State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670-4599
916-358-2900
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

November 4, 2019

Governor's Office of Planning & Research
NOV 04 2019
STATE CLEARINGHOUSE

Renée DeVere-Oki
Sacramento Area Council of Governments
1415 L St. #300
Sacramento, CA 95814

Subject: 2020 METROPOLITAN TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY (MTP/SCS; Project)
DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)
SCH# 2019049139

Dear Ms. DeVere-Oki:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Availability of a DEIR from the Sacramento Area Council of Governments (SACOG) for the MTP/SCS pursuant the California Environmental Quality Act (CEQA) statute and guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, native plants, and their habitat. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code.

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 provides, 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

[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.

example, some activities described in 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 should be obtained. CDFW also administers the Native Plant Protection Act, Natural Community Conservation Act, and other provisions of the Fish and Game Code that afford protection to California's fish and wildlife resources.

PROJECT DESCRIPTION SUMMARY

The DEIR evaluates the environmental impacts related to the adoption and implementation of the MTP/SCS for the SACOG region, including the Counties of El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba. The MTP/SCS is a long-range comprehensive plan for the region's transportation system. It includes programmed capital and operational improvements as well as maintenance and rehabilitation activities within the region's transportation system.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist SACOG in adequately identifying and, where appropriate, mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources.

Environmental Setting

Section 6.2.1 (Page 6-2) outlines Habitat Conservation Plans (HCP) used to compile land cover data in the MTP/SCS. This section does not include two Habitat Conservation Plans in the MTP/SCS area: the Natomas Basin Habitat Conservation Plan (NBHCP) and the Metro Air Park Habitat Conservation Plan (MAP HCP). CDFW recommends reviewing and incorporating data from these HCPs into the DEIR. If these data overlap with other HCPs, CDFW recommends at least including them in the list of sources in this section to provide a complete analysis.

Page 6-28 describes the South Sacramento Habitat Conservation Plan (SSHCP). CDFW recommends revising this description to state that all final permits for the SSHCP have been secured as of August 2019 and that the SSHCP is now in the implementation phase. This section also states that "[the] SSHCP will allow the County and cities of Sacramento, Rancho Cordova, and Galt to extend incidental take coverage to third parties." Please note the SSHCP was adopted for the Plan Partners (Sacramento County, the City of Rancho Cordova, and the City of Galt); the City of Sacramento is not a Plan Partner of the SSHCP and thus does not have any authority under the SSHCP. It should also be noted that participation in the SSHCP does not necessarily mean take coverage will be extended to third parties. The project proponent may receive incidental take coverage for a project's Covered Activities under this ITP only in accordance with the notification and approval procedure described in Sections 5.5, 5.6 and 5.7 of CDFW's ITP for the SSHCP (2081-2018-016-02). CDFW will still have to independently approve take coverage under a

Covered Activity Authorization if it finds that all requirements and processes in ITP Sections 5.5 and 5.6 have been met.

Table 6-1 (Page 6-4) provides total acreages for land cover types by county within the MTP/SCS Plan Area. The land cover types displayed in this table for Yolo County are inconsistent with the 2018 Final Yolo Habitat Conservation Plan/Natural Community Conservation Plan (Yolo HCP/NCCP) existing land cover types. For example, Table 6-1 shows that there is no land cover acreage for rice within Yolo County, whereas the Yolo HCP/NCCP indicates that there are 35,724 acres of rice in the Yolo HCP/NCCP plan area. One source used to develop Table 6-1 is listed as being the Yolo HCP, County of Yolo 2015. CDFW recommends reviewing the land cover types in table 6-1 and data used from the 2015 Yolo HCP throughout the DEIR for accuracy and updating with information from the final Yolo HCP/NCCP, dated April 2018.

Impacts of Construction and Operation

Page 6-31 describes potential impacts associated with the MTP/SCS. CDFW has identified additional impacts associated with the projects in the MTP/SCS that may affect biological resources:

- Increase in human usage that could result in direct habitat impact or indirect habitat degradation (e.g. litter, pollution, increased mortality due to vehicle strikes, etc.)
- Operation of equipment that could result in transfer of non-native/invasive species or plant material
- Temporary disturbance due to construction noise
- Changes to distribution or movement of wildlife
- Reduction of resources available to wildlife
- Increased habitat fragmentation
- Increased barriers to wildlife movement

CDFW recommends that the DEIR include these potential impacts.

