

State of California
Department of Fish and Wildlife



Memorandum

Date: February 3, 2022

To: Mr. Cody Ericksen
California Department of Transportation
District 4
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Governor's Office of Planning & Research

Feb 04 2022

STATE CLEARING HOUSE

DocuSigned by:
Erin Chappell

From: Ms. Erin Chappell, Regional Manager

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

Subject: State Route 239 Project, Notice of Preparation of a Draft Environmental Impact Report, SCH No. 2021120436, Contra Costa, Alameda and San Joaquin 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 239 Project (Project), pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹ CDFW is submitting comments on the NOP as a means to inform the California Department of Transportation (Caltrans) as the Lead Agency, of our concerns regarding potentially significant impacts to fish and wildlife 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 Permit, 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 public trust resources.

PROJECT LOCATION AND DESCRIPTION

Caltrans, as the lead agency in cooperation with the Contra Costa Transportation Authority (CCTA) proposes to construct a new, four-lane highway from State Route 4 (SR-4) near Marsh Creek Road in Contra Costa County to Interstate 580 (I-580) in Alameda County or to Interstate 205 (I-205) in San Joaquin County. The Project proposes two build alternatives. Alternative A proposes a four-lane highway with an alignment east of the Byron Airport and west of the community of Mountain House, this alignment turns south to connect to the I-580/I-205 interchange. Alternative B proposes

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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a four-lane highway with an alignment east of the Byron Airport; south of the airport the alignment will head west of the Byron Highway connecting to I-205. The NOP for the draft EIR also proposes to utilize a Tier I and Tier II evaluation process that may include future phases into a single combined document.

LAKE AND STREAMBED ALTERATION

The Project has the potential to impact stream resources including mainstems, tributaries, drainages and floodplains associated with sixty-four (64) aquatic resource types within the Biological Study Area (BSA) that may require notification to the LSA Program (Biogeographic Information and Observation System (BIOS) Dataset (DS) 2836; California Aquatic Resources Inventory). 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. CDFW requires an LSA notification, pursuant to Fish and Game Code § 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.

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 Guidelines §§ 21001 subd. (c), 21083, 15380, 15064 and 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, § 2080. More information on the CESA permitting process can be found on the CDFW website at <https://wildlife.ca.gov/Conservation/CESA>.

ENVIRONMENTAL SETTING

Sufficient information regarding the environmental setting is necessary to understand the Project, and its alternative’s, 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,

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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>	SSC, FT
California tiger salamander – Central California DPS	<i>Ambystoma californiense</i>	ST, FT
Swainson's hawk	<i>Buteo swainsonii</i>	ST
Vernal pool fairy shrimp	<i>Branchinecta lynchi</i>	FT
Big brown bat	<i>Eptesiscus fucus</i>	
Western pond turtle	<i>Emys marmorata</i>	SSC
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	ST, FE
White-tailed kite	<i>Elanus lecurus</i>	FP
Western red bat	<i>Lasiurus blossevillii</i>	SSC
Pallid bat	<i>Antrozous pallidus</i>	SSC
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	SSC
Western Burrowing Owl	<i>Athene cunicularia</i>	SSC
American badger	<i>Taxidea taxus</i>	SSC
Big tarplant	<i>Blepharizonia plumosa</i>	1B
San Joaquin spearscale	<i>Etriplex joaquinana</i>	1B
Notes: FT = Federally Threatened; ST = State Threatened; SSC = State Species of Special Concern (State); DPS = Distinct Population Segment; 1B = State Rare, Threatened or Endangered and elsewhere		

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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 and the CDFW-BIOS datasets. 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. 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. Survey and monitoring protocols and guidelines are available at: <https://www.wildlife.ca.gov/Conservation/Survey-Protocols>.

