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STATE CLEARINGHOUSE

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California High-Speed Rail Authority
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Sacramento, California 95814

**Subject: California High-Speed Rail Project, San Jose to Merced Section (Project)
Revised Draft Environmental Impact Report/Supplemental Draft
Environmental Impact Study (RDEIR/SDEIS)
SCH No. 2009022083**

Dear Mr. Stanich:

The California Department of Fish and Wildlife (CDFW) received a Notice of Availability of a RDEIR/SDEIS from the California High-Speed Rail Authority (Authority) for the above-referenced Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹ CDFW previously commented on related environmental documents as stated in our comment letter for the Draft EIR/EIS (DEIR/EIS) for the San Jose to Merced Section on June 23, 2020.

Following the Authority's publication of the DEIR/EIS in April 2020, the Authority learned that the California Fish and Game Commission published a notice of findings, on May 1, 2020, to designate the Southern California/Central Coast population (evolutionarily significant unit) of mountain lion (*Puma concolor*) as a candidate species under the California Endangered Species Act (CESA). Additionally, the monarch butterfly (*Danaus plexippus*) became a candidate for listing under the federal Endangered Species Act (FESA) on December 15, 2020. These listing actions led to the Authority to revise the DEIR/EIS for analysis of impacts to mountain lion and monarch butterfly, as well as including additional mitigation measures for impacts to wildlife resulting from noise and lighting during construction and during Project operation.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates 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 Fish and Game Code.

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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CDFW ROLE

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 regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent 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.), related authorization as provided by the Fish and Game Code will be required.

PROJECT DESCRIPTION SUMMARY

Proponent: California High-Speed Rail Authority (Authority)

Objective: The approximately 90-mile, San Jose to Central Valley Wye Project (Project) of the 145-mile-long Project Section (San Jose to Merced Section (SJ-M)) comprises mostly of dedicated High-Speed Rail (HSR) system infrastructure, HSR station locations at San Jose Diridon and Gilroy, a maintenance of way facility (MOWF) either south or southeast of Gilroy, and a maintenance of way siding (MOWS) west of Turner Island Road in the Central Valley. HSR stations at San Jose Diridon and Gilroy would provide links with regional and local mass transit services as well as connectivity to the Santa Clara County and Central Valley highway network. The Project comprises the following five subsections: 1) San Jose Diridon Station Approach—Extends approximately 6 miles from north of San Jose Diridon Station at Scott Boulevard in Santa Clara to West Alma Avenue in San Jose. This subsection includes the San Jose Diridon Station. 2) Monterey Corridor—Extends approximately 9 miles from West Alma Avenue to Bernal Way in the community of South San Jose. This subsection is entirely within the city of San Jose. 3) Morgan Hill and Gilroy—Extends approximately 30 miles from Bernal Way in the community of South San Jose to Casa de Fruta Parkway/State Route (SR) 152 in Santa Clara County. 4) Pacheco Pass—Extends approximately 25 miles from Casa de Fruta Parkway/SR 152 to east of Interstate (I-) 5 in unincorporated Merced County. 5) San Joaquin Valley—Extends approximately 20 miles from I-5 to Carlucci Road in unincorporated Merced County.

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There are four end-to-end Project alternatives (Alternative 1 to 4), including stations. The Authority's Preferred Alternative under National Environmental Policy Act (NEPA), which serves as the proposed Project for CEQA, is Alternative 4. It includes two stations (San Jose Diridon and Downtown Gilroy), MOWF, MOWS, two tunnels and attraction power facilities.

Location: The Proposed San Jose to Merced Project Section is located in Santa Clara, San Benito, and Merced Counties near the cities of Santa Clara, San Jose, Morgan Hill, Gilroy, and Los Banos. The Project extends from Scott Boulevard in Santa Clara County (lat/long 37° 21' 48.996 "N/121° 57' 36"W) to Carlucci Road in Merced County (lat/long 37° 5' 28.716"N/120° 40' 15.6"W). The nearest major state highways are SR 33, SR 85, SR 87, SR 89, SR 152 165, U.S. Highways 10, I-5, I-280, and I-880.

Timeframe: Unspecified.

COMMENTS AND RECOMMENDATIONS

CDFW offers the following comments and recommendations to assist the Authority in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Comments and recommendations that were previously provided in the June 23, 2020 comment letter for the DEIR/EIS remain the same and will not be restated in this letter with the exception of some editorial comments. Additional editorial comments or other suggestions may also be included to improve the document.

Currently, the RDEIR/SDEIS indicates that the Project's impacts would be less than significant with the implementation of mitigation measures described in the RDEIR/SDEIS. However, as currently drafted, it is unclear whether the mitigation measures described will be enforceable or sufficient in reducing impacts to a level that is less than significant. CDFW is concerned regarding the adequacy of mitigation measures for special-status species including, but not limited to: the State Candidate Species for listing as threatened, Southern California/Central Coast evolutionarily significant unit (ESU) mountain lion (*Puma concolor*) and the U.S. Fish and Wildlife Service (USFWS) candidate for listing monarch butterfly (*Danaus plexippus plexippus*).

I. Mitigation Measure or Alternative and Related Impact Shortcoming

Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS?

COMMENT 1: Mountain Lion (ML) Issue: The Project alignment transects the Southern California/Central Coast ESU. The RDEIR/SDEIS acknowledges that mountain lion have the potential to occur within or near the Project. The Central Coast North (CC-N) genetic subpopulation falls within the alignment and the Central Coast-

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Central (CC-C) subpopulation is adjacent to the SJ-M alignment. The SJ-M alignment is where there are existing mountain lion connectivity problems where two ESUs meet. However, the RDEIR/SDEIS (Section 3.7) lacks Project impact analysis of the genetically distinct subpopulations of the Southern California/Central Coast ESU (CC-N and CC-C) and the source of genetics they contribute to each other. The CC-N subpopulation will be the most impacted by this Project and already requires genetic enhancement; the CC-N- effective subpopulation size is **17** and the estimated adult subpopulation size is **33-66**. The impacts to gene flow for the species is the larger concern when contrasted with individual take. Isolation of subpopulations limits the genetic exchange of populations at risk of local extinction through genetic and environmental factors preventing the recolonization of suitable habitats following local extirpation, ultimately putting the species at risk of extinction. An effective way to reduce these impacts is avoidance of take and reduction of population impacts with Project design features such as increased wildlife crossing opportunities in the critical area of the Diablo Range to the Santa Cruz Mountains and the connecting Coyote Valley which would allow movement for the CC-N into the CC-C subpopulation areas to allow for genetic exchange along with habitat protections/land conservation easements (CE) for areas on either ends of wildlife crossings.

The RDEIR/SDEIS does not address the Project related impacts of potentially worsening gene flow disruption between these subpopulations, nor does it address how impacts to the population genetic source would impact the subpopulations. CDFW recommends Section 3.7 be revised to contain specific analysis on the mountain lion Southern California/Central Coast ESU (CC-N and CC-C genetic subpopulations) impacts to dispersal and genetic exchange between populations, including issues of connectivity and fragmentation of habitat adjacent to the Project. CDFW also recommends the RDEIR/SDEIS be revised to include robust feasible avoidance, minimization, and mitigation measures to reduce impacts to less than significant to these isolated subpopulations by providing connectivity for CC-N and CC-C subpopulations. CDFW recommends referencing the attached map (Attachment 1) to further analyze the impacts of gene flow disruption between the CC-N and CC-C subpopulations, to identify areas that provide permeability, and areas to conserve to facilitate movement between the subpopulations.

Highway 101 is a significant barrier for mountain lion movement between the CC-N and CC-C subpopulations and the Project will very likely further compound this issue absent conservation strategies to ensure mountain lion movement opportunities. Opportunities for the Project to enhance other nearby areas and facilitate, design, and fund movement opportunities and wildlife corridor repairs or enhancement should be pursued as mitigation strategies.

Specific impacts: The Project as proposed (construction and operation and maintenance) will impact the Southern California/Central Coast mountain lion ESU by potentially severing the source of genetics and impeding movement between the CC-N and CC-C subpopulations. The Project has the potential to cause impacts during construction and operation by increasing human presence, traffic, noise, vibration, air

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pollutants and dust, artificial lighting, habitat removal, severing access to or impacting habitat resources (e.g. springs and streams, dens site, impacts to prey-base, etc.), causing disruption during breeding cycles, impacting den selection, forcing animals into movement paths and areas that could increase their vulnerability to vehicle strikes, and significantly and permanently reducing and eliminating existing wildlife movement corridors necessary for gene flow.

Evidence impact would be significant: The mountain lion is a specially protected mammal in the State (Fish and G. Code, § 4800). In addition, on April 21, 2020, the California Fish and Game Commission accepted a petition to list an ESU of mountain lion in southern and central coastal California as threatened under CESA (CDFW 2020a). As a CESA-candidate species, the mountain lion in southern and central coastal California is granted full protection of a threatened species under CESA.

CDFW finds that the Project would continue to have significant impacts because mitigation as proposed in the RDEIR/SDEIS would not result in adequate and successful mitigation for the unavoidable direct and indirect, permanent, or temporal losses, of genetic connectivity between subpopulations of mountain lion.

This area is essential for the viability of the CC-N subpopulation, particularly the Santa Cruz mountains, which is experiencing restricted gene flow. Greater landscape permeability would promote gene flow among distinct subpopulations. The CC-C subpopulation provides essential gene flow to the CC-N subpopulation which is critically important for their long-term viability. The CC-C subpopulation is vulnerable to habitat loss from additional development pressure necessitating improving habitat connectivity to facilitate gene flow between adjacent areas though permanently protected lands (e.g., conserved through a conservation easement (CE)) and managed in perpetuity (Dellinger et al., 2020). The CC-C region could have major effects on connectivity and population genetics in the adjacent mountain lion populations if further constrained.