Wildlife Movement

Roads impact wildlife in a number of ways including direct mortality from vehicle strikes, habitat fragmentation, and barriers to wildlife movement (Spencer *et al*, 2010). As the population grows and traffic increases, and as roads are widened or otherwise updated to accommodate higher use, the impacts on wildlife tend to increase (Clevenger *et al.* 2001, Jaarsma *et al.* 2006). Barriers to wildlife movement are expected to cause greater impacts as climate change impacts existing habitats and changes where animals can live (Kostyack *et al.* 2011). While the DEIR's Mitigation Measure BIO-7 addresses implementing design measures in individual projects to allow fish and wildlife to pass through movement corridors, individual projects identified in the MTP/SCS may have a cumulatively significant impact on wildlife movement which may not be identified when viewing individual projects separately.
In order to address potentially significant cumulative impacts and to help minimize the impacts of existing roads, CDFW encourages building wildlife crossing structures when

possible, in areas where wildlife movement is significantly impaired by roadways. Roads impede wildlife movement both through direct mortality from vehicle strikes and through road avoidance by animals (Forman *et al.* 2003, Fahrig and Rytwinski 2009). Therefore, some segments of roadway acting as significant barriers to wildlife movement may be identified by looking at vehicle strike data; however, it should not be assumed that a low rate of vehicle strikes is proof of a road segment's permeability to wildlife. Wildlife crossing structures allow wildlife to move over or under roadways, which increases habitat and genetic connectivity and reduces risk of injury caused by vehicle strikes both to wildlife and motorists. Wildlife movement across roads can also be improved opportunistically by including crossing-friendly design elements into maintenance and repair projects. For example, existing culverts may be replaced with larger culverts with interior shelves to allow terrestrial wildlife to pass through when water is flowing through.

Useful resources for wildlife crossing design include the Department's *"Transportation Planning Companion Plan"* associated with the State Wildlife Action Plan (CDFW 2016), the California Essential Habitat Connectivity Project (https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC), and Caltrans' "*Wildlife Crossings Guidance Manual"* (Caltrans 2009).

Mitigation Measure BIO-1a

Mitigation Measure BIO-1a refers to project-level biological resources assessments. CDFW recommends that the biological resource assessment consider not only direct impacts to habitat and species within the project footprint, but also indirect impacts to adjacent and nearby habitats and the species within them.

Mitigation Measure BIO-1b

Mitigation Measure BIO-1b includes avoidance and minimization measures for special-status plant species, including pre-construction surveys for special-status plants and compensatory mitigation for impacts to plant populations. Please note that some plant species may be present in the form of a persistent seed bank or dormant root structures even when above-ground plant growth is absent. For example, certain rare and endangered plant species occurring in El Dorado County including Stebbins' morning glory (*Calystegia stebbinsii*), Layne's butterweed (*Packera layneae*), and Pine Hill ceanothus (*Ceanothus roderickii*) are adapted to periodic wildfires and are disturbance dependent. They occur in chaparral openings, rely on fire or other disturbance to maintain their populations over time, and maintain persistent seedbanks or underground structures that resprout following disturbance. In this way they may survive undetected during periods of ecological succession (Gogol-Prokurat 2011). Because these plants are restricted to a small area of gabbro and serpentine soils, plant populations are often significantly adversely impacted by impacts to their habitat even if the plants themselves are not visibly present at the time of the impact. CDFW recommends that project-level biological resource assessments consider and appropriately mitigate impacts to limited and specialized habitat types such as gabbro soils, even in cases where special-status plant species are not detected during surveys.

Mitigation Measure BIO-1c

Coordination with CDFW
Mitigation Measure BIO-1c provides avoidance, minimization, and mitigation measures for special-status wildlife species that have a potential to occur within the plan area. Species-specific avoidance and minimization measures are provided for various amphibians, reptiles, birds and mammals. Many of these avoidance measures include coordination with regulatory wildlife agencies. However, some of the avoidance measures only include coordination with the U.S. Fish and Wildlife Service (USFWS). This may be adequate for species that are exclusively protected under the Federal Endangered Species Act, but for species that are protected under CESA or otherwise hold a state special status, the DEIR should require coordination with CDFW.

The DEIR should also require compliance with CESA which may include avoidance or the approval of CDFW for take authorization and compensatory mitigation for CESA-listed species. For example, the avoidance and minimization measures identified for giant garter snake (*Thamnophis gigas*) include coordination with CDFW, but the compensatory mitigation only includes the purchase of credits at a USFWS-approved conservation bank. In order to fully mitigate potential impacts to CESA-listed species, CESA Incidental Take Permits (ITPs) typically require mitigation credit purchases to come from a CDFW-approved mitigation or conservation bank. Therefore, in order to avoid double mitigation for projects that may require CESA compliance, CDFW recommends that project proponents obtain CESA take authorization and consult with CDFW early in the process to verify that their proposed mitigation will be acceptable prior to making any mitigation credit purchases.