COMMENTS AND RECOMMENDATIONS

CDFW would like to thank you for preparing the NOP of a draft EIR. CDFW recommends the following updates, avoidance and minimization measures be imposed as conditions of Project approval by the lead agency, to ensure all Project-related impacts to fish and wildlife resources are reduced below a level of significance under CEQA:

COMMENT 1: Project Design Analysis for Preferred Alternative

The CEQA Guidelines (§§15124 and 15378) require that the environmental document incorporate a full Project description, including reasonably foreseeable future phases of the Project and require that it contain sufficient information to evaluate and review the Project’s potentially significant impacts.

To fully address the Project’s potentially significant impacts to fish and wildlife resources and potentially identify a preferred alternative, the draft EIR must include a comprehensive comparison analysis of the potentially significant impacts from each of the two alternatives. Please include the following information:

- A full description of proposed construction for each alternative that includes maps and text descriptions. The descriptions should include detailed information on lane expansions, barrier installation locations, bridge construction locations, culvert replacements or extensions, artificial light source installations or replacement locations, illuminated signage placements, under-crossings and intersection improvements. The text description should include post mile references that cross-reference map figures for each alternative;
- A full description of the proposed construction noted in the previous bullet that includes quantities of material to be employed and a detailed description of how the proposed work will be completed, as well as a construction schedule for each proposed alternative;
- A full description of the proposed areas of impact for the Project elements noted in bullet one for each alternative described in acres and linear feet as well as an

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analysis of the vegetation type and number of trees to be trimmed or removed. A table that compares the acres of impacts and tree removals to each applicable habitat type for each of alternative;

- An artificial light output analysis for each alternative and table that compares the potential artificial light output for each alternative to existing baseline levels of light;
- A full description of the proposed locations for staging areas and access routes for each alternative;
- A preliminary design plan set for each alternative;
- Develop a digital elevation model for the proposed Project limits for each alternative to assist in drainage identification and wildlife connectivity.

COMMENT 2: Lake and Streambed Alteration Program

Issue: The Project has the potential to significantly impact fish and wildlife resources associated with sixty-four (64) aquatic resource features (BIOS; DS-2836) that maybe subject to notification requirements pursuant to Fish and Game Code § 1602.

Recommendation: CDFW recommends the following measures be incorporated into the subsequent draft EIR as conditions of approval:

Recommendation Mitigation Measure 1 – Stream Crossing Analysis: CDFW recommends providing a series of tables and maps that identify all potential stream crossings, culverts and stream modifications, subject to notification to the LSA Program for each alternative. The tables should include information that notes Post-Mile (PM) location of the conveyance, proposed work, linear feet of impact, acres of impact, proposed tree and vegetation removals and potential for use of conveyance in terrestrial connectivity. The tables should also be cross referenced with maps of the existing or proposed structure locations.

Recommendation Mitigation Measure 2 – Fish and Wildlife Resources: Pursuant to Fish and Game Code section 1603, if CDFW determines that the Project could substantially adversely affect existing fish or wildlife resources CDFW will include measures in the LSA Agreement necessary to protect those resources. Measures may include, but not be limited to on-site and/or off-site enhancement, restoration and/or compensatory mitigation for permanent and temporary impacts.

COMMENT 3: Terrestrial Wildlife Connectivity

Issue: The Project has the potential to significantly impact terrestrial wildlife connectivity over a minimum 16-mile linear stretch of highway within Contra Costa, San Joaquin and Alameda County. The surrounding habitat supports threatened, endangered and special-status species as noted in the Environmental Setting section of this

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memorandum. The Project also has the potential to further fragment thousands of acres of surrounding habitat and may result in potentially immitigable significant impacts to wildlife movement.

Evidence the impact would be significant: California wildlife is losing the ability to move and migrate as habitat conversion and built infrastructure disrupt species habitat and cut off migration corridors (Senate Bill 790; SB-790). The current baseline condition of the area proposed for the new state highway system represents a semi-permeable barrier to wildlife connectivity. Larger wildlife species may cross at their own risk of injury or mortality but smaller species such as herpetofauna would most likely not cross the highway successfully without incurring injury or mortality. The proposal to construct a new four-lane highway in either alternative has the potential to create a non-permeable barrier to terrestrial wildlife connectivity, even if the construction occurs in focused segments. The Project represents a potentially significant impact to connectivity due to the proposed increase in the number of travel lanes, proposal for median barrier walls, edge of pavement barriers and access roads that will all significantly expand the width and complexity of the corridor.

