Appendix N Biological Opinion

The Biological Opinion for the SR-91 CIP provided in this appendix was issued by the USFWS in the November 30, 2011, letter ("Formal and Streamlined Section 7 Consultation for State Route 91 Corridor Improvement Project, Orange and Riverside Counties, California") (31 pages).

This page intentionally left blank

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-OR/WRIV-08B0733-11F0547

NOV 30 2011

Mr. Aaron Burton
Department of Transportation
District 8
Environmental Planning (MS 823)
464 West 4th Street, 6th Floor
San Bernardino, California 92401-1400

Subject: Formal and Streamlined Section 7 Consultation for State Route 91 Corridor Improvement Project, Orange and Riverside Counties, California

Dear Mr. Burton:

The U.S. Fish and Wildlife Service (Service) received the California Department of Transportation's (Caltrans) request dated June 21, 2011, on June 23, 2011, to initiate formal consultation for the State Route (SR) 91 Corridor Improvement Project (Project). The consultation addresses the effects of the Project on the federally endangered Braunton's milk-vetch (*Astragalus brauntonii*) and its designated critical habitat, least Bell's vireo (*Vireo bellii pusillus*, vireo), southwestern willow flycatcher (*Empidonax traillii extimus*), and Stephens' kangaroo rat (*Dipodomys stephensi*, SKR); and the federally threatened Santa Ana sucker (*Catostomus santaanae*) and coastal California gnatcatcher (*Polioptila californica californica*, gnatcatcher) and its designated critical habitat, in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*).

The Project is receiving Federal funding through the Federal Highway Administration (FHWA), and Caltrans has assumed FHWA's responsibilities under the Act for this consultation in accordance with Section 6005 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) 2005, as described in the National Environmental Policy Act Delegation Pilot Program Memorandum of Understanding between FHWA and Caltrans (effective July 1, 2007) and codified in 23 U.S.C. 327(a)(2)(A).

Application for section 404 permits under the Clean Water Act will be necessary for the Project. Caltrans, in concurrence with the U.S. Army Corps of Engineers (Corps), is the responsible lead Federal Agency acting on the Corps' behalf to ensure the impacts associated with the Corps' Federal action are addressed under the Act.

On June 22, 2004, we issued a section 10(a)(1)(B) permit for the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). The MSHCP establishes a multiple

species conservation program in western Riverside County to minimize and mitigate habitat loss and the incidental take of covered species in association with activities covered under the permit. A large portion of the Project is located within the plan area boundary of the MSHCP. As a permittee under the MSHCP, Caltrans received incidental take authorization for Santa Ana sucker, vireo, southwestern willow flycatcher, gnatcatcher, and SKR through their section 10(a)(1)(B) permit for that plan. To extend the take coverage provided to Caltrans via the MSHCP, the proposed action must be consistent with the MSHCP and its associated implementation agreement and permit. A discussion of the Project's consistency with the MSHCP is discussed in the "Description of the Proposed Action" section below.

The Riverside County portion of the Project is also located within the plan area boundary of the Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County, California (March 1996) (SKR HCP). Within this plan area boundary, take of SKR is addressed under the SKR HCP. While neither Caltrans nor FHWA are permittees under the SKR HCP, incidental take coverage provided to the Riverside County Habitat Conservation Agency (RCHCA) by the SKR HCP can be extended to Caltrans acting as the FHWA designee where the proposed action is consistent with the SKR HCP and its associated implementation agreement and permit. A discussion of the Project's consistency with the SKR HCP is discussed in the "Description of the Proposed Action" section below.

This biological opinion is based on information provided in the following documents: *Biological Assessment for the SR-91 Corridor Improvement Project* (June 2011) (BA); response to Service comments on the BA for the SR-91 Project; *MSHCP Consistency Determination for the SR-91 Corridor Improvement Project* (April 2011); *Supplemental Environmental Assessment and Addendum to Environmental Impact Report 583 for the Santa Ana River Mainstem Project Reach 9, Phase 2A* (March 2011); *Intra-Service Formal Section 7 Consultation/Conference for Issuance of Endangered Species Act Section 10(a)(1)(B) Permit TE-088609-0 for the Western Riverside County Multiple Species Habitat Conservation Plan dated June 22, 2004* (FWS-WRIV-870.19) (Service 2004); and various other communications between Caltrans, their consulting biologists, and Service.

You have determined the Project may affect, but is not likely to adversely affect Braunton's milk-vetch and its designated critical habitat, southwestern willow flycatcher, and Santa Ana Sucker based on avoidance of occupied habitat and general construction avoidance and minimization measures to avoid indirect effects from construction. Based on the conservation measures to be implemented by Caltrans and Riverside County Transportation Commission (RCTC), we concur with your determination that the Project is not likely to adversely affect the milk-vetch and its designated critical habitat, southwestern willow flycatcher, and Santa Ana Sucker. Therefore, those species are not addressed further in this formal consultation, other than as discussed in the Conservation Measures section. Additionally, you have determined there would be no effect to vireo and SKR in Orange County based on avoidance of occupied habitat and general construction avoidance and minimization measures to avoid indirect effects from construction. Adverse impacts to the gnatcatcher in Orange County will be addressed in the

following biological opinion. Adverse impacts to the gnatcatcher, vireo, and SKR in Riverside County are addressed through compliance with the MSHCP and SKR HCP as discussed below.