The CC-N population has low genetic diversity, and the CC-C population has relatively intermediate levels. Gene flow through maintenance of existing occupied habitat within improved and additional wildlife corridors will promote long term persistence of isolated subpopulations (Gustafson et al. 2019). It is important that the CC-N subpopulation remain connected to adjacent mountain lion populations via suitable habitat and unobstructed sizeable movement corridors. Decreased and impeded connectivity in this area would quickly increase the decline in genetic diversity of mountain lions in southern and central parts of the State (Dellinger et al., 2020). Permanently conserving and restoring habitat connectivity and corridors is essential for mitigating impacts to mountain lions.

In the *SR 152 Pacheco Pass Permeability and Pacheco Creek Wildlife Connectivity Study Mountain Lion Report 2018-2020* (Pathways for Wildlife 2020) noted the detection of mountain lion using Pacheco Creek multiple times and the SR 152 bridge undercrossing at least once. The Pacheco Creek and the Pacheco Creek Reserve facilitates movement between the CC-N and CC-C subpopulations. The Santa Clara

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Valley Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP) recognizes Pacheco Creek as an important linkage and is an area included in the biological goals and objectives, reserve system design, and long-term monitoring for the NCCP/HCP.

Mountain lions will use caves and other natural cavities, thickets in brush, and timber for cover and denning. Mountain lions require extensive areas of riparian vegetation and brushy stages of various habitats, with interspersions of irregular terrain, rocky outcrops, and tree/brush edges. These habitat types are throughout the Project area. Mountain lions are active yearlong (mostly nocturnal and crepuscular). The home range for males are a minimum of 40 km² (15 mi²) and female home ranges usually are 8-32 km² (3-12 mi²). The main diet for mountain lion is deer (CWHR). Deer migration corridors will also be impeded by the Project. Mountain lions have a wide-ranging nature and large territories, as well as the need for dispersal (especially of young males). In order to maintain genetic diversity, large blocks of permanently conserved habitat and unobstructed and sizable safe travel corridors between them are essential for long term population persistence and stability (Vickers, 2014). Thermal characteristics cause mountain lions to select north-facing slopes at high elevations, with more vegetation and cooler temperatures in the summer and south-facing slopes with little snow cover in winter. These habitats were also strongly correlated with the density and distribution of deer. Den sites are preferentially located in nearly impenetrable vegetation areas and mountain lion feed on cached prey primarily after sunset and often rested long distances from the cache site during the day (Pierce and Bleich 2003). Cutting off or restricting access to these habitats will reduce opportunities for genetic exchange, foraging, and fecundity.

Recommended Potentially Feasible Mitigation Measure(s):

Because the RDEIR/SDEIS identifies the potential for mountain lion to occur within the Project footprint, CDFW recommends conducting the following evaluation of the Project, updating the RDEIR/SDEIS to include the following measures, and that these measures be made conditions of approval for the Project. CDFW recommends quantitative and enforceable measures that will reduce the impacts to less than significant levels.

Recommended Mitigation Measure 1: ML Habitat Assessment

CDFW recommends that a qualified biologist conduct a habitat assessment and suitable habitat mapping of individual Project areas in advance of Project implementation, to determine if the Project area or its vicinity contains suitable habitat as well as caves and other natural cavities and thickets of brush and timber which provide cover and are used for denning. Mapping should also include the following: the Project area with identified wildlife linkages within the ESU subpopulations, identified Project undercrossing, overcrossing, tunnels, viaducts, and designated wildlife crossing locations and adjacent habitat to assist with development and implementation of avoidance, minimization, and mitigation measures.

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Recommended Mitigation Measure 2: ML Wildlife Crossing Monitoring

CDFW recommends that the Authority devise and implement a Mountain Lion Crossing Monitoring Plan. CDFW recommends the Authority consult with CDFW during the drafting of the Monitoring Plan and obtain approval of the Plan prior to Project implementation. CDFW recommends that the proposed Mitigation Measure #77a Design Wildlife Crossings to Facilitate Wildlife Movement, include a design that establishes specific criteria for monitoring the performance of the crossings (viaducts, undercrossing, overcrossings) for routine and ongoing use by mountain lion and its prey. The monitoring plan should be contingent with action-based monitoring performance objectives and be adaptive. Goals of the monitoring plan should at a minimum include: 1) to provide data to assist in designing crossings and inform placement for future HSR segments in Northern California (San Jose to Merced and San Francisco to San Jose); 2) conduct long-term population monitoring for use by the mountain lion subpopulations; 3) track progress of use; and 4) evaluate overall effectiveness of the crossings.

Recommended Mitigation Measure 3: ML-Avoidance-Buffer for Corridor Areas

CDFW recommends that during construction, movement corridors such as drainages and riparian areas maintain a ¼ mile buffer to minimize impacts to mountain lion movement through these areas.

Recommended Mitigation Measure 4: ML-No Night Work in Corridor Areas

To minimize impacts to movement of mountain lion during construction, CDFW recommends that no night work occur in or immediately adjacent to drainages and riparian areas of the Project.

Recommended Mitigation Measure 5: ML-Avoidance Use of Rodenticides

CDFW discourages the use of rodenticides and second-generation anticoagulant rodenticides due to their harmful effects on the ecosystem and wildlife. CDFW recommends the Authority include a mitigation measure prohibiting the use of such materials during construction and operation and maintenance of the HSR.

Recommended Mitigation Measure 6: ML-Provide Dedicated Wildlife Crossings

CDFW recommends that dedicated wildlife crossings for mountain lion and deer be a “required” design feature in the final design of the Project.

Recommended Mitigation Measure 7: ML-Take Authorization

There should be no net loss of suitable habitat for mountain lions. CDFW recommends that the Authority identify opportunities for the Project to enhance nearby areas and movement opportunities including wildlife corridor restoration or enhancement as potential mitigation strategies. Since the RDEIR/SDEIS assumes wildlife movement and corridor impacts, and the concomitant inherent loss of gene flow cannot be avoided between the subpopulations, we recommend that the Authority ensure some level of permanent conservation is present in the areas that are known to currently provide connectivity. CDFW recommends improving habitat connectivity (e.g., wildlife road-

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crossing structures) to facilitate unimpeded wildlife movement and gene flow between adjacent areas. CDFW recommends the replacement habitat be located adjacent to the Project and Wildlife Linkage and Corridor, as depicted in Attachment 1.

The Authority should consult and collaborate with CDFW to conserve areas beneficial to the Southern California/Central Coast ESU and the CC-N and CC-C subpopulations that may improve and maintain connectivity. The mitigation lands should be protected in perpetuity under a CE held by a non-profit conservation organization or other appropriate entity that has been approved by CDFW to hold and manage mitigation lands.

In the event that a mountain lion or den is detected during surveys, consultation with CDFW is warranted to discuss how to implement the Project and avoid take. If avoidance is not feasible, acquisition of an Incidental Take Permit (ITP), pursuant to Fish & Game Code section 2081 subdivision (b) prior to any ground-disturbing activities would be warranted in order to comply with CESA.

COMMENT 2: Monarch Butterfly (MB)

Issue: The Project falls within the monarch butterfly spring and summer breeding area (Pelton 2016). Project related activities have the potential to impact monarch butterfly. It is unclear how implementation of BIO-MM#14 and BIO-MM#86 would avoid and minimize impacts from construction to monarch butterflies. Without appropriate avoidance and minimization measures for the species mentioned above, potential significant impacts associated with the Project's milkweed removal activities include, inadvertent entrapment, reduced reproductive success, reduction in health and vigor of eggs and/or larvae, and direct mortality of individual monarch butterflies.

Specific impact: The document lacks analysis on how operations and maintenance (O&M) activities such as vegetation removal adjacent to the HSR would remove and degrade habitat and host plants, or how train strike could injure/kill monarch butterflies. CDFW recommends addressing the following O&M impacts: dust impacts to the host plants (*Asclepia* ssp., milkweed) and nectar producing flowers during construction and operation.

Evidence impact would be significant: The availability of milkweed is essential to monarch butterfly reproduction and survival; reduction in milkweed is cited as a key driver in monarch butterfly decline (USFWS 2020). Habitat loss and fragmentation is among the primary threats to the population (USFWS 2020). During the breeding season monarch butterflies lay their eggs on the milkweed host. Monarchs also need milkweed for both oviposition and larval feeding and nectar producing habitat (USFWS 2020). Project activities have the potential to significantly impact the species by reducing possible nectar producing plants and milkweed host plant for breeding. Habitat where monarch butterflies are found may be subject to insecticide use and these impacts are primarily influenced by the extent to which monarch butterflies are exposed to insecticides throughout their range (USFWS 2020).

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Recommended Potentially Feasible Mitigation Measure(s)

To evaluate potential impacts of the Project to special-status species, CDFW recommends conducting the following assessment of the Project area, including the following mitigation measures, and requiring them as conditions of approval for the Project.

Recommended Mitigation Measure 8: MB Habitat Assessment

CDFW recommends that a qualified biologist conduct a habitat assessment, well in advance of Project implementation, to determine if the Project area or its immediate vicinity contain habitat suitable to support life stages of the monarch butterfly.

Recommended Mitigation Measure 9: MB Surveys

If suitable habitat is present, CDFW recommends assessing presence of monarch butterflies (eggs and larvae) and native milkweed by conducting surveys following recommended protocols or protocol-equivalents.

Recommended Mitigation Measure 10: MB Take Avoidance

CDFW recommends that all milkweed be avoided if ground-disturbing activities will occur during the overwintering period (October through February) by a minimum of 50 feet to avoid potentially significant impacts, and to avoid insecticide use within the Project area during construction and operation. Detection of a special-status species within or in the vicinity of the Project area warrants consultation with CDFW and USFWS to discuss how to implement ground-disturbing activities and avoid take. Potential minimization measures include restoring and enhancing native milkweed and nectar resources via seed mix mixes approved by CDFW and USFWS, and removal of non-native milkweed.