Holes and Trenches
Minimization measures for trenches and holes within the impact area are provided and require covering and daily inspections. The DEIR identifies different depths of holes or trenches that require covering or monitoring for different species. CDFW recommends these depths be consistent throughout all avoidance and minimization measures. The shallowest depth identified in the DEIR for holes and trenches requiring covering and daily monitoring is six (6) inches. CDFW recommends that this depth be applied to all projects and species covered under this DEIR.

Wildlife species not included in BIO-1c
CDFW has identified several state and/or federally listed or candidate wildlife species that may occur within the MTP/SCS area but are not included in this section, including:

- tricolored blackbird (*Agelaius tricolor*) [state threatened]
- western snowy plover (*Charadrius nivosus nivosus*) [federally threatened]
- riparian brush rabbit (*Sylvilagus bachmani riparius*) [state endangered]
- salt-marsh harvest mouse (*Reithrodontomys raviventris*) [state and federally endangered]
- longfin smelt (*Spirinchus thaleichthys*) [state threatened]
- Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) [federally threatened]
- eulachon (*Thaleichthys pacificus*) [federally threatened]

- Crotch bumble bee (*Bombus crotchii*) [state candidate endangered]
- western bumble bee (*Bombus occidentalis*) [state candidate endangered]

Impacts to these species may be considered significant, and CDFW recommends including species-specific avoidance measures whenever possible and if impacts cannot be avoided proposing appropriate and enforceable minimization and mitigation measures.

Bats
Avoidance measures for bats include a preconstruction bat survey no more than 14 days prior to the start of construction to be performed by a qualified biologist. However, CDFW recommends that habitat assessments within the project area for potentially suitable habitat be performed by a qualified bat biologist within six (6) months prior to project-related activities. The habitat assessment should assess the entire project area and a 500-foot buffer adjacent to these areas for potential bat habitat. If suitable habitat exists within the project area, then more thorough surveys should be performed by the qualified bat biologist to determine the presence of bats and types of bat roosts present. CDFW recommends that a minimum of 3 external surveys within a 7-day time period with no detection of bats be performed by the qualified bat biologist before an internal survey is considered. If bat exclusion measures are required CDFW recommends they be implemented prior to project-related activities during the period of March 1 to April 15 (prior to formation of maternity colonies and when nighttime temperatures no longer dip below 45°F) or August 31 to October 15 (prior to hibernation when young are self-sufficiently volant and before nighttime temperatures fall below 45°F). CDFW also recommends that projects under this DEIR incorporate in-kind replacement habitat (suitable vegetation, crevice, panel, collar, capped-edge drain, bat boxes, bat houses) for bats in consultation with a qualified bat biologist with experience in designing bat habitat. If the in-kind replacement habitat cannot be implemented prior to the exclusion, CDFW recommends that alternate habitat be in-place prior to exclusion to offset temporal habitat loss.

California Tiger Salamander (CTS; Ambystoma californiense)
Bullet 3 of the CTS section of Mitigation Measure Bio-1c states that if CTS are found on a project site, then they will be relocated to the nearest burrow that is outside the area of impact. CDFW is concerned that this measure will be too restrictive for potential relocations since the "nearest burrow" may not serve the ecological needs of the CTS. CDFW recommends revising this measure to state that relocation will be to the nearest suitable burrow, as determined by the qualified biologist. As it relates to relocation, CDFW also recommends including a reference or outline of an established relocation methodology.

CDFW recommends strengthening bullet 5 of the CTS section of Mitigation Measure Bio-1c by describing refuge opportunities such as coverboards along the fence. Although weekly fence integrity checks may be adequate, fences should be checked daily (typically morning and evening) to minimize potential for animals to be trapped on the fence line. This also increases the potential for successful relocation by keeping migration disruption to a minimum. Typically, successful fences are at least 3-feet tall and buried at least 6-inches below ground.

Bullets 5 and 6 of the CTS section of Mitigation Measure Bio-1c describe the CTS migration season as November 1 to May 31. CDFW recommends revising this window to start at October 15 (depending on rainfall) and also recommends that timing of project activities consider the metamorph dispersal period (typically May-August with a peak in June).