CONSULTATION HISTORY

On February 18, 2011, we provided comments on the draft BA for the Project. On June 23, 2011, we received a letter from Caltrans requesting formal consultation, and on July 19, 2011, we responded to the request and committed to completing the biological opinion by November 5, 2011. Between June 2011 and October 2011, we attended several project status meetings and worked directly with Caltrans and the biological consultant to clarify the project description and impacts to the gnatcatcher and its designated critical habitat. We provided a draft project description to your agency and the RCTC on September 13, 2011. On October 20, 2011, we attended a site visit to clarify impacts and conservation measures. We received information regarding quantification of impacts and additional conservation measures from Caltrans and Chino Hills State Park on October 24 and 28, 2011.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The proposed action by FHWA is the funding of capacity, operational, and safety improvements along SR-91 and Interstate 15 (I-15). The Project occurs along SR-91 from SR-241 in Anaheim and Yorba Linda to Pierce Street in the city of Riverside, a distance of approximately 14 miles, and on I-15, from the Hidden Valley Parkway interchange to the Cajalco Road interchange, a distance of approximately 6 miles. The Project encompasses a large area and passes through mostly urban settings consisting of residential, industrialized warehouses, and commercial businesses that front the existing freeways. Large undeveloped parcels of land occur at the western end of the Project Biological Study Area[1] (BSA), and agricultural fields remain in use along I-15. The BSA supports suitable habitat for a variety of special status animal and plant species largely within or adjacent to an urban environment (see BA figures in Appendix H).

The Project will add a general-purpose lane in each direction on SR-91 from the SR-91/SR-241 interchange in Anaheim and Yorba Linda to Pierce Street in Riverside. The existing high-occupancy vehicle lanes on SR-91 between the Orange/Riverside County line and Pierce Street will be converted to tolled express lanes, and an additional tolled express lane in each direction will be constructed to I-15. The existing express lanes in Orange County will also be extended east from the Orange/Riverside County line to I-15 in Corona. A single eastbound SR-91 express lane also will extend past I-15 to McKinley Street and then transition back to a high-occupancy vehicle lane at Pierce Street.

[1] The BSA for the Project was determined by incorporating electronic data provided by the design engineer into a geographic information system (GIS) layout, which included areas of potential direct effect. The limits of the BSA were extended 500 feet beyond the expected Project direct effect limits to identify sensitive biological resources within and immediately adjacent to the Project limits to account for indirect effects to those resources.

One tolled express lane also will be added to I-15 in each direction from Cajalco Road to Hidden Valley Parkway, and tolled express lane direct connectors will be constructed from northbound I-15 to westbound SR-91, from eastbound SR-91 to southbound I-15, from eastbound SR-91 to northbound I-15, and from southbound I-15 to westbound SR-91. Table 1.7 in the BA summarizes existing conditions and potential build-out conditions along SR-91 and I-15.

The Project includes ground-disturbing activities (e.g., grading, cutting, filling) and a number of modifications, replacements, or installations of bridges, retaining walls, sound walls, and major drainage structures and culverts. The Project will permanently impact approximately 348 acres (ac) and temporarily impact approximately 155 ac of land supporting the vegetation communities and developed/disturbed areas summarized in Table 1.

Construction vehicle access and staging of construction materials will occur within disturbed or developed areas inside the existing Caltrans right-of-way (ROW) or proposed additional ROW. Vehicle access and materials staging during construction of walls outside and adjacent to the ROW will occur in approved designated areas. Equipment maintenance and staging will be in designated areas away from wildlife corridor entrances. All construction vehicle access, materials staging and storage, and other construction activities will occur within the defined disturbance limits for the Project. To the extent feasible, construction activities in biologically sensitive areas, MSHCP Conservation Areas, vegetated drainages, and coastal sage scrub in gnatcatcher critical habitat will be limited to the hours of 7:00 a.m. and 7:00 p.m.; if nighttime work is necessary, the contractor will be required to coordinate with the Service and California Department of Fish and Game (hereafter referred to as the Wildlife Agencies). Additionally, if construction occurs at night, lighting will be directed away from wildlife corridors and other biologically sensitive areas. To the extent feasible, nighttime construction activities will be limited to 1,000 feet (ft) from the Coal Canyon, Fresno Canyon, and Wardlow Wash underpass entrances to avoid adverse lighting and noise impacts to existing wildlife corridors.

The Project will undertake a design-build approach to design and construction. The design-build approach integrates final design and construction activities so they occur simultaneously, thereby reducing the time between completion of the environmental process and the start of construction because one contractor is responsible for designing and building the entire project. The design-build process generally provides for flexibility not offered by the traditional process. Ideally, this process should minimize changes to the highway design and result in a shorter construction timeframe. Because the final design is fluid, Project impacts were based on the worst-case scenario to account for all possible impacts to listed species.

Bridges

The Project will involve modifications or replacement of approximately 24 bridge structures. Most of the bridge work involves widening the bridge structure to accommodate the freeway widening (20 structures). Also eight new bridges will be constructed. Some of the existing bridges that will be widened will also be seismically retrofitted. Bridge construction is summarized in Table 1.1 of the BA (pages 7-8).

Table 1: Impacts to Vegetation Communities and other Landscape Features, by County

Permanent Impacts			
Vegetation Community	**Acres in Orange County**	**Acres in Riverside County**	**Total Acres**
Coastal Sage Scrub	4.25	31.20	35.45
Chaparral	2.96	0.38	3.34
Riparian Forest	0.01	0.46	0.47
Nonnative Grassland	1.20	6.03	7.23
Oak Woodland	0.00	0.02	0.02
Mixed Ruderal and Ornamental	3.64	113.32	116.96
Developed	7.01	176.97	183.98
Subtotal	***19.07***	***328.38***	***347.45***
Temporary Impacts			
Coastal Sage Scrub	1.29	8.02	8.04
Chaparral	0.71	1.30	1.70
Riparian Forest	0.34	0.72	1.29
Nonnative Grassland	0.67	3.63	4.16
Oak Woodland	0.00	0.50	0.50
Mixed Ruderal and Ornamental	1.58	36.65	36.87
Developed	0.81	102.11	102.33
Subtotal	***5.40***	***152.93***	***154.89***
Grand Total	**24.47**	**481.31**	**502.34**

Retaining Walls

Several retaining walls are required to retain fill or cut slopes along the segments SR-91 and I-15. The approximate wall locations and average heights for project-related retaining walls are listed in Table 1.2 of the BA (pages 8-10).