COMMENT 3: Section 3.7.5.3 Methods for Impact Analysis-Wildlife Movement Page 2

This section states that the following report was a reference in Section 5.2 of the Wildlife Connectivity Assessment (WCA) of the DEIR/EIS: *Wildlife Permeability and Hazards across Highway 152 Pacheco Pass: Establishing a Baseline to Inform Infrastructure and Restoration* (Pathways for Wildlife 2020). It should be noted that the WCA was released with the DEIR/EIS and the Pathways for Wildlife 2020 report was not included as a reference. This study was not referenced in analyzing wildlife permeability of Pacheco Pass in the WCA.

COMMENT 4: Section 3.7.6.2 Biological Conditions-Special Status Species Pages 4-5

This section states, "The petition highlighted that although low effective population size alone is cause for conservation concern, habitat loss and fragmentation due to roads and development have led to extreme levels of isolation and high mortality rates." It is unclear how the RDEIR/SDEIS addresses the subpopulation isolation due to

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fragmentation; CDFW recommends addressing the CC-N and CC-C subpopulation impacts caused by the Project.

COMMENT 5: Section 3.7.6.2 Biological Conditions-Wildlife Movement Pages 5-7

This section states, “The project extent crosses several wildlife corridors of regional importance. Although corridors occur in all subsections, those in the Santa Clara Valley (specifically, the Coyote Valley) and San Joaquin Valley Grasslands Ecological Area (GEA) have been identified by the CDFW and local stakeholders as particularly important to wildlife movement and habitat connectivity at the regional and state scale.” It should be noted that the western Pacheco Pass subsection (Pacheco Creek) has not been included as a wildlife movement corridor despite this area being identified as a concern of the local stakeholders and CDFW. CDFW recommends including the Pacheco Pass subsection as an important wildlife corridor.

This section also states, “Where moderate or high potential effects were identified, recommendations to facilitate wildlife movement were made in the WCA and were subsequently incorporated into the proposed project to the extent feasible.³” The footnote for this statement states, “³The WCA, Section 7.2.2, noted that additional dedicated wildlife underpasses, not included in the project design, should be considered in the eastern Pacheco Pass area near Casa de Fruta.”

It should be noted that the modeling results in the WCA indicate that the pre-existing conditions of permeability and after construction of the Project as being the same. It is unclear how such a conclusion was reached by the modeling. In particular, the Pacheco Creek area where this location provides wildlife movement and the current Project design would have an embankment constructed on the western portals in the western section of Pacheco Pass; this would be a barrier and would not provide permeability. CDFW recommends the Authority include the facilitation of wildlife movement in the Pacheco Pass area for large target species such as mountain lion and Tule elk (*Cervus elaphus nannodes*).

Comment 6: Table 3.7-1 Direct Impacts on Special-Status Wildlife Species Habitat by Project Alternative (acres) Page 8

CDFW recommends that this table describe how direct, indirect, permanent, and temporary impact acreages were calculated for each species and specifically for mountain lion and monarch butterfly. CDFW also recommends the footnote for the table include the definitions for high-priority foraging and dispersal habitat and low-priority foraging and dispersal habitat.

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COMMENT 7: Section 3.7.7.2 Constructional Impacts-Impact BIO#26a: Loss of Breeding, Foraging, and Dispersal Habitat for and Direct Mortality or Disturbance of Mountain Lion Page 10

This section states, "The primary impact would be the loss or disturbance of breeding habitat, including the potential to kill cubs if they are present in the area at the time of construction. The impacts on breeding habitat are nearly identical among alternatives because the majority of breeding habitat occurs in the Pacheco Pass Subsection, and all alternatives are identical in this subsection." CDFW is concerned that this is not the primary impact of the Project to mountain lion but rather the lack of connectivity impacting gene flow between the CC-N and CC-C subpopulations.

Comment 8: Impact BIO#26a: Loss of Breeding, Foraging, and Dispersal Habitat for Direct Mortality or Disturbance of Mountain Lion:

This section states, "Construction-related ground disturbance (e.g., grading, excavation) and vehicle traffic may injure or kill mountain lions, including cubs, by crushing occupied dens or colliding with moving lions." It should be noted that injury or killing of mountain lions including cubs is take and in order to comply with CESA, will require from CDFW acquisition of an ITP, section 2081 subdivision (b).

COMMENT 9: 3.7.7.7 Wildlife Movement -Construction Impacts-Impact BIO#42: Temporary Disruption of Wildlife and Wildlife Movement Pages 13-14

This section states, "With respect to mountain lion, impacts on movement during construction are expected to be significant, with potential temporary disruptions to genetic flow between subpopulations." It should be noted that temporary disruptions from construction activities can last up to 5 years or more. CDFW recommends spatial and temporal disruption to gene flow between the two subpopulations and impacts to wildlife during the construction period be addressed.

COMMENT 10: 3.7.7.7 Wildlife Movement -Construction Impacts-Impact BIO#43: Permanent Impacts on Wildlife Movement Page 14-16

This section states, "Changes to the project design (primarily the placement of viaduct sections and dedicated wildlife crossings) would provide for wildlife movement across the alignment in Coyote Valley, the Soap Lake floodplain, most of Pacheco Pass, and the Central Valley; barriers to movement would remain on the west slope of Pacheco Pass where the rail alignment parallel to Pacheco Creek would be placed on a series of continuous cut-and-fill slopes."

CDFW recommends that the Authority provide wildlife movement across the alignment in the area of the Pacheco Reserve/Pacheco Creek and CDFW is unclear as to why the Authority left out impacts and project design elements to provide wildlife movement for this area. This location also provides connectivity and habitat for Tule elk, tricolored blackbird (*Agelaius tricolor*), bald eagle (*Haliaeetus leucocephalus*), California tiger

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salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylei*), California red-legged frog (*Rana draytonii*), and spawning South Central Coast steelhead (*Oncorhynchus mykiss*).

COMMENT 11: 3.7.7.7 Wildlife Movement Operations Impacts-Impact BIO#44: Intermittent Noise Disturbance of Wildlife Using Corridors during Operations Pages 16-17

“These effects are moderated because the [San Joaquin kit] fox is most active between midnight and 6 a.m., when operations on the HSR alignment would be limited to intermittent, slower-speed maintenance vehicles.” It is unclear what the frequency of intermittent operations will be, and this should be quantified. Further, it should be noted that this statement is in conflict with Appendix 3.7-E Noise Analysis on Terrestrial Species and Appendix 3.7-F Supplemental Light Analysis on Terrestrial Species, as the Appendices indicates 24-hour operation of the train. Mountain lions are active not only during the midnight hours; they are also active through the day, particularly the crepuscular periods, and can be disturbed by noises at all times of the night and day. CDFW recommends the analysis of “intermittent” maintenance activities impacts on mountain lion.

COMMENT 12: 3.7.7.7 Wildlife Movement Operations Impacts-Impact BIO#46: Intermittent Visual Disturbance of Wildlife Using Corridors during Operations Pages 18-19

CDFW recommends including an impact analysis that address visual obstruction to mountain lions, as well as the mountain lion prey base. Visual obstruction for these species would include design features such as: Intrusion Protection Barrier (IPB), sound barrier walls, embankment, and Mechanically Stabilized Earth (MSE) walls.

COMMENT 13: 3.7.7.7 Wildlife Movement Operations Impacts-Impact BIO#47: Intermittent and Permanent Lighting Disturbance of Wildlife and Wildlife Using Corridors during Operations Pages 19-20

This section states, “The Authority has incorporated BIO-IAMF#12 into project design to avoid and minimize impacts from operational lighting sources by several methods, including using appropriate shielding to reduce horizontal or skyward illumination and avoiding the use of high-intensity lights (e.g., sodium vapor, quartz, and halogen). Additionally, BIO-IAMF#12 specifies that no lighting be installed under viaduct and bridge structures in riparian habitat areas.” These measures are recommendations and not requirements, and therefore not enforceable. Because these IAMFs lack measurable, quantifiable actions and enforceability to minimize, avoid, or mitigate impacts on wildlife movement during project operation and CDFW recommends that the measure be changed to an enforceable condition of approval.

This section states, “Continuous sources of operations lighting would have little potential to affect wildlife, including mountain lion, because lighting would be directed toward the

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site and is predominantly of a fairly low intensity (approximately 5 lux for security lighting and approximately 20 to 50 lux at stations and the MOWF).” It is unclear if these lighting intensities have been documented to cause little effect to wildlife; CDFW recommends further analysis.

COMMENT 14: 3.7.7.7 Wildlife Movement Operations Impacts-Impact BIO#48: Mortality Resulting from Train Strike during Operations Page 20

This section states, “Although the entire track alignment would be fenced with an 8-foot chain-link fence, except under Alternative 4 where there are breaks in the fencing for road crossings, it is possible that terrestrial species could enter the alignment and be struck by a moving train.” CDFW is concerned that having the entire track fenced further impacts the mobility of wildlife through the alignment. We recommend clarification on how these temporary disruptions of wildlife movement would impact the gene flow between CC-N and CC-C subpopulations of mountain lion. CDFW recommends analysis of mountain lion movement and/or their prey-base and impacts to their foraging opportunities. Potential effects could result in additional stressors during breeding cycles, effects of den selection, and force animals into movement paths/areas that could increase their vulnerability to vehicle strikes. We recommend evaluating the known locations of wildlife vehicle strikes and addressing the cumulative impact of the addition of the HSR.