CDFW recommends including the following additional avoidance and minimization measures:

- Minimize potential barriers to CTS movement such as curbs and edges greater than 3-inches in suitable CTS habitat to the extent feasible
- Minimize work in periods with the greatest potential for CTS encounters. These time periods are typically during nights with potential for rain events
- Minimize work within 820-feet of a breeding pond during the metamorph dispersal period
- Minimize small mammal control that may adversely affect burrow habitat CTS (i.e. rodenticides and collapsing of burrows)

Swainson's hawk (Buteo swainsoni)
CDFW recommends including mitigation for potential loss of foraging habitat in addition to the mitigation outlined for loss of nesting trees. Although many projects within the MTP/SCS may primarily impact nesting habitat, some may permanently impact foraging habitat as well.

Other Special-Status Raptors
Bullets 1 and 2 of the Other Special-Status Raptors section of Mitigation Measure BIO-1c refer to surveys of the area of impact and within 500 feet of the area of impact. Sensitive raptor species may be adversely impacted by construction noise and disturbance at a greater distance than 500 feet (Richardson and Miller 1997). Because project activities may impact several fully protected species (e.g. white-tailed kite [*Elanus leucurus*]), CDFW recommends using a survey radius of at least 0.25-mile in suitable habitat areas for these species.

American Badger (Taxidea taxus)
Bullet 3 of the American Badger section of Mitigation Measure BIO-1c refers to an exclusion zone around occupied American badger burrows. CDFW recommends that the exclusion zone include an active movement corridor between the exclusion zone and adjacent suitable habitat for the animal. This serves to allow the animal to leave the construction area independently.

Special-Status Fish
CDFW recommends including other special-status fish with potential to occur within the MTP/SCS area in this section. Such species include but are not limited to longfin smelt (federal candidate, state threatened) and green sturgeon (*Acipenser medirostris*) [federally threatened, California Species of Special Concern].

Some projects identified in the MTP/SCS may include pile driving, which may injure fish (Halvorsen *et al.* 2012). As such, CDFW recommends including avoidance and minimization measures for this activity in the section. Such measures can include but are not limited to soft starts, hydroacoustic monitoring, decibel restrictions, and construction timing (i.e. limiting the amount of strikes per day).

Mitigation Measure BIO-3

This mitigation measure provides for compensatory mitigation for the permanent loss of riparian and oak woodland habitat at a sufficient ratio for no net loss of habitat function or acreage through onsite or onsite restoration/creation. The DEIR requires a Stream and Riparian Mitigation and Monitoring Plan for restoring/creating in-kind habitat for projects with permanent impacts to these habitats. The DEIR includes success criteria for trees that will be planted for riparian and oak woodland habitats but does not include other plant communities that are associated with these communities (e.g. shrub and herbaceous layers). CDFW recommends including shrub and herbaceous layers associated with riparian and oak woodland habitat restoration/creation into the DEIR and requiring success criteria for their establishment success.

CDFW recommends incorporating the following information about Lake and Streambed Alteration Agreements into the DEIR:

For any activity that will substantially divert or obstruct the natural flow of or substantially change or use any material from the bed, channel or bank of any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, the project applicant (or "entity") must provide written notification to CDFW pursuant to section 1602 of the Fish and Game Code. Based on this notification and other information, CDFW then determines whether a Lake or Streambed Alteration (LSA) Agreement is required. The Department's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). CDFW recommends entities notify pursuant to section 1602 of the Fish and Game Code as early as possible, as modification of the proposed project may avoid or reduce impacts to fish and wildlife resources. To obtain a Lake or Streambed Alteration notification package, please go to https://www.wildlife.ca.gov/Conservation/LSA/Forms.

The following information will be required for the processing of a Notification of Lake or Streambed Alteration:

1) Identification and mapping of any perennial, intermittent, and ephemeral rivers, streams, and lakes within the project footprint and any associated fish and wildlife habitats (e.g., riparian habitat, wetlands, floodplains, etc.) that will be temporarily and/or permanently impacted by the proposed project. An estimate of the area of impact to each habitat type should be included
2) A proposal of mitigation measures to avoid, minimize, and mitigate impacts to fish and wildlife resources

CDFW's evaluation of streams, lakes, rivers, and wetlands differs from that of other agencies such the U.S. Army Corps of Engineers (USACE) or the Regional Water Quality

Control Board and may be more expansive than other agencies' definitions. All perennial, intermittent, and ephemeral rivers, streams, and lakes, including ponds and drainages, in the state, and any habitats supported by these features such as wetlands and riparian habitats should be identified and mapped separately from the methods that the USACE uses to determine waters of the U.S. and the ordinary high water mark. Project-related activities that may result in temporary, permanent, direct, indirect, and/or cumulative impacts to the above-mentioned features and associated biological resources/habitats may require Notification under section 1602 of the Fish and Game Code.