Sound Walls

Existing sound walls on the north side of SR-91 near the SR-91/SR-241/Gypsum Canyon Road interchange will remain unchanged. Several new or replacement sound walls on SR-91 and I-15 are summarized in Table 1.3 of the BA (pages 10-12).

Major Drainage Facilities

Over 100 major drainage structures and numerous inlets and contributory structures, which contribute to the drainage structure (e.g., headwalls, drop structures, pipe inlets outlets) will

either be protected in place, partially abandoned, or extended. The affected drainage/culvert structures and how they will be modified are summarized in Table 1.4 of the BA (pages 12-14).

Utilities

Several known utility facilities occur within the Project limits. Some existing utility facilities will only require encasement or protection in-place during construction. However, the relocation of some existing utility facilities will be necessary to accommodate new construction. Table 1.5 in the BA (pages 15-17) summarizes the anticipated utility relocations.

Soil Balance

The Project will alter existing landforms due to grading and cut-and-fill slopes. Grading will be limited and retaining walls will be used in many locations to minimize cut and fill. No permanent, large cut slopes will be required. Areas where the widening will encroach into existing slopes will be accommodated by constructing new retaining walls.

The soil and rock material excavated or cut during construction of the SR-91 Project will be used as fill elsewhere in the project construction. Because cut activities are expected to be minimal, up to an additional 748,000 cubic yards of soil material may need to be imported to the Project site in areas needing additional fill material.

Landscaping and Irrigation Systems

Caltrans Districts 8 and 12 will provide guidance on plant material selection and hardscape elements that consider water use, ease and safety of maintenance, avoidance of nonnative plants, corridor continuity, local cultural integration, and other context-sensitive factors. Planting plans will be included as part of the design-build process that incorporate these elements. For each phase of construction, the needed replacement planting will be under construction within 2 years of acceptance of the highway contract that damaged or removed the existing planting. The planting plan will consist of replacement planting for existing trees, shrubs, and groundcover and/or hydroseed that will be appropriate to the area and enhance the existing native species and plant communities. Irrigation work will consist of new irrigation systems as required for establishment of the replacement planting. Replacement planting will include no less than 3 years of plant establishment. Improvement along I-15 will be constructed in the median. No landscaping or irrigation now exists in the median on I-15 within the Project limits, and none is proposed for this Project.

Right-of-Way Acquisition

A limited number of areas located outside of the existing ROW may be used as temporary and permanent easements during and after the construction of the Project. A total of 10 temporary construction easements (TCEs) will be needed in the Orange County segment. Of the 10 parcels requiring TCEs, 2 of these parcels will also require permanent easements for continued

maintenance of project improvements. The areas needed for TCEs range from approximately 2,642 square feet (sf) to 27,769 (sf). All temporary and permanent easements are necessary for the construction of Project improvements, including proposed utility relocations and drainage improvements.

Railroad

A railroad agreement will be negotiated between Caltrans and the Burlington Northern Santa Fe railroad for widening of the West Prado Overhead and to accommodate the SR-91 westbound off-ramp realignment to Green River in Riverside County, including aerial easements over the railroad ROW. Falsework posts will need to be located within the railroad ROW line. The structure type has been configured to minimize the effect on the railroad.

Santa Ana River

Because the Corps is in the process of relocating the segments of the Santa Ana River (SAR) as part of the unrelated SAR Reach 9 Phase 2B Realignment, the Project will not directly affect the SAR. The SAR Reach 9 Phase 2B Realignment is relocating segments of the SAR far enough away from the existing SR-91 to accommodate the widening of SR-91. However, perennial stream restoration through the Green River Golf Course to reestablish habitat for the Santa Ana sucker to offset adverse impacts from the SAR Reach 9 Phase 2B Realignment project will have been conducted prior to construction of the Project. Caltrans will coordinate with the Corps during construction of the Project to ensure these restoration areas will not be temporarily or permanently impacted during Project construction.

Project Phasing

The Project will be constructed in several phases over a 20-year period beginning with the Initial Project starting in 2015 and culminating in the Ultimate Project ending in 2035. The proposed phasing plans are based on the anticipated funding. The phasing plans provide for meaningful improvements, with each phase providing additional benefits to travelers on SR-91 and/or I-15. Conservation measures for the entire Project will be implemented with the Initial Project starting in 2015. Table 1.6 in the BA summarizes the conceptual phasing plan and provides detailed descriptions of the Initial Project and Ultimate Project.

Action Area

According to 50 CFR § 402.02 pursuant to section 7 of the Act, the "action area" means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area. For this Project, we have defined the action area to include the 348-ac permanent and 155-ac temporary direct impact areas, and surrounding habitat within about 500 ft (approximately 343 ac) that may be exposed to project-related effects such as increased noise, light, dust levels, and human activity during Project

construction and operation of the facilities (Forman and Deblinger 2000). The action area also includes the approximate 16-ac Chino Hills State Park restoration area in Scully Hill Canyon.

General Conservation Measures

Caltrans and RCTC have agreed to implement the following conservation measures as part of the proposed action to avoid, minimize, and offset impacts to listed species.

1. Prior to ground disturbing activities, Caltrans will identify an individual as the Designated Biologist[2]. Caltrans will ensure the Designated Biologist position is always filled for the life of the Project. Over the course of the Project, the Designated Biologist and each successive Designated Biologist (if applicable) will be approved by the Wildlife Agencies. The Designated Biologist will have the authority to ensure compliance with conservation measures and will be the primary agency contact for implementation of these measures. The Designated Biologist will have the authority and responsibility to halt activities that are in violation of the conservation measures.

2. Prior to vegetation clearing or construction, highly visible barriers (e.g., orange construction fencing) will be installed and maintained around areas such as gnatcatcher and Braunton's milk-vetch designated critical habitat, riparian and riverine communities, and wildlife movement corridors adjacent to the Project footprint to designate Environmentally Sensitive Areas (ESAs) to be avoided. No grading or fill activity of any type will be permitted within these ESAs. In addition, no construction activities, materials, or equipment will be allowed within the ESAs. All construction equipment will be operated to prevent accidental damage to ESAs. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within ESAs. Silt fence barriers will be installed at the ESA boundaries to prevent accidental deposition of fill material in areas where ESAs are immediately adjacent to planned grading activities.