Comment 15: Section 3.7.8 BIO-MM#1: Prepare and Implement a Restoration and Revegetation Plan Pages 21-22

This section states, “Restoration activities may include, but not be limited to: grading landform contours to approximate pre-disturbance conditions, stockpiling and spreading topsoil, removing invasive plant species, revegetating disturbed areas with native plant species (including host plants for butterflies), and using certified weed-free straw and mulch.” The RDEIR/SDEIS is unclear on what specifically will be done (disposal offsite or used on-site) with such large quantities of excess soils from the cut of slopes and tunneling material. CDFW recommends providing information in the RDEIR/SDEIS that describes the ultimate placement of all the excavated spoil material.

Comment 16: Section 3.7.8 BIO-MM#14: Avoid Direct Impacts on Bay Checkerspot and Monarch Butterfly Host Plants Page 22

It is unclear in BIO-MM#14 who is responsible to determine if the habitat is suitable and the timing of surveys. In addition, this measure lacks a survey methodology and it is also unclear how and when presence is assumed. CDFW also recommends using monarch conservation measures from Xerces Society (2015) BMPs for Pollinators in Rangelands for minimization measures for monarch butterfly. For additional applicable conservation measures that can minimize impacts to monarch butterflies, please see the 2020 Nationwide Candidate Conservation Agreement for Monarch Butterfly on Energy and Transportation

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Lands(https://www.fws.gov/savethemonarch/pdfs/Final_CCAA_040720_Fully%20Executed.pdf).

Comment 17: Section 3.7.8 BIO-MM#70: Prepare and Implement an Annual Vegetation Control Plan (VCP) Page 22

“To the extent feasible and consistent with the Caltrans (2014) Maintenance Manual requirements, the Authority would also include pollinator conservation measures in the VCP from the Xerces Society *Best Management Practices for Pollinators on Western Rangelands* (Xerces Society 2018), conservation measures in the *Nationwide Candidate Conservation Agreement for Monarch Butterfly on Energy and Transportation Lands* (Cardno 2020), or other applicable sources.” This measure defers mitigation and is not enforceable. If it is not feasible CDFW recommends the Authority propose something that would be feasible, quantifiable, and enforceable to implement.

Comment 18: Section 3.7.8 BIO-MM#76: Minimize Impacts on Wildlife Movement during Construction Page 22-23

This section states, “Where an existing underpass or culvert must be closed or obstructed, a temporary crossing structure or an alternative movement corridor would be created.” To determine if BIO-MM#76 minimizes impacts, CDFW recommends describing how and where would alternative movement corridors would be created.

This section states, “Construction would be timed to minimize impacts on movement by providing at least one crossing feature in a region. For example, to minimize impacts on wildlife using the Fisher Creek culvert, construction at Fisher Creek would not commence until the construction of the Tulare Swale undercrossing is complete.” It should be noted construction occurring at crossings in adjacent regions within the segment could have potential impacts to mountain lion movement.

This section, as well as in Appendix 3.7-E Noise Analysis on Terrestrial Species and Appendix 3.7-F Supplemental Light Analysis on Terrestrial Species also states, “Lighting will use the minimum levels approved by OSHA (29 C.F.R. § 1926.56) for general construction (i.e., 5 foot-candles or 54 lux). Additionally, the plan will include instructions to minimize the direction of construction vehicle headlights toward off-site locations and using low beams or turning off headlights when safety considerations permit.” It should be noted the minimum levels of lighting approved by OSHA are minimums established for humans. It is unclear how these levels correlate to wildlife and if the levels are appropriate to reduce impacts to mountain lion.

“To the extent feasible, the plan will require minimizing the duration of lighting by using methods other than lighting to ensure security of the construction site during hours it is not in use. To avoid impeding movement of aquatic species, the Authority would employ the use of vibratory (rather than impact) pile driving for work in or within 200 feet of waterbodies that provide habitat for steelhead or giant garter snake, where feasible.” This measure is not enforceable if it is only implemented if feasible. CDFW

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recommends the Authority propose quantifiable and enforceable measures to reduce impacts.

“Additionally, the Authority would establish wildlife-friendly fencing at soil stabilization areas and tunnel portals where a large right-of-way would be required.” It is unclear if the soil stabilizing areas would require MSE wall. It is also unclear if these areas with wildlife friendly fence will function in providing wildlife movement. CDFW recommends clarification to determine if the measure would minimize impacts as intended. This section lists various attributes of wildlife-friendly fence. It should be noted that these attributes benefit cattle and grazing animals and it is unclear what the benefit would be for special status species, mountain lions and their prey. The proposed fence described is permeable and will result in wildlife/mountain lion potentially entering areas that are planned to exclude wildlife from entering.

Comment 19: Section 3.7.8 BIO-MM#77a: Design Wildlife Crossings to Facilitate Wildlife Movement Page 23-25

This section states the following, “To the extent feasible, the Authority would design all wildlife crossings created specifically for terrestrial species consistent with the guidelines and recommendations in the WCA (Authority 2020a: Appendix C).” It should be noted that recommendations of this measure are not enforceable design requirements for wildlife crossings. CDFW advises that these be required guidelines and not recommendations. CDFW also recommends that the creation of new crossing structures incorporate land-overcrossings to facilitate movement of mountain lion and other large mammals. CDFW recommends that these be required crossing features and provide the crossing design requirements for openness factor and clear line of sight from end to end (entrance to exit) distances. Crossing designs and locations should not result into pushing animals to small areas adjacent to highways subject to vehicle strikes. CDFW has concerns with what the proposed locations for wildlife crossings connect to. CDFW recommends that crossing location entrance/exits be co-located with habitat areas that will be immediately encountered or adjacent and further, these habitat areas be perpetually conserved and protected (e.g. through recordation of a CE) to maintain effective movement corridors to sustain functional habitat for mountain lions.

CDFW recommends the Authority coordinate with the Santa Clara Valley Habitat Agency (SCVHA), California Department of Transportation (Caltrans), and CDFW in their effort in conducting a regional connectivity study of SR 152 wildlife crossing study (Pacheco Pass), to obtain roadkill data, inventoried culvert and bridges identified to be improved for connectivity and to ensure that these locations are not further impaired by the Project and correspond with improvements of crossing locations of the Project. This coordination would also help prevent conflicts with the implemented goals of the SCVHA Local Assistance Grant, which is a State funded grant.

“The guidelines and recommendations include the following features:”

- “Funnel fencing would be designed to benefit the greatest number of movement guilds feasible.”

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- “Wildlife crossing width and height would be maximized and length minimized to the extent feasible.”
- “Consideration of habitat modification and/or habitat restoration at crossings to facilitate cover for crossing animals.”

To the “extent feasible” and “consideration” are not requirements and therefore not enforceable measures. CDFW recommends that the specifics that pertain to establishing wildlife crossings for mountain lion be included in this measure. In addition to funnel fencing, the habitat modification and restoration should provide needed cover and strata for wildlife approaching the crossing and should include construction of wildlife trails to attract carnivores and deer to the crossing structures.

“Because land use and other factors could change prior to construction of the project, the Authority would work with agency and stakeholder partners—CDFW, USFWS, [National Marine Fisheries Service] NMFS, the [Santa Clara Valley Open Space Authority] SCVOSA, SCVHA, Peninsula Open Space Trust, and The Nature Conservancy—to validate and optimize wildlife crossing locations at the 75 to 90 percent design phase.” It is unclear if validation of locations needs the “approval” from these stakeholder partners or if it simply a notification. It should also be noted the Grasslands Water District (GWD) is missing from the listed stakeholders and CDFW recommends including GWD to the list of stakeholders.

“The Authority would plan and prioritize species and wetland and natural community (e.g., sycamore alluvial wetland) mitigation land acquisition in coordination with the agencies and stakeholders listed above—at or near wildlife crossing entrances to minimize future development and maintain the natural and rural land cover types surrounding wildlife crossing entrances and exits.” It is unclear when the plan and prioritization would take place and when mitigation land would be acquired to ensure the function of the wildlife crossings. CDFW recommends not deferring this mitigation action.

“Further, the Authority would prepare a Wildlife Crossing Design, Inspection, and Maintenance Plan. The Wildlife Crossing Design, Inspection, and Maintenance Plan would be developed in coordination with wildlife agencies—CDFW, USFWS, and NMFS—and local wildlife movement stakeholders (e.g., SCVOSA, SCVHA, Peninsula Open Space Trust, and The Nature Conservancy).” It is unclear how and when this would be prepared. CDFW recommends the Authority provide a plan that is enforceable and ensures that final approval come from the wildlife agencies.

Comment 20: Section 3.7.8 BIO-MM#77b: Monitoring and Adaptive Management of Wildlife Crossings Page 25

This section states the following, “The Authority would develop a monitoring and adaptive management plan to monitor the effectiveness and use of crossing designs.” It is unclear when this plan will be developed and who is responsible for implementing this plan.

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“Including modifications to design features, if feasible, such as cover and substrate; use of new technologies to attract animals to the crossing; fencing; adjacent land management changes, if feasible; or other measures that may be determined to be feasible in the future. The monitoring and adaptive management plan would be developed in coordination with wildlife agency staff and local wildlife movement stakeholders such as the SCVHA, the SCVOSA, The Nature Conservancy, and the Peninsula Open Space Trust.” It should be noted that this language is not enforceable, CDFW again recommends the Authority provide a plan that is approved by the wildlife agencies.

Comment 21: Section 3.7.8 BIO-MM#80: Minimize Permanent Intermittent Noise, Visual, and Train Strike Impacts on Wildlife Movement

This section states the following, “To this purpose, the Authority would build opaque noise/visual barriers to cover or obscure some or all of the train, including the [Overhead Contact System] OCS, if feasible, at the following locations: In the GEA IBA near Volta, between Stations B4550+00 and B4630+00 (all alternatives)”.