Mitigation Measure BIO-7

CDFW recommends coordination with the implementing entity (e.g. South Sacramento Conservation Agency) for the SSHCP when potential MTP/SCS projects may impact wildlife movement corridors or otherwise impact preserve strategies.

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 the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is 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 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.)

CONCLUSION

Pursuant to Public Resources Code § 21092 and § 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the proposed project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670 or emailed to R2CEQA@wildlife.ca.gov.

CDFW appreciates the opportunity to comment on the DEIR to assist in identifying and mitigating Project impacts on biological resources. CDFW personnel are available for

consultation regarding biological resources and strategies to minimize and/or mitigate impacts. Questions regarding this letter or further coordination should be directed to Gabriele Quillman, Environmental Scientist at (916) 358-2955 or gabriele.quillman@wildlife.ca.gov.

Sincerely,

Kevin Thomas
Regional Manager

ec: Kelley Barker, kelley.barker@wildlife.ca.gov
Gabriele Quillman, gabriele.quillman@wildlife.ca.gov
Ian Boyd, ian.boyd@wildlife.ca.gov
Dylan Wood, dylan.wood@wildlife.ca.gov
Department of Fish and Wildlife

Office of Planning and Research, State Clearinghouse, Sacramento

REFERENCES

Caltrans, 2009. *Wildlife Crossings Guidance Manual.* Prepared by Robert J. Meese, Fraser M. Shilling, and James F. Quinn.

County of Sacramento, City of Rancho Cordova, City of Galt, Sacramento County Water Agency, Sacramento Regional County Sanitation District, and the Southeast Connector Joint Powers Authority. 2018. *Final South Sacramento Habitat Conservation Plan*. January 2018. Sacramento, CA.

CDFW, 2016. *California State Wildlife Action Plan, Transportation Planning Companion Plan*. Prepared by Blue Earth Consultants, LLC., Sacramento, CA.

Clevenger AP, Chruszcz B, Gunson K. 2001. *Drainage culverts as habitat linkages and factors affecting passage by mammals*. Journal of Applied Ecology, 38(6), pp. 1340-1349.

Fahrig L, Rytwinski T. 2009. *Effects of roads on animal abundance: an empirical review and synthesis*. Ecology and Society 14(1): 21.

Foreman RT, Sperling D, Bissonette JA, Clevenger AP, Cutshall CD, Dale VH, Fahrig L, France R, Goldman CR, Heanue K, *et al.* 2002. *Road Ecology: Science and Solutions.* Washington, D.C.: Island Press.

Gogol-Prokurat M. 2011. *Predicting habitat suitability for rare plants at local spatial scales using a species distribution model.* Ecological Applications, 21(1), pp. 33-47.

Halvorsen MB, Casper BM, Woodley CM, Carlson TJ, Popper AN. 2012. *Threshold for Onset of Injury in Chinook Salmon from Exposure to Impulsive Pile Driving Sounds.* PLoS ONE 7(6): e38968. https://doi.org/10.1371/journal.pone.0038968.

Jaarsma CF, Van Langevelde F, Botma H. 2006. *Flattened fauna and mitigation: traffic victims related to road, traffic, vehicle, and species characteristics.* Transportation Research Part D-Transport and Environment, 11(4), pp. 264– 276.

Kostyack J, Lawler JJ, Goble DD, Olden JD, Scott JM. 2011. *Beyond Reserves and Corridors: Policy Solutions to Facilitate the Movement of Plants and Animals in a Changing Climate*. BioScience, 61(9), pp 713-719.

Richardson CT, Miller CK. 1997. *Recommendations for Protecting Raptors from Human Disturbance: A Review.* Wildlife Society Bulletin 25(3), pp. 634-638. https://www.jstor.org/stable/3783512

Spencer WD, Beier P, Penrod K, Winters K, Paulman C, Rustigian-Romsos H, Strittholt J, Parisi M, Pettler A. 2010. *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California*. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.

Yolo Habitat Conservancy. 2018. *Final Yolo Habitat Conservation Plan/Natural Community Conservation Plan, Volume 1.* April 2018. Prepared by ICF, Sacramento, CA.