fish Passage Assessment Database ID# 758613, fish barrier status: unassessed. The fish passage section should discuss the current status of the crossing location noted in the California Fish Passage Assessment Database, conduct first pass and or second pass fish assessments, as necessary, as well as provide images of the upstream and downstream ends of water conveyance structure. CDFW requests a fish passage discussion section is included to address this potentially significant impact through the following avoidance and minimization measure, which should be made a condition of approval by the lead agency:

Recommended Mitigation Measure 1: Fish Passage Assessment

To evaluate potential impacts to native fish species and fisheries resources, Caltrans shall submit the assessment to CDFW and add it to the CALFISH database. If any structural barrier to passage exists, remediation of the problem shall be designed into the project by the implementing agency in coordination with SFPUC. New projects shall be constructed so that they do not present a barrier to fish passage. When barriers to fish passage are being addressed, plans and projects shall be developed in consultation with CDFW. CDFW shall be engaged prior to design in early coordination and at 30% design at minimum.

COMMENT 3: Bat Assessment and Avoidance

Issue: The draft EIR addresses the potential for various species of bats to exist within the Project limits and does provide some conditions of approval to reduce impacts

Mr. Charles Winters
California Department of Transportation

7

September 17, 2021

below the level of significance. In order to further reduce that potential, CDFW recommends including the following.

Evidence the impact would be significant: Removal of structures and trees may have the potential to degrade the quality of the environment, substantially reduce available bat habitat and reduce a local bat population to below self-sustaining levels (Erickson, 2003). Modification of bridges or other structures may also potentially eliminate a bat community or reduce the number or restrict the range of a rare or endangered bat, this would also be considered a potentially significant impact. Therefore, CDFW supports the concept of including bat habitat into the design of the bridge as noted in the draft EIR and strongly recommends the designs are developed in consultation with CDFW.

Recommendation: To evaluate and avoid potentially significant impacts to bat species, CDFW recommends incorporating the following mitigation measures into the EIR and that these measures be made conditions of approval for the Project:

Recommended Mitigation Measure 1: Bat Habitat Assessment

A qualified biologist should conduct a habitat assessment within the Project limits for suitable bat roosting habitat. The habitat assessment shall include a visual inspection of features within 200 feet of the work area for potential roosting features including trees, crevices, portholes, expansion joints and hollow areas (bats need not be present). The EIR should also include a section that discusses the results of the suitable habitat assessment and if any bats or signs of bats (feces or staining at entry/exit points) are discovered. The surveys should occur at least two seasons in advance of Project initiation.

Recommended Mitigation Measure 2: Bat Habitat Monitoring

If potentially suitable bat roosting habitat is determined to be present a qualified biologist shall conduct focused surveys at the trees, bridge(s), causeways and interchanges utilizing night-exit survey methods, sound analyzation equipment survey methods and visual inspection within open expansion joints and portholes of the structures from March 1 to April 1 or August 31 to October 15 prior to construction activities. If the focused survey reveals the presence of roosting bats, then the appropriate exclusionary or avoidance measures will be implemented prior to construction during the period between March 1 to April 15 or August 31 to October 15. Potential avoidance methods may include temporary, exclusionary blocking, one way-doors or filling potential cavities with foam. Methods may also include visual monitoring and staging of work at different ends of the Project to avoid work during critical periods of the bat life cycle or to allow roosting habitat to persist undisturbed throughout the course of construction. Exclusion netting or adhesive roll material shall not be used as exclusion methods. If presence/absence surveys indicate bat occupancy, then construction should be limited from March 1 through April 15 and/or August 31 through October 15.

Recommended Mitigation Measure 3: Bat Project Avoidance

If active bat roosts are observed at the Project site, at any time, all Project activities should stop until the qualified biologist develops a bat avoidance plan to be implemented at the Project site. Once the plan is implemented, Project activities may recommence in coordination with the natural resource agencies. The bat avoidance plan should utilize seasonal avoidance, phased construction as well as temporary and permanent bat housing structures developed in coordination with CDFW.

Recommended Mitigation Measure 4: Permanent Bat Roost Design

CDFW recommends and supports the inclusion of designing permanent bat roost structures into the design of the new bridge as discussed on page 2-149 of the draft EIR to avoid the potentially significant impact of permanent habitat loss. The structures should be designed in coordination with CDFW and include the appropriate baffle spacing or features to accommodate multiple species of bats as specified in the Caltrans Bat Mitigation: A Guide to Developing Feasible and Effective Solutions Manual (H.T. Harvey, 2019). The new structure of bridge should be monitored after completion to determine successful use of the structure by bats for a period of at least five years.