Comment 22: Section 3.7.8 BIO-MM#81: Minimize Permanent Intermittent Impacts on Terrestrial Species Wildlife Movement

This section states, “These features include the following, which are specified in detail in the WCA (Authority 2020a: Appendix C). Jump out exit features that allow large mammals such as deer or mountain lion to exit the fenced right-of-way would be placed near at-grade road crossings in Coyote Valley at the following station numbers: B688, B691, B703, B730, B759, B761, B822, B823, B862, B863, B902, B935, B971, and B972.” CDFW recommends the eastern and western Pacheco Pass areas include jump-outs as a requirement to facilitate movement for mountain lion and other large mammals. CDFW further recommends including and requiring jump out exit features for elk and deer in areas of Upper Cottonwood Wildlife Area and San Luis Reservoir Wildlife Area and jump outs for deer from Volta Wildlife Area through Mud Slough CE.

Comment 23: Section 3.7.8 BIO-MM#87: Conduct Pre-Construction Surveys and Implement Avoidance and Minimization Measures for Mountain Lion Dens Pages 28-29

“Prior to any ground-disturbing activity, regardless of the time of year, the Project Biologist would conduct pre-construction surveys for known or potential mountain lion dens within suitable habitat located within the work area and within 1,970 feet of the work area, where access is permitted.” It is unclear how areas not accessible to the Project would be surveyed and it is unclear what is considered suitable habitat components.

“The Project Biologist will use location-specific survey methods to identify known and potential dens. The survey method will consider topography, vegetation density, safety, and other factors. Surveys will be conducted by a qualified biologist (i.e., a biologist

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with demonstrated experience in mountain lion biology, identification, and survey techniques) and may involve the establishment of camera stations, scent stations, pedestrian surveys (looking for tracks, caches, etc.), the use of scent detection dogs, or other appropriate methods. Survey methods used will be designed to avoid the disturbance of known or potential dens to the extent feasible." CDFW is concerned with the overall practicability of this approach. It should be noted that dens can be very difficult to detect even for mountain lion experts. Another possible approach to be incorporated into detection surveys is camera station surveys.

"If known, or potential, mountain lion dens are identified or observed during pre-construction surveys, mountain lion dens will be assumed to have kittens present until the Project Biologist can document that they are not present and/or that the den is not being used." CDFW recommends additional information be included in the measure on how dens will be checked to see that dens are no longer occupied without disturbing the adult female and kittens.

"However, ground disturbance would be limited to those days between October 1 and January 31 within 1,970 feet of known or potential dens to the extent feasible." If it is not feasible to work within the proposed work window, CDFW recommends including another option to minimize and avoid impacts. Buffer establishment should be implemented every time a den is detected with kittens. If such a discovery is made, then project activities in the defined buffer area would need to halt for 2 months and a re-survey conducted to determine if the female has abandoned the den and relocated the kittens. Also recommended is immediate consultation with CDFW upon detection of an active den. Mountain lions will den throughout the year so a proposed work window may not be an effective minimization measure. CDFW recommends the reference to a work window to reduce impacts to mountain lions be removed from the document.

Comment 24: Section 3.7.8 BIO-MM#88: Provide Compensatory Mitigation for Impacts on Mountain Lion Habitat Page 29

The Authority has proposed to provide compensatory mitigation for impacts to mountain lion breeding and foraging habitats. The RDEIR/SDEIS indicates that each alternative for the Project has approximately 2,597.4 to 2,851.5 acres of permanent impacts and 944.8 to 1,192.9 acres of temporary impacts to breeding and foraging and high and low priority foraging and dispersal habitats. CDFW believes the proposed ratios of 2:1 for permanent impacts on breeding/foraging habitat and high priority foraging and dispersal habitat; and 1:1 for low priority foraging and dispersal habitat do not sufficiently account for loss of habitat and is not well supported based on the RDEIR/SDEIS analysis of the impacts, which was a coarse level spatial modeling exercise. Overall, the analysis of direct, indirect, permanent, and temporal impacts appears to be underestimated, including the impact to loss of gene flow between subpopulations and impacts to ESUs due to the loss of connectivity. Therefore, it is unclear whether the proposed 2:1 mitigation to impacts ratio is sufficient to reduce impacts to less than significant levels.

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Comment 25: Section 3.7.8 BIO-MM#89: Minimize the Impacts of Operational Lighting on Wildlife Species Page 29

This section and Appendix 3.7-E Noise Analysis on Terrestrial Species and Appendix 3.7-F Supplemental Light Analysis on Terrestrial Species states the following: “Outdoor lighting at operational facilities would be consistent with minimum OSHA requirements established by 29 C.F.R. Section 1926.56 when the facilities are in use.” It should be noted that the OSHA requirements are for humans not wildlife.

“To the extent feasible, the Authority would minimize the duration of lighting at operational facilities by using methods other than lighting (e.g., remote monitoring systems) to ensure security of facilities during nighttime hours when they are not in use. Train headlights would use the minimum standard allowed by the FRA under 49 C.F.R. Section 229.125 (a single headlight of at least 200,000 candelas). It is unclear why Coyote Valley is the only area that this measure addresses ALAN (Artificial Light at Night) exposure impacts.

Comment 26: Section 3.7.8 Table 3.7-3 Comparison of Project Alternative Impacts for Biological and Aquatic Resources (acres) Page 30

Missing from Impact BIO# 26a, Impact BIO#32, Impact BIO#42, Impact BIO#43, are mountain lion ESU impacts of gene flow between the CC-N and CC-C.

Comment 27: Section 3.7.9.6 Wildlife Movement Pages 36-37

“With respect to mountain lion, the inclusion of dedicated crossings and viaducts in the project design are expected to facilitate the continued genetic flow between subpopulations; however, some uncertainty exists around this conclusion because the movement of mountain lions and thresholds for movement are not well understood. Consequently, impacts causing disruptions to genetic flow between subpopulations are possible.” This statement infers no changes to project design and overcrossings and viaducts would be examined or put into place. There is a lack of analysis in the RDEIR/SDEIS regarding what a design change or low functioning design features would mean to the CC-N subpopulation.

Comment 28: Section 3.7.10 CEQA Significance Conclusions Impact BIO#26a: Loss of Breeding, Foraging, and Dispersal Habitat for and Direct Mortality or Disturbance of Mountain Lion Page 42

“BIO-MM#87 would minimize direct impacts on individual mountain lions during construction by identifying and avoiding occupied mountain lion dens within the project footprint. BIO-MM#88 identifies minimum compensatory mitigation requirements for mountain lion that would be included in the CMP developed under BIO-MM#10.” CDFW is concerned MM#87 is not an effective and adequate methodology to detect mountain lion and dens due to the low likelihood of detection and MM#88 is not adequate

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compensation and would not sufficiently offset impacts to breeding, foraging, dispersal, gene flow, and direct mortality likely as a result of the Project.

Comment 29: Section 3.19.6.6 Cumulative Impacts-Biological and Aquatic Resources-Wildlife Movement Page 2

“The project would contribute to these gene flow issues, especially between the CC-C and CC-N subpopulations within the ESU. The Authority would implement mitigation that includes avoiding and minimizing temporary impacts on wildlife movement (BIO-MM#76), modifying project design to accommodate wildlife movement (BIO-MM#77a and BIO-MM#78), monitoring the success and providing adaptive management for crossings (BIO-MM#77b), and protecting land in the Santa Cruz to Gabilan Wildlife Linkage or the Soap Lake 10-year floodplain (BIO-MM#79).” It should be noted that the Pacheco Creek is not included in the area to which movement to allow gene flow is addressed and should be incorporated.

Comment 30: Section 3.19.6.6 Cumulative Impacts-Biological and Aquatic Resources-CEQA Conclusion Wildlife Movement Page 3

“While mitigation measures are proposed to reduce these impacts, there would still be substantial interference with wildlife movement. The project specific impacts would combine with those related to construction of other planned projects such that there would be a new cumulative impact on wildlife movement. There is no additional feasible mitigation.” If the mitigation measures cannot reduce impacts to less than significant for mountain lion, what will the Authority do to ensure impacts are minimized to the greatest extent feasible? CDFW recommends including a CEQA significance conclusion for impacts to the mountain lion ESUs and the corresponding genetic impacts.

Comment 31: APPENDIX 3.7-A: SPECIAL-STATUS SPECIES SUBJECT TO PROJECT IMPACTS-Table 2 Special-Status Wildlife Species Potentially Subject to Project Impacts Page 2

CDFW recommends that the table include CC-N and CC-C populations of the mountain lion ESU.

Comment 32: APPENDIX 3.7-D: SUPPLEMENTAL SPECIES HABITAT MODEL DESCRIPTIONS-Mountain lion (*Puma concolor*); Candidate under the CESA (Southern California/Central Coast Evolutionarily Significant Unit) Pages 5-7

“Breeding and Foraging Habitat —Potentially suitable breeding and foraging habitat in the regional study area meets the following criteria (Figure 3.7-D-2) and High-Priority Foraging and Dispersal Habitat—High-priority foraging and dispersal habitat in the regional study area meets the following criteria (Figure 3.7-D-2).” It is unclear how and by whom these criteria are set for high and low priorities. The current range referenced for modeling was Zeiner et al. 1990; this is not the most current literature reference. CDFW recommends referencing Dellinger et al. 2020.

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**Comment 33: APPENDIX 3.7-D: SUPPLEMENTAL SPECIES HABITAT MODEL DESCRIPTIONS-Mountain lion (*Puma concolor*); Candidate under the CESA (Southern California/Central Coast Evolutionarily Significant Unit)
Figure 3.7-D-2 Coastal Mountain Lion Habitat Page 9**

Figure 3.7-D-2 is missing the CC-N and CC-C ESUs and does not depict areas of connectivity. CDFW has provided Attachment 1 for the Authority to reference mapping of the subpopulation locations.