3. To minimize adverse effects from light intrusion from vehicle headlights and the potential threat of increased fires from the operation of SR-91 during final design, Caltrans and RCTC will work with the Service to investigate the possibility of adding features along SR-91 in the vicinity of the Coal Canyon wildlife crossing. For example, consideration will be given to the placement of k-rail, concrete walls, and/or hardscaping barriers along the shoulder of SR-91. In investigating these features, consideration must be given to motorist safety, freeway operations, vehicle headlight mitigation, and the potential fire threat.

4. To minimize adverse effects from dust, the construction contractor will ensure that all active parts of the construction site are watered a minimum of twice daily or more often when

[2] A qualified Designated Biologist must have (1) a bachelor's degree with an emphasis in ecology, natural resource management, or related science; (2) 3 years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; (3) previous experience with applying the terms and conditions of a biological opinion; and (4) the appropriate permit and/or training if conducting focused or protocol surveys for listed species.

needed due to dry or windy conditions to prevent excessive amounts of dust. Additionally, the construction contractor will ensure that all material stockpiled is sufficiently watered or covered to prevent excessive amounts of dust.

5. Erosion and sediment control devices used for the Project, including fiber rolls and bonded fiber matrix, will be made from biodegradable materials such as jute, with no plastic mesh, to avoid creating a wildlife entanglement hazard.

6. All equipment maintenance, staging, and dispensing of fuel, oil, or any other similar activities will occur in developed or designated non-sensitive upland habitat areas. The designated upland areas will be located to prevent any spill runoff from entering waters of the United States.

7. To avoid effects to nesting birds, any native vegetation removal or tree (native or exotic) trimming activities will occur outside of the bird breeding season (i.e., February 15 to September 15). In the event that vegetation clearing is necessary during the nesting season, the Designated Biologist must conduct a preconstruction survey within 300 ft of construction areas, no more than 7 days prior to construction, to identify the locations of nests. Should nesting birds be found, an exclusionary buffer of 300 ft will be established by the Designated Biologist around each nest site. This buffer will be clearly marked in the field by construction personnel under guidance of the Designated Biologist, and construction or clearing will not be conducted within this zone until the Designated Biologist determines that the young have fledged or the nest is no longer active. In the event that construction must occur within the 300 foot buffer, the Designated Biologist will take steps to ensure that construction activities do not disturb or disrupt nesting activities. If the Designated Biologist determines that construction activities are disturbing or disrupting nesting activities, the Designated Biologist will notify the Resident Engineer, who has the authority to halt construction to reduce the noise and/or disturbance to the nests. Responses may include, but is not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest and the construction activities, or working in other areas until the young have fledged.

8. The construction contractor will be required to control noise from construction activity consistent with Caltrans Standard Specifications, Section 14-8.02, "Noise Control," and the Caltrans Standard Special Provisions S5-310. Noise levels from construction operations within the ROW between the hours of 9:00 p.m. and 6:00 a.m. will not exceed 86 A-weighted decibels (dBA) at a distance of 50 ft. The noise level requirement will apply to the equipment on the job site or related to the job, including, but not limited to trucks, transit mixers, or transient equipment that may or may not be owned by the contractor.

9. In biologically sensitive areas, MSHCP Conservation Areas, vegetated drainages, and coastal sage scrub in designated critical habitat for the gnatcatcher, the construction contractor will be required to control noise from construction activity by using an alternative warning method instead of a sound signal unless required by safety laws. In addition, the contractor

will equip all internal combustion engines with the manufacturer-recommended mufflers and will not operate any internal combustion engine on the job site without the appropriate mufflers. As directed by RCTC, the contractor will implement appropriate additional noise mitigation measures, including changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources.

10. In accordance with the Municipal Codes of the Cities of Anaheim, Corona, Riverside, and Norco, the construction contractor will be required to limit construction activities to between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, excluding weekends and holidays. If construction is needed outside those hours or days, the construction contractor will be required to coordinate with the affected local jurisdiction. If the local jurisdiction approves construction hours that are different from those imposed by this measure, then the construction contractor will immediately request that RCTC consider a modification to this measure in accordance with the California Environmental Quality Act to allow construction during the new hours that the local jurisdiction approved.

11. In major wildlife movement corridors (i.e., Coal Canyon, Wardlow Wash, and Fresno Canyon) and areas adjacent to vireo and gnatcatcher occupied areas (approximately Post Mile (PM) ORA-91-R17.16 to PM ORA-91-R18.74), construction activities will be limited to the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday. Should an exception to this measure be necessary, Caltrans will consult with the Wildlife Agencies to determine effective measures to avoid and minimize adverse impacts to these species and movement corridors.

12. A weed abatement program will be developed to minimize the importation of nonnative plant material during and after construction. In areas near Coal Canyon adjacent to Chino Hills State Park, the weed abatement program will be coordinated with California State Parks personnel. Eradication strategies will be employed should an invasion of nonnative weeds occur. Measures addressing invasive species abatement and eradication will be included in the project design and contract specifications will be implemented and enforced by the construction contractor. At a minimum, this program will include:

    - During construction, the construction contractor will inspect and clean construction equipment at the beginning and end of each day and prior to transporting equipment from one project location to another.

    - During construction, soil/gravel/rock will be obtained from weed-free sources.

    - Only certified weed-free straw, mulch, and/or fiber rolls will be used for erosion control.

    - After construction, affected areas adjacent to native vegetation will be revegetated with plant species approved by the Designated Biologist that are native to the vicinity.

- After construction, all revegetated areas will avoid the use of species listed in Cal-IPC's California Invasive Plant Inventory that have a high or moderate rating.

- Eradication procedures (e.g., spraying, hand weeding) will be specified should an infestation occur; though herbicide use will be prohibited within and adjacent to native vegetation, except as specifically authorized and monitored by the Caltrans District Biologist.