Section 15355 of the CEQA guidelines states that cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. This Project represents a single Project that will be proceeded by additional phases of construction and the construction of supporting infrastructure and development Projects surrounding the highway. This Project can therefore be regarded as a potentially significant cumulative impact to terrestrial wildlife connectivity when compared to its existing baseline condition and when considering the future infrastructure phases being proposed or considered.

In addition, CDFW has identified a connectivity corridor at the western half of the Project (37.880776, -121.696890). The corridor is a conservation planning linkage (BIOS; DS-2734) that also contains irreplaceable and essential corridors immediately south of the proposed new highway for either alternative. A conservation planning linkage serves to connect existing habitat core areas and have high connectivity value (BIOS; DS-2734).

The Project also occurs within the potential range of San Joaquin kit fox (SJKF), (BIOS; DS-911) and within the range of the American badger (BIOS; DS-912). American badger connectivity modeling also places habitat north and south of the proposed SR-239 alignment for either alternative (BIOS; DS-854). The proposed alignment is also surrounded to the north and south by year-round habitat for western burrowing owl (BIOS, DS-907). The proposed alignment also occurs within the potential range of California tiger salamander (CTS), (BIOS; DS-2841) and CDFW has also identified at least seven (7) instances of CTS, considered extant within the proposed SR-239 corridor (BIOS; DS-45) as well as other species identified in the Environmental Setting Section of this memorandum that have the potential to be significantly impacted if wildlife

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connectivity is not designed into the proposed alternatives. 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.

Recommendation: CDFW recommends the following are incorporated into the subsequent draft EIR as conditions of approval:

Recommendation Mitigation Measure 1 – Wildlife Connectivity: Terrestrial connectivity elements such as wildlife friendly culverts, under-crossings and over-crossings should be programmed into the Project as design features as conditions of approval. To inform design and placement of connectivity features, the lead agency shall develop a wildlife movement study. The study should occur over a minimum period of 12 months prior to the initiation of construction to incorporate into the draft EIR. The study shall occur within the limits of the proposed Project to develop a baseline understanding of the areas where wildlife movement and crossings are most prevalent. The study should also be utilized to inform Project design to identify areas where wildlife crossing structure(s) installation(s) would result in the largest benefit to rare, threatened and endangered species as well as special-status species and non-special-status species for wildlife connectivity. Analysis during the 12-month study shall be utilized to determine the type, size and number of structures that would be most beneficial to facilitate wildlife connectivity (new wildlife crossing culverts, modification of existing culverts, wildlife crossing bridges, etc.). Upon completion of the Project, the wildlife connectivity structures should be studied for an additional 12-month period, at minimum, to determine the effectiveness of structure utilization by wildlife. The protocol for the baseline survey, post-construction surveys, site selection criteria and design criteria for the development of the wildlife connectivity structures should follow the protocols outlined in *The California Department of Transportation (Caltrans), Wildlife Crossings Design Manual* (Caltrans, 2009) and the *Federal Highway Administration Wildlife Crossing Structure Handbook – Design and Evaluation in North America, Publication No. FHWA-CFL/TD-11-003* (FHWA, 2011).

Recommendation Mitigation Measure 2 – Wildlife Connectivity: The lead agency should develop a series of heat maps for target species along the SR-239 corridor using high value resource layers including but not limited to species presence/absence, drainages, culverts, creeks, road-strike data and wildlife linkage corridors for pinpointing key wildlife crossing locations with high permeability.