**Comment 34: APPENDIX 3.7-E: SUPPLEMENTAL NOISE ANALYSIS ON TERRESTRIAL WILDLIFE SPECIES-2 NOISE EXPOSURE IN THE STUDY AREA
Page 3**

“It is assumed that a typical train would be 660 feet long and that approximately 176 trains would pass any given point in any given 24-hour period, with up to 148 trains between 7 a.m. and 10 p.m. and up to 28 trains between 10 p.m. and 7 a.m. A train moving past a given point would take 2.05 seconds to pass at a speed of 220 mph or 4.10 seconds at 110 mph; thus, maximum noise levels would be experienced for 5.8 minutes per day along parts of the alignment where trains were moving 220 mph or 11.6 minutes per day where trains were moving 110 mph”. This statement indicates that there is an operating train 24 hours of the day and therefore that noise impacts are not intermittent. CDFW recommends conducting a revised analysis of non-intermittent noise and light impacts to wildlife be completed.

“Noise barriers protecting sensitive human receptors are predominantly located in urban areas, where they offer little benefit for wildlife.” It is unclear if new receptors will be located and used for wildlife and if the noise barriers would reduce impacts to mountain lion movements in the areas. CDFW recommends further analysis.

Comment 35: APPENDIX 3.7-E: SUPPLEMENTAL NOISE ANALYSIS ON TERRESTRIAL WILDLIFE SPECIES-3 MAMMALIAN WILDLIFE RESPONSES TO NOISE Pages 8-9

“...recent camera trapping efforts at bridges along SR 152 by Pathways for Wildlife (2020) found that within the twelve month monitoring period, multiple species including deer (*Odocoileus hemionus*), American badger (*Taxidea taxus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and opossum (*Didelphis virginiana*) were recorded consistently traveling under each of the three bridges. Based on this evidence, it is clear that despite the presence of existing noise sources in the form of major highways, both common and sensitive wildlife do successfully use existing passage routes in the study area.” It should be noted that this information reinforces the need for connectivity of wildlife crossings in this area for these species.

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**Comment 36: APPENDIX 3.7-E: SUPPLEMENTAL NOISE ANALYSIS ON
TERRESTRIAL WILDLIFE SPECIES- 4.1 San Joaquin Kit Fox**

“Potential noise impacts on kit foxes were assessed by USFWS (2009) in its biological opinion for the Merced to Fresno Project Section of the HSR system. It determined that “noise disturbance from operation of the HST will not occur during nocturnal activities of San Joaquin kit fox in areas adjacent to the alignment from 12:00 a.m. through 6:00 a.m.” and that “it is likely that San Joaquin kit fox will become quickly adapted to the increased noise disturbance generated by operation of the HST3.” In summary, there would be a considerable potential for operational noise to affect foraging and alignment crossing by San Joaquin kit fox, and measures to minimize those effects are discussed below.” It should be noted that citing biological opinion determination for a different regional segment is not an adequate comparison. The Merced to Fresno biological opinion did not account for 24-hour train operation. As a result, the referenced biological opinion is not applicable to the Project analyzed by the RDEIR/SDEIS.

**Comment 37: APPENDIX 3.7-E: SUPPLEMENTAL NOISE ANALYSIS ON
TERRESTRIAL WILDLIFE SPECIES- 4.3 Mountain Lion**

“There is a high potential that train noise would affect mountain lion foraging effectiveness and that it would add to the existing barriers represented by SR 152 in deterring mountain lions from crossing the valley through this area.” These conclusions on noise should be applied to corridor movement for mountain lion.

**Comment 38: APPENDIX 3.7-E: SUPPLEMENTAL NOISE ANALYSIS ON
TERRESTRIAL WILDLIFE SPECIES- Figure 3 Proposed Noise Barrier near Upper
Pacheco Creek Page 18**

CDFW is concerned that there are no proposed dedicated wildlife crossings for the Pacheco Creek area.

**Comment 39: APPENDIX 3.7-E: SUPPLEMENTAL NOISE ANALYSIS ON
TERRESTRIAL WILDLIFE SPECIES- Figure 4 Proposed Noise Barrier near
California Aqueduct Page 19**

It should be noted that Figure 4 of the proposed noise barrier near the California Aqueduct illustrates the Project (the alignment being at grade, trenched, noise/light barrier, designated wildlife crossing) on property that is protected under a CE. CDFW is concerned over impacts occurring on a CE and recommends a specific analysis of these impacts.

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Comment 40: APPENDIX 3.7-F: SUPPLEMENTAL ARTIFICIAL LIGHT ANALYSIS ON TERRESTRIAL WILDLIFE SPECIES Page 1

Section 1.1 states, "BIO-MM#51: Nighttime light disturbance would be reduced in and adjacent to suitable habitat where known California condor roosting habitat occurs at Lover's Leap south of State Route 152. Nighttime lighting would be focused, shielded, and directed away from the nighttime roost site. The project biologist would be on site during nighttime light use to determine the lighting risk to condors and to implement lighting avoidance measures (e.g., lighting shields) if necessary." It is unclear what determines implementation of this measure, and aspects of the measure are not requirements and therefore not enforceable.

Comment 41: APPENDIX 3.7-F: SUPPLEMENTAL ARTIFICIAL LIGHT ANALYSIS ON TERRESTRIAL WILDLIFE SPECIES 1.4.5 Dusky-Footed Woodrat and Fresno Kangaroo Rat Page 10

"In the Pacheco Pass Subsection, construction lighting would be limited to tunnel portals, and, in the Central Valley, construction lighting would be avoided." It is unclear if nighttime lighting would be prohibited during construction in the Pacheco Pass and Central Valley subsections. CDFW recommends analyzing impacts of construction lighting in these two subsections.

Comment 42: APPENDIX 3.7-F: SUPPLEMENTAL ARTIFICIAL LIGHT ANALYSIS ON TERRESTRIAL WILDLIFE SPECIES 1.5 Measures to Reduce Effects Page 12

"The following additional measures are recommended to further reduce lighting impacts within the areas identified in Table 1." The measures proposed to reduce lighting impacts are recommendations and not requirements. CDFW recommends proposing measures that are feasible, measurable, and enforceable.

II. Editorial Comments and/or Suggestions

Wildlife Corridor Movement: The RDEIR/SDEIS asserts, "Wildlife would be able to cross the alignment between at-grade segments where the HSR would be elevated on a viaduct or an underground tunnel." This statement assumes that the viaduct locations will remain in place; however, as with other HSR segments currently under construction, these viaduct locations could later be redesigned to be fenced at-grade and impermeable to wildlife. CDFW advises that a stronger design criterion should be developed and included into the RDEIR/SDEIS to ensure that areas of planned viaduct cannot later be changed to less permeable features by the Design-Build contractor.

As CDFW has discussed during early consultation and in previous comment letters to the Authority, the single biggest potential biological impact arising from construction of the HSR project is the impact on regional movements of wildlife and connections between habitats. The HSR has the potential to disrupt wildlife movement corridors that are already hindered with existing obstacles, create long stretches of impediments, and further narrow areas of low or compromised permeability, many of which are already

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threatening the continued viability of several species. Construction of access-controlled rail lines may create additional barriers to the movement of wildlife, thereby cutting them off from important food, shelter, and breeding areas. Resulting isolation of subpopulations limits the exchange of genetic material and puts populations at risk of local extirpation through genetic and environmental factors. Barriers can prevent the re-colonization of suitable habitat following natural population expansions, ultimately putting the species at risk of extinction.

The construction and operation of the HSR will severely inhibit north-south as well as east-west wildlife movement along the San Jose to Merced segment. While the Authority suggests it will examine the feasibility of implementing a variety of wildlife passages to aid animal movement along both sides of the rail alignment, it is unclear where and at what intervals these will be placed. This is a concern, especially considering recent design changes in the Fresno to Bakersfield segment of the Project where originally designed elevated structures were changed to an at-grade design and elevated structures over waterways were significantly reduced in length, narrowing the available space for open wildlife passage.

In addition, CDFW is concerned that any changes in crossing design or location due to significant build changes with the alignment during the interim between environmental review and 80 to 90 percent (%) engineering, creates delays and impediments to ensuring functional permeability for all focal species. This could limit the ability of species such as SJKF, Tule elk, and mountain lion to move unhindered throughout their historic range. A recent 2021 master's thesis by California State University, Fresno student, Abigail Dziegiel, analyzed CDFW's 2015-2019 Tule elk tracking collar data and identified current home ranges within the Pacheco Pass area along SR 152. Work by James Thorne and others from the University of California, Davis, in 2002 and 2006, tracking data from mountain lion and Tule elk research, and work associated with the Santa Clara Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP), have specifically identified 17 corridors in Santa Clara County of significant importance. Therefore, crossing locations and design are advised to be provided and fully disclosed in the CEQA document so that CDFW can analyze the potential effectiveness of maintaining these known wildlife corridors.

Elevated railways are critical in areas where the movement of wildlife is already reduced due to existing and/or proposed geographic transportation infrastructure and structural barriers such as those that exist in western Merced County near the intersections of SR 152, SR 33 and I-5.

Potential future design changes that could result in reduced wildlife permeability and increased wildlife impacts need to either be considered in the RDEIR/SDEIS, or somehow precluded from occurring at the construction phase. An elevated or below ground rail design could reduce the impacts that the HSR system would have on animal movement and migration, by allowing wildlife to pass unimpeded underneath or over the top of the entire length of the railway while providing access-controlled tracks. Elevated or below ground railways would be more effective in facilitating animal movement than

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the proposed wildlife underpasses and overpasses, which are not always effective or have untested efficacy for most taxa. Because wildlife would be more likely to move underneath an elevated rail, or over a below ground rail, as opposed to using a tunnel or vegetated overpass, CDFW advises the at-grade embankment described in the RDEIR/SDEIS be thoroughly analyzed as a barrier to movement, gene flow, reproductive success, loss of colonization opportunities, and to discuss this in the context of frequency, design, and location of planned wildlife crossings.