- After construction, revegetation sites will be monitored until achievement of the performance standards included in the weed abatement program or for a period of 2 to 3 years after installation to detect nonnative species prior to the establishment of the native vegetation.

Braunton's Milk-vetch Conservation Measures

13. A pre-construction survey will be conducted prior to ground disturbing activities in the vicinity of the historical occurrence in Coal Canyon. This survey will be conducted during the appropriate time of year to optimize detection by a biologist familiar with the species and having the same qualifications as the Designated Biologist.

Santa Ana Sucker Conservation Measures

14. The construction contractor will be required to comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, and any subsequent permit as they relate to construction activities. This compliance includes the submission of the permit registration documents, including a notice of intent, risk assessment, site map, Storm Water Pollution Prevention Plan (SWPPP), annual fee, and signed certification statement to the State Water Resources Control Board (SWRCB) at least 14 days prior to the start of construction. The SWPPP will meet the requirements of the construction general permit and will identify potential pollutant sources associated with construction activities; identify non-storm water discharges; develop a water quality monitoring and sampling plan; and identify, implement, and maintain Best Management Practices (BMPs) to reduce or eliminate pollutants associated with construction. The BMPs identified in the SWPPP will be implemented during construction. A notice of termination will be submitted to the SWRCB at the completion of construction and stabilization of the site. SWRCB Resolution No. 2001-046 requiring sampling and analysis will also be implemented during construction.

15. The construction contractor will be required to comply with SWRCB's *General Waste Discharge Requirements for Discharges to Surface Waters That Pose an Insignificant (De Minimus) Threat to Water Quality* (Order No. R8-2009-0003), which includes general waste discharge requirements for discharges to surface waters that pose an insignificant threat to water quality, as they relate to discharge of non-storm water dewatering wastes. This

compliance includes submitting to the Santa Ana Regional Water Quality Control Board (RWQCB) a notice of intent at least 60 days prior to the start of construction, notification of discharge at least 5 days prior to any planned discharges, and monitoring reports by the 30th day of each month following the monitoring period.

16. The construction contractor will be required to follow the procedures outlined in the Caltrans Storm Water Quality Handbooks, Project Planning and Design Guide (March 2007 or subsequent issuance) for implementing Design Pollution Prevention and Treatment BMPs. This requirement includes coordination with the Santa Ana RWQCB with respect to feasibility, maintenance, and monitoring of BMPs as set forth in Caltrans' Statewide Storm Water Management Plan (May 2003 or subsequent issuance). The RCTC also must comply with other provisions identified in the NPDES Permit, Statewide Storm Water Permit and Waste Discharge Requirements for the State of California, Department of Transportation. Construction equipment and activities will not be allowed to enter or cross the SAR.

17. The Corps is in the process of constructing the SAR Reach 9 Phase 2 Green River Golf Club Embankment Protection Project within the action area. Following completion of the embankment construction, perennial stream habitat for the Santa Ana sucker will be reestablished within the construction footprint. Caltrans will coordinate with the Corps during construction of the Project to ensure these restoration areas will not be temporarily or permanently impacted during Project construction.

18. The 1988 supplemental environmental impact statement for the SAR project required the County of Orange to acquire and manage approximately 1,100 ac of flood plain within Reach 9 to be operated and maintained for open space and wildlife habitat values. The acquisition of these lands, known as the Santa Ana River Canyon Habitat Management Area (HMA), was required to ensure that no changes (e.g., development projects) would take place within the HMA that might affect the releases from Prado Dam during the design flood event and the open-space habitat in the area. Consistent with the requirements of the SAR Project, Caltrans will coordinate with the Corps to ensure that the Project does not affect releases from Prado Dam or result in a permanent reduction of acreage within the HMA.

Gnatcatcher Conservation Measures

19. The Designated Biologist will monitor construction within the vicinity of gnatcatcher designated critical habitat areas for the duration of the Project to flush any wildlife species present prior to construction and to ensure that vegetation removal, BMPs, ESAs, and all avoidance and minimization measures are properly implemented and followed.

20. RCTC will offset the permanent loss of 8.42 ac of occupied gnatcatcher habitat in Orange County, including 6.32 ac of designated critical habitat, by restoring 16.03 ac of habitat suitable for gnatcatcher breeding, dispersal, and foraging in Chino Hills State Park.

21. RCTC will offset the temporary loss of 3.01 ac of occupied gnatcatcher habitat in Orange County, including 2.09 ac of designated critical habitat, with in-kind, or better, habitat restoration onsite after the completion of the Project.

22. Prior to initiating Project impacts, a restoration plan will be developed for the permanent and temporary impacts to occupied gnatcatcher habitat, and all designated critical habitat areas. The plan will be submitted to the Service for review and approval. This plan will include, at a minimum, a detailed description of restoration methods, slope stabilization/erosion control, criteria for restoration to be considered successful, and monitoring and reporting protocol(s). The restoration plan will be implemented for a minimum of 5 years, unless success criteria are met earlier and all artificial water has been off for at least 2 years.

23. RCTC will provide appropriate funds, to be maintained in a non-wasting endowment, to Chino Hills State Park to provide for the long-term maintenance and management of the restored areas within the park to support gnatcatcher habitat in perpetuity.

24. Shielded lighting will be used for any nighttime construction adjacent to coastal sage scrub within gnatcatcher designated critical habitat.

Riparian Bird Conservation Measures

25. During the bird breeding season (i.e., February 15 to September 15), the Designated Biologist will monitor riparian and riverine areas within 500 ft of active construction areas for the duration of the Project to survey for active nests and/or nesting activity to ensure breeding activities are not disrupted and to ensure vegetation removal, BMPs, ESAs, and all avoidance and minimization measures are properly implemented.