COMMENT 4: Light Impact Analysis and Discussion

Issue: The proposed Project location is situated in a rural part of Alameda County surrounded by grasslands, agriculture and the Pleasanton Ridge Regional Park on a bridge with no existing overhead lights within the Caltrans right of way. Due to the presence of natural habitat that supports fish and wildlife resources associated with Arroyo De Laguna within the vicinity of the Project CDFW strongly recommends that no artificial lighting is installed as a result of Project completion to avoid a potentially significant impact that could result in a finding of significance. Artificial light spillage beyond the prism of the roadway into natural areas may result in a potentially significant impacts through the substantial degradation of the quality of the environment. Artificial light pollution also has the potential to significantly and adversely affect biological resources and the habitat that supports them. Unlike the natural brightness created by the monthly cycle of the moon, the permanent and continuously powered lighting fixtures create an unnatural light regime that produces a constant light output. Continuous light output for 365 days a year can also have cumulatively significant impacts on fish and wildlife populations.

Evidence the impact would be significant: Artificial night lighting can disrupt the circadian rhythms of many wildlife species. Many species use photoperiod cues for communication (e.g., bird song; Miller 2006), determining when to begin foraging (Stone et al. 2009), behavior thermoregulation (Beiswenger 1977), and migration (Longcore and Rich 2004). Artificial night lighting has also been found to impact juvenile salmonid overwintering success by delaying the emergence of salmonids from benthic refugia

Mr. Charles Winters
California Department of Transportation

9

September 17, 2021

and reducing their ability to feed during the winter (Contor and Griffith 1995). For nocturnally migrating birds, direct mortality as a result of collisions with anthropogenic structures due to attraction to light (Gauthreux, 2006) is another direct effect of artificial light pollution. There are also more subtle effects, such as disrupted orientation (Poot et al. 2008) and changes in habitat selection (McLaren et al. 2018). There is also growing evidence that light pollution alters behavior at regional scales, with migrants occupying urban centers at higher-than-expected rates as a function of urban illumination (La Sorte et al. 2021). While artificial light pollution can act as an attractant at both regional (La Sorte et al. 2021) and local (Van Doren et al. 2017) scales, there is also evidence of migrating birds avoiding strongly lit areas when selecting critical resting sites needed to rebuild energy stores (McLaren et al. 2018). Due to the high potential for presence of songbirds and current lack of artificial lighting CDFW recommends no lighting is installed as a result of Project completion to avoid these potentially significant impacts:

Recommended Mitigation Measure 1: Light Output Limits

All LED's or bulbs installed as a result of the Project shall be rated to emit or produce light at or under 2700 kelvin that results in the output of a warm white color spectrum.

Recommended Mitigation Measure 2: Vehicle Light Barriers

Solid barriers at a minimum height of 3.5 feet should be installed in areas where they have the potential to reduce illumination from overhead lights and from vehicle lights into areas outside of the roadway. Barriers should only be utilized as a light pollution minimization measure if they do not create a significant barrier to wildlife movement. Additional barrier types should be employed when feasible, such as privacy slats into the spacing of cyclone fencing to create light barriers for areas outside the roadway.

Recommended Mitigation Measure 3: Reflective Signs and Road Striping

Retro-reflectivity of signs and road striping should be implemented throughout the Project to increase visibility of roads to drivers and reduce the need for electrical lighting.

Recommended Mitigation Measure 4: Light Pole Modifications and Shielding

All light poles or sources of illumination that shall be new or replacement installations of existing light sources should be installed with the appropriate shielding to avoid excessive light pollution into natural landscapes or aquatic habitat with the Project corridor in coordination with CDFW. In addition, the light pole arm length and mast heights should be modified to site specific conditions to reduce excessive light spillage into natural landscapes or aquatic habitat within the Project corridor. In areas with sensitive natural landscapes or aquatic habitat the lead agency should also analyze and determine if placing the light poles at non-standard intervals has

Mr. Charles Winters
California Department of Transportation

10

September 17, 2021

the potential to further reduce the potential for excessive light pollution caused by decreasing the number of light output sources in sensitive areas.

COMMENT 5: Oak Woodlands and Riparian Habitat

Issue: The Project proposes to remove 251 trees from within the Project limits described as Oak evergreen woodland and riparian woodlands on page 2-44 of the draft EIR. CDFW is concerned the Project would result in a net-loss of sensitive oak woodland and riparian habitat with unique species such as the California Sycamore (*Platanus racemose*). Mitigation Measures noted in Page 2-149 of the draft EIR references a 1:1 replacement ratio for trees removed. This condition would not reduce potentially significant impacts to oak woodlands or riparian and sycamore habitat impacts to a level that is less-than-significant.

Evidence the impact would be significant: The rapid and extensive land conversions in oak woodlands, savannas, and riparian areas throughout California, coupled with an apparent lack of regeneration of several species has the potential to result in the long-term reduction of survival of native oaks and sycamores. Fragmentation of habitats reduces their ability to provide the full range of ecological benefits, including maintenance of species diversity, as well as soil and watershed protection. Coast live oak (*Quercus agrifolia*) and old-growth oak trees (e.g., native oak tree that is greater than 15 inches in diameter) are of particular importance due to increased biological values and increased temporal loss. At this time, it is unclear if mitigation measures are adequately proportionate to impacts.