COMMENT 4: Bat Assessment and Avoidance

Issue: The Project has a high potential for bat species identified in the Environmental Setting section of this memorandum to roost within the Project limits (BIOS; DS-2498, DS-2497 and DS-2496). In order to determine the extent to which impacts may occur to bats and determine where habitat loss may occur from the replacement of structures or

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removal of trees, it is important the lead agency develop information in tables, maps and text descriptions to depict where potential bat habitat exists. Detailed information should also be provided in the subsequent draft EIR that includes a description, table and map where new structures will be constructed that could provide new roosting habitat structures for bats such as bridges, culverts and overpasses.

Recommendation: CDFW recommends incorporating the following mitigation measures into the subsequent draft EIR as 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). A report should be provided by the qualified biologist and incorporated into the draft EIR that includes a section discussing the locations of suitable bat habitat 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 based on recommended mitigation measure one above, a qualified biologist shall conduct focused surveys at the trees, bridge(s), culverts and overpasses. Methods should include utilizing night-exit surveys, sound analyzation equipment and visual inspection within open expansion joints and portholes of the structures. Surveys should occur from March 1 to April 15 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 during environmental assessments or during construction 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,

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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 inclusion of permanent bat roost structures into the design of new bridges or overpasses to avoid potentially significant impacts from 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).

COMMENT 5: Swainson’s Hawk

Issue: The Project is located within and adjacent to grassland habitat that may be suitable foraging, and suitable nesting habitat for Swainson’s hawk, a State threatened species, also protected under Fish and Game Code section 3503, 3503.5 and the federal Migratory Bird Treaty Act (MBTA).

Recommendation: In order to avoid “take” or adverse impacts to Swainson’s hawk CDFW recommends incorporation of the following:

Recommended Mitigation Measure 1 – Swainson’s Hawk Protocol Surveys: CDFW recommends surveys be conducted according to the Swainson’s Hawk Technical Advisory Committee’s (TAC) *Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley* (CDFW, 2010). CDFW strongly recommends that the TAC survey method be strictly followed by starting early in the nesting season (late March to early April) in order to maximize the likelihood of detecting an active nest. Surveys should be conducted within a minimum 5-mile radius of the proposed Project area and should be completed for at least the two survey periods immediately prior to initiating any Project-related construction work. Raptor nests may be very difficult to locate during egg-laying or incubation, or chick brooding periods (late April to early June) if earlier surveys have not been conducted. These full-season surveys may assist with Project planning, development of appropriate avoidance, minimization and mitigation measures, and may help avoid any Project delays.

Recommended Mitigation Measure 2 – Swainson’s Hawk Nests: CDFW recommends avoiding all Project-related disturbance within a minimum of 0.5 miles of an active Swainson’s hawk nest during the nesting season. Please refer to the CDFW guidance document on Swainson’s hawk (CDFW, 1994, 2010) take avoidance, minimization and mitigation measures. Early consultation with CDFW and other natural resource agencies on Swainson’s hawk take avoidance, minimization and mitigation measures is strongly recommended.

Recommended Mitigation Measure 3 – Swainson’s Hawk Nest Tree Survey: CDFW defines an active nest as a nest that has been utilized once over a 5-year

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period (CDFW, 2010). CDFW recommends an inventory of potential trees within the Project limits is conducted following the protocols noted in Recommended Mitigation Measure 1 – Swainson’s Hawk Protocol Surveys. The inventory should include maps and tree inventory that notes tree species, diameter at breast height, health status, potential nest use and proposed project related trimming or removal.