26. To ensure consistency with the MSHCP, prior to beginning construction of the Initial Project, a Habitat Mitigation and Monitoring Plan (HMMP) will be developed in coordination with Caltrans, RCTC, Corps, and Wildlife Agencies that ensures no net loss of riparian/riverine habitat value or acreage in Riverside County. Final details of the HMMP will be evaluated through coordination among the aforementioned agencies. Compensation options for the permanent and temporary impacts include possibly using portions of 800 ac of land in the Upper Prado Basin in Riverside County owned by the Regional Conservation Authority (RCA) that is suitable for restoration and/or enhancement opportunities, or other areas approved by the Wildlife Agencies. The offsite properties will be evaluated to demonstrate they have biologically equivalent or superior resources compared to the Project site. RCTC is in the process of obtaining access and conducting surveys on potential properties that the RCA owns. The HMMP will comply with all terms and conditions set forth in the permits and opinions issued by the Corps and Wildlife Agencies for the Project and will include, at a minimum, the following provisions:

    - Permanent impacts to riparian/riverine areas will be replaced on or off site at a minimum ratio of 3:1 with in-kind habitat. Temporary impacts to native vegetation will be replaced

at a minimum ratio of 1:1 with in-kind habitat restored in place within the BSA. If offsite restoration is conducted, it will be done within the same watershed as the Project.

- The HMMP will identify a success criterion of at least 80 percent cover of native riparian vegetation or composition structure similar to existing adjacent high quality riparian vegetation.

- Further criteria specified in the HMMP, at a minimum, will include an establishment period for the replacement habitat, regular trash removal, and regular maintenance and monitoring activities to ensure the success of the restoration. After construction, annual summary reports of biological monitoring will be provided to the Corps and Wildlife Agencies documenting the monitoring effort. The duration of the monitoring and reporting will be established by resource agency permit conditions (i.e., Corps and California Department of Fish and Game).

Analysis of the Project in Riverside County

The BSA for the Project includes an approximately 5,371-ac area located along SR-91 and I-15 in the Anaheim, Yorba Linda, Corona, and Riverside. Included within the 5,371-ac BSA is a 502-ac impact area where Project construction will occur, the majority of which will take place in previously developed or disturbed areas (440 ac; see Table 1). Along SR-91, the BSA falls within Subunit 1 (SAR/Santa Ana Mountains) and Subunit 2 (Prado Basin) of the Temescal Canyon Area Plan of the MSHCP. In Subunit 1, the BSA occurs within independent Criteria Cells 1702, 1704, and 1706. In Subunit 2, the BSA occurs within Criteria Cell 1612 of Cell Group B, and within independent Criteria Cell 1616. Portions of the BSA also fall within Existing Core A, Proposed Constrained Linkage (PCL) 1, and PCL 2. Along I-15, the BSA falls within Subunit 3 (Temescal Wash West) of the Temescal Canyon Area Plan of the MSHCP and occurs within Criteria Cell 2400 of Cell Group C.

In addition to the BSA occurring within the MSHCP Criteria Area and PCLs 1 and 2, the BSA overlaps with the Narrow Endemic Plant Species Survey Area (NEPSSA) 7, Additional Species Survey area for burrowing owl (*Athene cunicularia hypugaea*), and the SKR HCP. The Project is not located within any other MSHCP-designated survey area for criteria-area plants, mammals, or amphibians. Besides vireo, no other MSHCP designated survey area species were determined to be present within the Project impact area. As designed, the Project will be contained within the least environmentally sensitive location feasible and demonstrates consistency with the biological goals and objectives as set forth in Section 7.5 of the MSHCP, which addresses design guidelines for facilities within the Criteria Area and Public/Quasi Public (PQP) Lands. The Project has or will implement the conditions set forth in Section 7.5 through the design and implementation processes.

A small portion of the Project lies within the original PQP designation (8.8 ac), near Prado Basin. However, the RCA is now undergoing a PQP Reconciliation Process to remove the area of the Prado Basin from the PQP layer; therefore, the Project will not affect PQP lands.

Section 7.5.2 articulates guidelines for the siting and design of roadway features to address wildlife movement requirements. As discussed above, the Project crosses areas that are contemplated for MSHCP conservation and wildlife movement (PCL 1 and PCL 2). The Project will maintain culverts and connections under the roadway, thereby continuing the ability of wildlife presently utilizing these corridors to continue to move through the Project area. To accomplish this, the Project will place and/or enhance existing fencing near wildlife corridors to direct wildlife toward culverts and undercrossings and away from SR-91; place vegetative cover and/or natural objects within crossing facilities to create cover for wildlife and to encourage the use of crossings; maintain an openness ratio of at least 0.6 meter and at least 3 to 4 meters in height at Prado Road and Fresno Canyon undercrossings to allow for large mammal use; and revegetate PCL 1 and PCL 2 with native vegetation.

Additionally, the RCTC and Caltrans, in discussions with the RCA and Wildlife Agencies, have acknowledged a need to address cumulative connectivity limitations for PCL 1 by enhancing an alternate location. The RCTC proposes to improve the existing B Canyon culvert beneath SR-91 as a wildlife crossing to replace PCL 1 as a separate, non-related project (the RCA, in conjunction with the Wildlife Agencies, have identified B Canyon as a suitable replacement location for PCL 1). The RCTC has estimated the B Canyon improvements to cost about $7.5 million and intends to use $2.35 million in transportation enhancement funds, supplemented by RCTC-controlled funding to help establish a viable wildlife crossing at B Canyon as a means of offsetting the cumulative impacts to PCL 1. In addition, the Service has applied for a $500,000 grant that will also be applied toward funding the wildlife crossing. Additional funding will be sought by the various stakeholders (i.e., Service, Caltrans, RCTC, and RCA).

Based on the above commitment to B Canyon and the design features listed above related to enhancing wildlife movement, the Project addresses the objectives of Section 7.5.2 of the MSHCP. The Project will also be designed to be consistent and compliant with Section 7.5.3 of the MSHCP, which address the BMPs that will be used to minimize impacts to habitats and species. Since the Project design did consider the impacts to the MSHCP Criteria Area by proposing to improve the existing undercrossing to facilitate better wildlife movement from Existing Core A (Prado Basin and the SAR) to Existing Core B (Cleveland National Forest), the Project will not conflict with the provisions in Section 7.5 of the MSHCP.