CDFW recommends considering the following for design features for dedicated wildlife crossings: minimize lengths (entry to exit) of dedicated wildlife crossings for certain species guilds and/or incorporate designs (grates, shelving, terracing, etc.) that still allow light penetration, maximize heights of crossings or add bridges for larger species guilds, provide natural cover types to encourage use, incorporate bench designs to allow use of the crossings during flooding, and provide smaller animal escape within or adjacent to the dedicated wildlife crossings.

If wildlife passage structures will be used instead of elevated or below ground rail, CDFW continues to recommend that an extensive evaluation be conducted before final wildlife passage locations are selected to determine the appropriate and most effective locations and number and types of such wildlife passage structures. As was recommended in previous correspondence, methods to determine best locations of wildlife passage structures or avoidance should include things such as: 1) track station surveys; 2) ditch and canal crossing surveys; 3) monitoring trails with infrared or Trailmaster cameras; and 4) geographic information system (GIS) habitat modeling to identify likely wildlife travel corridors and anthropogenic barriers (such as highways, canals, reservoirs) at the landscape level. In addition, wildlife habitat passage structures, such as underpasses, overpasses, elevating or placing below grade the alignment and tunnels, may not be suitable for all species and locations and would need to be evaluated carefully. Dedicated wildlife crossing structures should ensure permeability, be evaluated on a species-specific basis, and be required to meet specific minimum dimensions for increased probability of wildlife utilizing these structures.

Specific care should be afforded to ensure that any wildlife crossing structure design incorporates generous openness and clear line of sight from entry to exit to maximize detection of the crossing by species at the time of encounter and to ensure use. Currently, the DEIR/EIS does not provide specific dimensions listed for the openness, what constitutes a "slight grade of approaches to prevent flooding", and the number of crossings that would ensure permeability for such a long linear feature. Without these specifics and other relevant assumptions, it is not possible to determine if the effectiveness of this mitigation measure will reduce the level of significance. CDFW recommends that wildlife crossing locations, configurations, and demonstrated efficacy for target species use (e.g., mountain lion, tule elk, SJKE, etc.) be a requirement of the final design.

Finally, the RDEIR/SDEIS does not analyze the impact of design elements, such as the IPBs and Access Restriction (AR) fencing, in terms of impacts to wildlife corridor movements and/or the reduction of effectiveness of wildlife crossings compounded by

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the additional fencing infrastructure. The RDEIR/SDEIS includes information that the at-grade segments of the project would be entirely fenced or walled and thereby eliminate adverse interactions with wildlife, including direct strikes. While this may be true in some instances at the individual or localized level, the total length and linear nature of the project's fencing/walls, along with other projects in the area, may cause site-specific and cumulative impacts involving species habitat fragmentation and impediments to wildlife movement. CDFW agrees that inclusion of proper placement and design of the dedicated wildlife crossings will be a very important component of the environmental planning process for the Project. CDFW also agrees that wildlife movement areas (open connectivity) are also important for plant species.

It is paramount that the final appropriate and effective design features, dimensions, and locations for elevated rail, viaduct, tunnel, and wildlife crossings through Pacheco Pass and Central Valley remain as minimum criteria and not a design-build option to reduce dimensions or alter locations without approval from the wildlife agencies to ensure connectivity of gene flow for the mountain lion subpopulations (CC-C and CC-N).

Use of Modeling for Impact Analysis

CDFW has previously expressed its concern with using coarse-level predictive models for the impact analysis without having site-specific surveys to supplement the modeling effort. We are concerned that the lack of current, site-specific information to accurately quantify the magnitude of impact to CESA-listed species may cause delays in the impact of the taking analyses necessary for CESA and issuance of an ITP. CDFW is also concerned how the modeled output is proposed to be used for areas where there are no occurrence data. As a reminder, CNDDDB captures voluntarily reported detections only; areas without records should not be treated as areas where species do not occur. Our primary concerns with using modeling without site-specific protocol surveys to assess and quantify impacts for purposes of CESA include the following:

- Modeling alone may not capture the full extent of species occurrences and habitat suitability due to data sources, timing of surveys, limited access to significant portions of the alignments, and the inherent accuracy issues associated with using regionally-based data to determine site-specific impacts without a reliable verification method (e.g., protocol surveys). Using predictive modeling only to evaluate species presence/absence and to quantify project-specific impacts (acreages) could miss marginal or atypical habitat usage, especially by highly mobile species, and impose a risk of unauthorized take. In addition, some areas not ranked as suitable have not been surveyed recently or have never been surveyed.
- Due to the stochasticity and cryptic nature of some species, it is very difficult to accurately “detect” species and determine mitigation requirements using modeling. Some species are unpredictable due to variables the modeling may not or cannot adequately capture, habitat requirements that are constantly evolving over time or space and/or have distributions that can be analyzed statistically but not be predicted precisely. For example, opportunistic species

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can have dynamic ranges and use areas not ranked at all by the model based on its current parameters.

- As an estimation of reality, the current model includes a defined range of species and conditions (using the rules selected) based on a snapshot of time and may not accurately capture use by all species when impacts occur and/or translate down to the site-specific (e.g., footprint) level. Modeling alone can provide a statistically significant underrepresentation of habitats potentially occupied by State-listed species. For example, some listed plants may only occur at specific times of the year under certain conditions and only be adequately evaluated with protocol surveys within the project footprint at the appropriate time. Likewise, some State fully-protected bird species not known to nest or breed in the project area (e.g., white-tailed kite, peregrine falcon and bald eagle) could be transient to the area at certain times of the year.

It should be noted that the WCA is not an adequate analysis of the genetic landscape. The landscape connectivity/permeability vs. the genetic connectivity. Habitat quality landscape does not capture the movement through the Project for the CC-C subpopulation of mountain lions who breed and pass on genes to other subpopulations. The WCA (Appendix 3.7A of the RDEIR/SDEIS) modeling limitations pose issues and assumptions that are problematic in addressing the genetic permeability of mountain lion. Permeability Analysis Results for American badger, bobcat, mountain lion, deer, Tule elk, and bay checkerspot butterfly (*Euphydryas editha bayensis*) does not indicate changes in existing permeability to post-permeability once the Project is complete.

CDFW continues to emphasize that although the current modeling can be a helpful tool for the Authority's own preliminary evaluation, as well as for compensatory mitigation planning, it will not be a substitute for our analysis when it comes to CESA permitting. CDFW will need to conclude whether or not listed species will be impacted by the project. If predictive modeling is used in lieu of biological surveys by the Authority, CDFW's ITP related analysis we will need to err on the side of assuming presence in the Project footprint where suitable habitat is present.

Department Owned and Managed Lands

To date, CDFW has not been provided a comprehensive analysis of impacts to CDFW-owned land and therefore cannot agree at this time with the Authority's assumption that a Section 4(f) is warranted. CDFW is advising the Authority to formulate other feasible alternatives that avoid these lands because CDFW cannot agree that a Section 4(f) is a reasonable supposition in planning the HSR alignment.

The Secretary of Transportation may approve a project requiring the use of publicly owned land of a wildlife and waterfowl refuge **only** if there is no prudent and feasible alternative to using that land; and the project includes **all** possible planning to minimize harm to the wildlife and waterfowl refuges from the use. "Use" includes substantial impacts to wildlife resources due to close proximity of a transportation project

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(Department of Transportation Act 49 U.S.C. Section 303, formerly Section 4[f]). All four alternatives considered, and the Project alignment will have significant impacts to State owned wildlife areas.

CDFW Wildlife Areas are acquired for the protection and enhancement of habitat for a wide variety of species and are open to the public for wildlife viewing, hiking, hunting, fishing, and nature tours. The construction and operation of HSR within or near CDFW lands could severely limit the wildlife and public use values of these lands as well as alter the way these lands are managed by CDFW. Most Wildlife Areas depend on visitor fees for operation, maintenance and management. CDFW has concerns that the HSR may negatively impact the number of visitors to Wildlife Areas resulting in reduced revenues; thereby reducing or eliminating the future enhancement of public recreational opportunities and wildlife habitat provided by these areas. The consequence of this may prevent youth from future hunt participation on these CDFW owned lands and impact recruitment of youth into the sport of hunting impacting the CDFW Recruitment, Retention and Reactivation Action Plan initiative. There would be diminished funding to CDFW's Wildlife Program and the operating budget for CDFW during construction (up to a 5-year period or more) of the HSR Project and on-going fiscal impacts once the HSR Project is complete.

Specific CDFW-owned lands that are adjacent to, bisected by, or occur within 1 mile of the San Jose to Merced alignment include Cottonwood Creek Wildlife Area (Upper and Lower), San Luis Reservoir Wildlife Area, O'Neill Forebay Wildlife Area, Volta Wildlife Area, Los Banos Wildlife Area, Grasslands Wildlife Area, and Cañada de los Osos Ecological Reserve.

Another concern of CDFW is the Grassland Environmental Educational Center (GEEC). The GEEC is visited by local area school children for educational outreach and enrichment and in some cases is the only outdoors educational experience in their area. The annual average number of visitors are 6,317. The alignment alternatives are within 1,000 feet of the GEEC, thus the value and experience to its visitors will be impacted during construction and long-term operation and maintenance of the HSR. All four alternatives proposed in the DEIR/EIS will have the same impact to the GEEC; CDFW advises consideration of another alignment or alternative.

Moreover, this section lacks analysis of indirect impacts to conservation plans and CEs. The alignment will go through the Mud Slough CE (CDFW is grantee) and other CE lands purchased for conservation of SJKF and other special-status species by the State of California and other entities. The impacts to the perpetual conservation values set forth in CEs were not evaluated and analyzed. CDFW is concerned that the potential impacts of the HSR Project will impact the biological values, the continued management, and potentially violate the conditions of the Mud Slough CE. The CE has terms of conditions that preserve the natural character and maintain in perpetuity the habitat values set forth in the required site-specific management plan for waterfowl habitat value and/or waterfowl use. CDFW recommends this be analyzed and included in the RDEIR/SDEIS, including the legal mechanism that the Authority would utilize to

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condemn or otherwise impact lands permanently conserved by the State of California. As indicated previously during early consultation, CDFW recommends that an alternative location for that portion of the Project alignment be identified to avoid impacts to permanently conserved lands and the associated legal implications.