COMMENT 6: Light Impact Analysis and Discussion

Issue: The baseline condition for the majority of the existing roadway within the proposed limits of SR-239 does not contain extensive overhead artificial light sources. It is unclear if the Project proposes the installation of new or replacement light sources. To alter the habitat from an existing condition of no significant artificial light sources to a series of significant light sources over 16 linear miles represents a potentially immitigable significant impact to fish and wildlife resources. Artificial light spillage beyond the prism of the roadway into natural areas may result in a potentially significant impacts through substantial degradation of the quality of the environment. Artificial light pollution also has the potential to significantly and adversely affect the cycle of biological resources. 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 at night. Continuous light output for 365 days a year, when the artificial lighting is followed by the natural light of the sun 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). 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). Frogs and salamanders are particularly susceptible to artificial light pollution. Light pollution may affect physiology, behavior, ecology, and evolution of frog and salamander populations (Wise, 2007). For example, artificial light levels and timing influences melatonin production in salamanders. Melatonin regulates hormones, reproductive development and behavior, skin coloration, an animal's ability to regulate body temperature, and night vision (Gern, 1986). Reduced survival at the population level can result in smaller populations or populations that disappear altogether. Due to the high potential for migratory birds, songbirds, amphibians and mammals, including nocturnally active State listed and special-status species such as California tiger salamander and American badger, to occur within the Project limits, CDFW recommends no lighting is installed as a result of Project completion to avoid these potentially significant impacts.

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Recommendation: CDFW strongly recommends that the Project does not propose to install new artificial light sources, especially in areas where no artificial light previously existed. In areas where new or replacement artificial light sources are installed, CDFW recommends incorporation of the following:

Recommended Mitigation Measure 1 – Light Output Analysis: The lead agency should submit as part of the draft EIR Isolux Diagrams that note current light levels present during pre-Project conditions and the predicted light levels that will be created upon completion of the Project. If an increase in light output from current levels to the projected future levels is evident, additional avoidance, minimization or mitigation shall be developed in coordination with the natural resource agencies to offset indirect impacts to fish and wildlife species such as such as CESA listed California tiger salamander. Within 60 days of Project completion the lead agency shall conduct a ground survey that compares projected future light levels with actual light levels achieved upon completion of the Project through comparison of Isolux diagrams. If an increase from the projected levels to the actual levels is discovered additional avoidance, minimization or mitigation measures may also be required in coordination with the natural resource agencies. This analysis should be conducted across all potential alternatives and compared in table and map format.

Recommended Mitigation Measure 2 – 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 3 – 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 4 – Reflective Signs and Road Striping: Retro-reflectivity of signs and road striping should be implemented throughout the Project to reduce the need for electrical lighting.

Recommended Mitigation Measure 5 – 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

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

COMMENT 7: Eastern Contra Costa County Habitat Conservation Plan / Natural Community Conservation Plan

Issue: The Project occurs within the coverage area of the Eastern Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan (ECCC HCP/NCCP) as a covered activity and is subject to the avoidance, minimization, and Project implementation measures as required by the ECCC HCP/NCCP. Adherence to these avoidance measures is expected to minimize take of special-status and listed species, covered by the ECCC HCP/NCCP.

Recommendation Measure 1 – ECCC HCP/NCCP Covered Activity

Compliance: CDFW recommends early and continued coordination with the East Contra Costa Habitat Conservancy to incorporate the required conditions for Project development and design for covered activities. This can include but is not limited to using the most up to date scientific evidence for design of the Project structures including wildlife crossing structures and placement of those elements at specified intervals within the proposed highway system as specified in the ECCC HCP/NCCP.

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 No. 2021120436

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.

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

California Department of Fish and Wildlife. February 1996. Steelhead Restoration and Management Plan for California.

California Department of Fish and Wildlife. June 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California.

California Department of Fish and Wildlife. 1994. Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (*Buteo swainsoni*) in the Central Valley of California.

The California Department of Transportation (Caltrans). March 2009. Wildlife Crossings Design Manual, Meese et.al., University of California Davis.

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

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

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

Federal Highway Administration (FHWA). March 2011. Wildlife Crossing Structure Handbook; Design and Evaluation in North America.

Gauthreraux 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

Gern, William. 1986. Melatonin: A discussion of Its Evolution and Actions in Vertebrates

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.

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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.

Senate Bill 790: Wildlife Connectivity Actions: Compensatory Mitigation Credits, October 11, 2021. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=20210220SB790

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

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

Wise, Sharon. 2007. Studying the Ecological Impacts of Light Pollution on Wildlife: Amphibians As Models. Biology Department, Utica College, Utica, NY.