In accordance with the Additional Survey Needs and Procedures policy of the MSHCP, focused surveys were conducted on site for burrowing owl in 2008 and 2009. No owls were found within the study area. A pre-construction presence/absence survey for burrowing owls will be performed within 30 days prior to any phase of construction with ground disturbance in potentially suitable habitat. If a burrowing owl is found during the nesting season (February 1 to August 31), an exclusionary buffer will be established by the Designated Biologist. This buffer will be clearly marked in the field by construction personnel under guidance of the biologist. No construction or clearing will be conducted within this zone until the Designated Biologist determines that the young have fledged or the nest is no longer active. If owls are found within the survey area outside of the nesting season, the burrowing owls will be passively relocated through the installation of one-way doors to exclude the owls from their burrows prior to the

collapse of the burrows. This action will ensure burrowing owls are not directly taken by construction activities.

In accordance with the Additional Survey Needs and Procedures policy of the MSHCP, focused surveys for endemic plants were conducted in 2008 and 2009 on the site for NEPSSA 7 species. No NEPSSA species were found within the study area.

To avoid impacts to other migratory birds consistent with MSHCP section 10(a)(1)(B) permit condition 5, vegetation removal will be performed outside of the bird breeding season. If work must occur during the breeding season, a preconstruction nesting survey will be conducted in suitable habitat by the Designated Biologist within 21 days prior to ground disturbing activities. If active raptor or migratory bird nests are detected, Project activities may be temporarily halted until the Wildlife Agencies are contacted and consulted. If surveys indicate that migratory bird or raptor nests occur in the survey area identified above, a no-disturbance buffer will be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a qualified Designated Biologist determines that the young have fledged (usually late June to mid-July). The extent of these buffers will be determined by the Designated Biologist, in coordination with Caltrans and the Wildlife Agencies, and will depend on the level of noise or construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. Suitable buffer distances may vary between species. If construction activities are scheduled to occur within an area that supports an active nest site or within an established no-disturbance buffer, construction will be delayed until after the breeding season or until the young have fledged, as determined by the Designated Biologist.

Focused vireo surveys were conducted in 2008 to determine if vireos were present in the BSA. Vireos were found at 27 locations in the BSA, and another 8 were found just outside the BSA. Vireos were found from the vicinity of the Gypsum Canyon Road Bridge to Prado Dam. All the birds were north of SR-91, except for one male heard intermittently at the mouth of Fresno Canyon near Wardlow Wash. Twenty of the locations in the BSA are judged to have been territories, and successful nesting was confirmed at six of those locations. The other seven locations in the BSA hosted singing males, but territories could not be determined. Focused vireo surveys were also conducted in 2010 in conjunction with the SR-91 Eastbound Lane Addition Project (FWS-OR/WRIV-08B0054/08F0081). Vireos were observed within the BSA, but no nesting activities were observed in the SR-91 Eastbound Lane Addition Project's impact area. Subsequent to focused surveys being conducted, construction of the SAR Reach 9 Phase 2B Realignment has removed the vireo nesting habitat in the BSA located north of SR-91 and west of SR-71. In addition, the Santa Ana River Interceptor (SARI) project is expected to begin well before any construction for the Project and will further impact areas within the BSA.

To address the loss of MSHCP riparian/riverine resources and supported species, a Determination of Biologically Equivalent or Superior Preservation (DBESP) report was prepared. Approximately 86 ac of riparian/riverine resources located throughout the BSA, which generally occur in the western portions of the Project area adjacent to the SAR and associated

tributaries, (e.g., Fresno Canyon Wash and Wardlow Wash). In Riverside County, Project construction and operation will permanently impact up to 0.46 ac and temporarily impact up to 0.72 ac of riparian/riverine resources. Caltrans and RCTC will offset the loss of these resources by mitigating at a minimum ratio of 3:1 for permanent impacts and 1:1 for temporary impacts. Mitigation will be in the form of habitat creation, restoration, and/or enhancement. Mitigation options for the permanent and temporary impacts include possibly using portions of 800 ac of land in the Upper Prado Basin in Riverside County owned by the RCA that is suitable for restoration and/or enhancement opportunities, or other areas approved by the Wildlife Agencies. The offsite properties will be evaluated to demonstrate the areas have biologically equivalent or superior resources commensurate to the riparian/riverine areas to be impacted. RCTC is in the process of obtaining access and conducting surveys on potential properties the RCA owns.

Once lands are identified, RCTC will ensure the restoration/enhancement is provided at the above stated ratios and a restoration/enhancement plan is prepared identifying methods, materials, success criteria and monitoring/management activities on those lands. RCTC will be responsible for preparing these documents and submitting to the RCA and Wildlife Agencies as an addendum to the DBESP. Based on the information provided, the Project will restore its temporary impacts onsite, avoid the nesting season, and mitigate offsite for its permanent impacts; therefore, the Project demonstrates compliance with the requirements of MSHCP Section 6.1.2.

Project impacts in Riverside County include permanent impacts to 31.2 ac of coastal sage scrub, the preferred habitat for the gnatcatcher, and 6.87 ac of vegetation communities (0.38 ac of chaparral, 0.46 ac of riparian forest, and 6.03 ac of nonnative grassland) that gnatcatchers likely use for dispersal and foraging habitat. The Project includes the MSHCP-required measures to avoid and minimize disruption of gnatcatcher nesting activity, impacts to individual birds, and impacts to coastal sage scrub outside the Project footprint. Additionally, the temporary loss of 8.02 ac of coastal sage scrub, 1.30 ac of chaparral, 0.72 ac of riparian forest, and 3.63 ac of nonnative grassland will be replaced with locally appropriate native species at the site of the impact.