Federally Listed Species: CDFW recommends consulting with the USFWS on potential impacts to federally listed species including, but not limited to, monarch butterfly. Take under the Federal Endangered Species Act (FESA) is more broadly defined than CESA; take under FESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. Consultation with the USFWS in order to comply with FESA is advised well in advance of any ground-disturbing activities.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during Project surveys to CNDDDB. The CNDDDB field survey form can be found at: <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>. The completed form can be mailed electronically to CNDDDB at the following email address: CNDDDB@wildlife.ca.gov. The types of information reported to CNDDDB can be found at: <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

FILING FEES

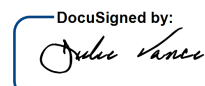
If it is determined that the Project has the potential to impact biological resources, an assessment of filing fees will be necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CDFW appreciates the opportunity to comment on the Project to assist the Authority in identifying and mitigating the Project's impacts on biological resources.

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More information on survey and monitoring protocols for sensitive species can be found at CDFW's website (<https://www.wildlife.ca.gov/Conservation/Survey-Protocols>). Please see the enclosed Mitigation Monitoring (MMRP) table which corresponds with recommended mitigation measures in this comment letter. If you have any questions, please contact Ms. Primavera Parker, Senior Environmental Scientist (Specialist), at the address provided on this letterhead, by telephone at (559) 320-6666, or by e-mail at Primavera.Parker@wildlife.ca.gov.

Sincerely,

DocuSigned by:

FA83F09FE08945A...

Julie A. Vance
Regional Manager

Attachment 1- Mountain Lion ESU Subpopulation Mapping
Attachment 2- MMRP

ec: See Page Thirty-One

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Central Valley Regional Water Quality Control Board
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CDFW Region 4: Ferranti, Stafford, Tomlinson, Allen, Parker
CDFW Region 3: Craig Weightman, Brenda Blinn

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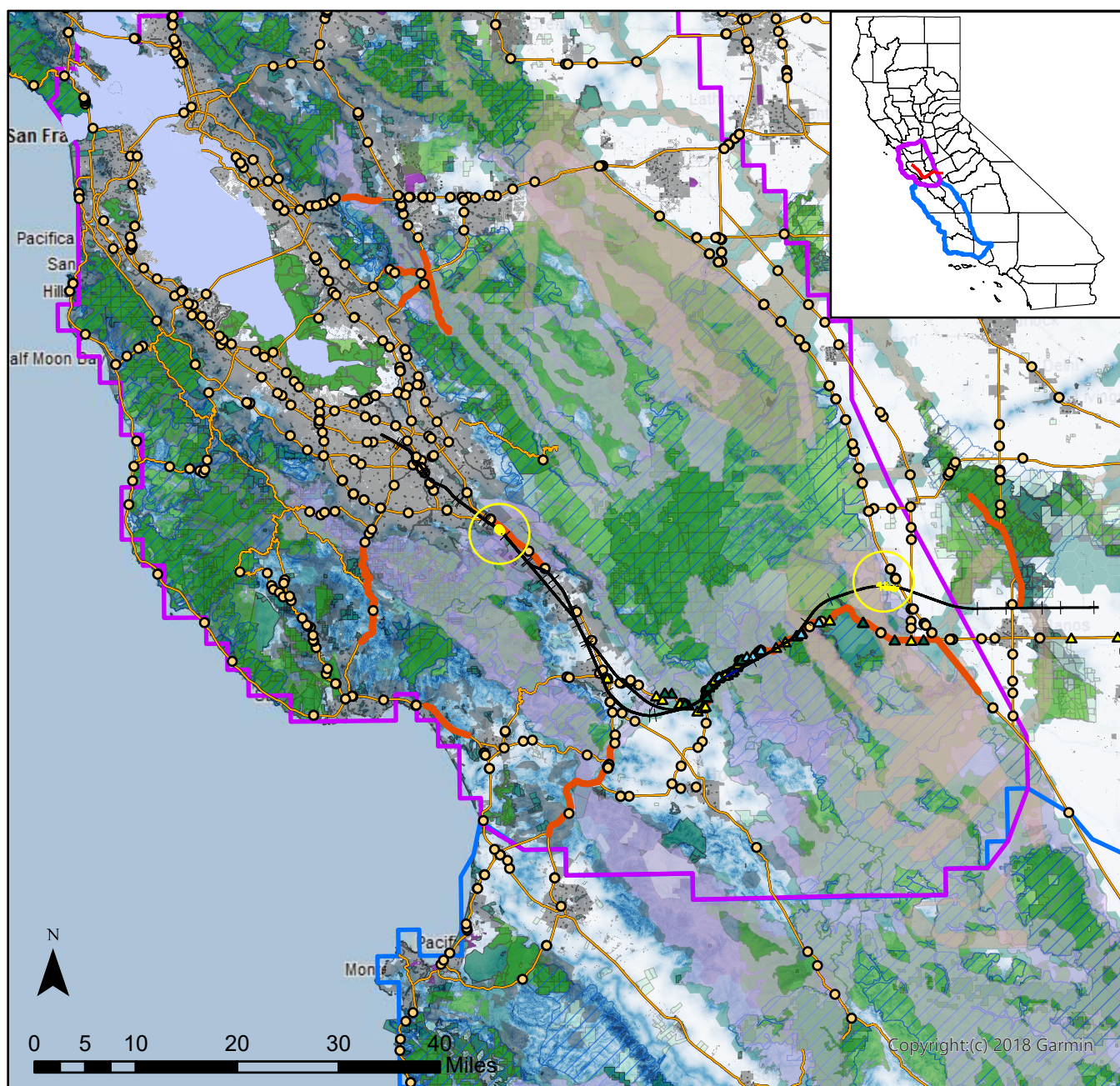
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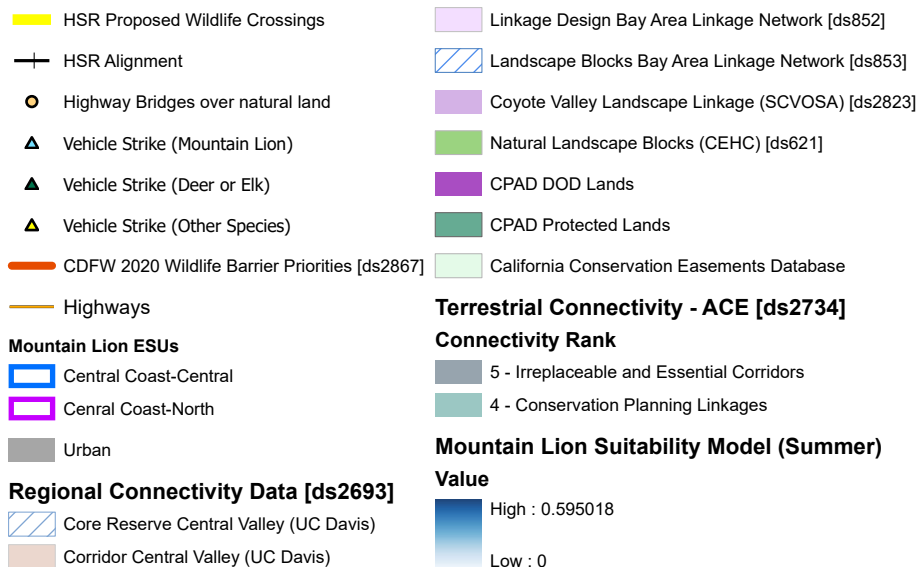
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Data sources:
 HSR Alignment and Proposed Crossings: High Speed Rail Program
 Highways and Bridges: Caltrans
 Vehicle strike locations: Pathways for Wildlife and CDFW data
 Urban: CalFire and National Landcover Dataset
 CPAD: California Protected Areas Database
 Mountain Lion Suitability Model: Dellinger et al. 2020
 Dataset numbers (e.g., ds1234) refer to the CDFW BIOS (www.wildlife.ca.gov/Data/BIOS) dataset number.



Attachment 2

**CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
RECOMMENDED MITIGATION MONITORING AND REPORTING PROGRAM
(MMRP)**

**PROJECT: California High-Speed Rail Project (San Jose to Merced
Section)**

SCH No.: 2009022083 (Revised DEIR/Supplemental DEIS)

RECOMMENDED MITIGATION MEASURE	STATUS/DATE/INITIALS
<i>Before Disturbing Soil or Vegetation</i>	
Mitigation Measure 1: ML Habitat Assessment	
Mitigation Measure 2: ML Wildlife Crossing Monitoring	
Mitigation Measure 3: ML Avoidance-Buffer for Corridor Areas	
Mitigation Measure 4: ML No Night Work in Corridor Areas	
Mitigation Measure 5: ML Avoidance Use of Rodenticides	
Mitigation Measure 6: ML Provide Dedicated Wildlife Crossings	
Mitigation Measure 8: MB Habitat Assessment	
Mitigation Measure 9: MB Surveys	
<i>During Construction</i>	
Mitigation Measure 2: ML Wildlife Crossing Monitoring	
Mitigation Measure 3: ML Avoidance-Buffer for Corridor Areas	
Mitigation Measure 4: ML No Night Work in Corridor Areas	
Mitigation Measure 5: ML Avoidance Use of Rodenticides	
Mitigation Measure 6: ML Provide Dedicated Wildlife Crossings MB Take Avoidance	
Mitigation Measure 7: ML Take Authorization	
Mitigation Measure 10: MB Take Avoidance	