Recommendation: To evaluate and avoid potentially significant impacts to tree species CDFW recommends incorporating the following measures into the EIR:

Recommended Mitigation Measure 1: Tree Removal Mapping and Inventory

The draft EIR along with Figure 2.2.9-12 provides an estimate of species and a landscape level mapping of the trees and shrubs proposed for removal but does not provide a key that indicates which species are to be removed from what location. The map provided in Figure 2.2.9-12 should be updated to include multiple maps with more precise imaging and labels that correspond back to a tree inventory report. The tree inventory report should indicate tree scientific name, common name, diameter at breast height, overall health and corresponding numbering system to track correlate back to the map figure.

Recommended Mitigation Measure 2: Tree Removal Mapping and Inventory

Potential mitigation includes setting aside adjacent habitat for retention in perpetuity. Off-site preservation should be determined in coordination with CDFW and fully disclosed in the draft EIR. CDFW is available to work with the applicant to develop a mitigation plan that reduces impacts to less-than-significant.

Mr. Charles Winters
California Department of Transportation

11

September 17, 2021

Recommended Mitigation Measure 3: Preserve and Protect In Place

CDFW strongly recommends that the Project Development Team (PDT) incorporates principles to significantly reduce the number of trees removed and maximize protecting trees in place. Methods to be employed should include environmentally sensitive areas, tree bumpers or padding utilizing coconut coir wraps or other material.

Recommended Mitigation Measure 4: Collection of Native, Local Propagation Material

To avoid the introduction of pathogens, such as phytophthora, CDFW recommends collecting native plant propagules for oaks, sycamores and other native species and growing them in a nursery setting or planting them on-site after construction as a form of restoration. All plantings should be monitored for a period of up to ten years with the achievement of a 75% survivorship or better.

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 #2018082045

REFERENCES

Beiswenger, R. E. 1977. Diet patterns of aggregative behavior in tadpoles of *Bufo americanus*, in relation to light and temperature. *Ecology* 58:98–108.

California Department of Fish and Wildlife, July 2009. California Salmonid Stream Habitat Restoration Manual, Part XII.

California Natural Diversity Database. 2021. <https://apps.wildlife.ca.gov/bios/>.

Cantor R., Craig, Griffith, J.S. 1995. Nocturnal emergence of juvenile rainbow trout from winter concealment relative to light intensity. *Hydrobiologia* Vol. 299: 179-18.

Mr. Charles Winters
California Department of Transportation

12

September 17, 2021

Dudek. July, 2019. San Francisco Garter Snake Recovery Action Plan 2019-2029 West of Bay Shore Property, San Francisco International Airport, San Mateo County, California.

Erickson, Gregg. 2003. Bats and Bridges Technical Bulletin. California Department of Transportation.

Gauthreaux Jr., S.A., and C.G. Belser. 2006. Effects of artificial night lighting on migrating birds. In *Ecological Consequences of Artificial Night Lighting*, edited by C. Rich and T. Longcore, pp. 67-93. Washington D.C.: Island Press

H.T. Harvey and Associates. 2019. Caltrans Bat Mitigation: A Guide to Developing Feasible and Effective Solutions.

Longcore, T., and C. Rich. 2004. Ecological light pollution - Review. *Frontiers in Ecology and the Environment* 2:191–198.

La Sorte. February, 2021. Seasonal Variation in the effects of artificial light at night on the occurrence of nocturnally migrating birds in urban areas. *Environmental Pollution*, Volume 270.

McLaren, et. al. 2018. Artificial light at night confounds broad-scale habitat use by migrating birds.

Miller, M. W. 2006. Apparent effects of light pollution on singing behavior of American robins. *The Condor* 108:130–139.

National Marine Fisheries Service – Southwest Region. September 2001. Guidelines for Salmonid Passage at Stream Crossings.

Poot, H., B. J. Ens, H. de Vries, M. A. H. Donners, M. R. Wernand, and J. M. Marquenie. 2008. Green light for nocturnally migrating birds. *Ecology and Society* 13(2): 47.

Stone, E. L., G. Jones, and S. Harris. 2009. Street lighting disturbs commuting bats. *Current Biology* 19:1123–1127. Elsevier Ltd.

United States Fish and Wildlife Service (USFWS). June, 2015. USFWS Clapper Rail Survey Protocol. ([June 2015 Final CCR protocol.pdf \(fws.gov\)](#)) (USFWS, 2015).

United States Fish and Wildlife Service (USFWS). September, 1985. USFWS Recovery Plan for the San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*).

Van Doren, et. al. 2017. High Intensity Urban Light Installation Dramatically Alters Nocturnal Bird Migration.