Based on our review of the information provided to us, we have determined the Project is consistent with relevant MSHCP policies and procedures. The status of vireo, gnatcatcher and its designated critical habitat, and the effects of implementing the MSHCP were previously addressed in our biological opinion for the MSHCP dated June 22, 2004. In the biological opinion for the MSHCP, we concluded the level of anticipated take in the plan area for the MSHCP was not likely to result in jeopardy to vireo or gnatcatcher or adversely modify designated gnatcatcher critical habitat. Given that the Project is consistent with the MSHCP, we do not anticipate any adverse effects to vireo or gnatcatcher that were not previously evaluated in the biological opinion for the MSHCP. No incidental take of vireo or gnatcatcher beyond that anticipated in the biological opinion for the MSHCP will occur. Therefore, it is our conclusion that implementation of the Project will not result in jeopardy to vireo or gnatcatcher.

The SKR HCP is implemented by the RCHCA on behalf of the County of Riverside and eight member cities. To establish a regional mechanism to fund implementation of the SKR HCP, Riverside County Ordinance No. 663.10 was adopted, which requires the payment of a fee for projects that are inside the SKR HCP fee area but outside of the core reserve system. This funding has been used, in part, to establish and manage a core reserve system designed to maintain the long-term survival of SKR in western Riverside County. The Project is within the SKR HCP fee area, but outside of the core reserves, and therefore will qualify to obtain take coverage through payment of fees without having to secure an individual permit. However, public works projects, such as roads, are exempt from fee payment. Additionally, construction of transportation improvement projects is identified as a covered activity in the SKR HCP biological opinion (1-6-96-FW-27). Therefore, we have determined that the Project is consistent with the SKR HCP and its associated implementing agreement and permit.

The status of the SKR and the effects of implementing the SKR HCP were previously addressed in our biological opinion dated May 2, 1996. In the biological opinion for the SKR HCP, we concluded the level of anticipated take in the plan area for this HCP was not likely to result in jeopardy to SKR. Given the Project is consistent with the SKR HCP, we do not anticipate any adverse effects to SKR that were not previously evaluated in the biological opinion for the SKR HCP. No incidental take of SKR beyond that anticipated in the biological opinion for the SKR HCP will occur. Therefore, it is our conclusion that implementation of the Project will not result in jeopardy to SKR.

Analysis of Project in Orange County

Because effects of the Project activities in Riverside County on the gnatcatcher, vireo, and SKR are addressed in the MSHCP and SKR HCP, impacts to those species in Riverside County will not be analyzed below. Moreover, adverse impacts to vireo from the Project in Orange County are not expected because of the aforementioned conservation measures. Therefore, the analysis below only addresses the effects of the Project activities in Orange County on the gnatcatcher.

STATUS OF THE SPECIES

The status of the gnatcatcher was described in detail in a biological opinion for the Caltrans-sponsored Eastbound SR-91 Lane Addition from SR-241 to SR-71 Project, Orange and Riverside Counties, California (FWS-OR/WRIV-08B0054/08F0081, dated November 29, 2007); new information since that time is provided in the 5-year review for gnatcatcher (Service 2010). Additional information on gnatcatcher designated critical habitat can be found in our 2007 final rule for the revised designation of critical habitat for the gnatcatcher (72 FR 72010). Please refer to these documents for detailed information on the life history requirements, threats, and conservation needs of the gnatcatcher.

Status of Critical Habitat in the Action Area

Primary Constituent Elements (PCEs) for the gnatcatcher are those habitat components that are essential for the primary biological needs of foraging, nesting, rearing of young, intra-specific communication, roosting, dispersal, genetic exchange, or sheltering (72 FR 72010). These include: (1) dynamic and successional sage scrub habitats (i.e., Venturan coastal sage scrub, Diegan coastal sage scrub, Riversidean sage scrub, maritime succulent scrub, Riversidean alluvial fan scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub) that provide space for individual and population growth, normal behavior, breeding, reproduction, nesting, dispersal, and foraging; and (2) non-sage scrub habitats such as chaparral, grassland (a component of ruderal vegetation), and riparian areas, in proximity to sage scrub habitats that provide space for dispersal, foraging, and nesting.

The Project occurs within Units 7 and 9 of the 2007 final critical habitat designation. Unit 7 includes 4,309 ac of lands under private ownership that contain core gnatcatcher populations and sage scrub within the Orange County Central-Coastal Natural Community Conservation Plan/ Habitat Conservation Plan (NCCP/HCP) Subregion. However, these areas are not included in the permit area covered by the NCCP/HCP. Habitat within this unit was occupied at the time of listing, remains occupied, and contains all of the features essential to the conservation of the gnatcatcher (PCEs 1 and 2). Habitat within this unit contains high-quality habitat and dense populations of gnatcatchers. This unit also serves to link populations located in Unit 6 with those in northern Orange and Riverside counties (e.g., Unit 9). Unit 9 includes 17,552 ac of lands, the majority of which are under private ownership, that contain core gnatcatcher populations and sage scrub within the Montebello Hills, Puente-Chino Hills, and West Coyote Hills areas. Habitat within this unit contains large blocks of high-quality habitat and was occupied at the time of listing, remains occupied, and contains all of the features essential to the conservation of the species. The unit also provides connectivity and genetic interchange among core populations of gnatcatchers between Units 6, 10, and 12. Specific information for each of the remaining critical habitat units can be found within the final rule designating critical habitat for the gnatcatcher (72 FR 72010).

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have undergone section 7 consultation, and the impacts of State and private actions that are contemporaneous with the consultation in progress.

Site Characteristics and Surrounding Land Use

The Project action area is located within the SAR watershed in the eastern-most portion of Orange County, immediately downstream of Prado Dam. Within Orange County, the Project area is a heavily traveled transportation corridor with the landscape varying from natural

undeveloped to pockets of commercial and residential development on either side. Two large blocks of open space bisect SR-91; Chino Hills State Park (CHSP) to the north, and the Cleveland National Forest to the south. Within Orange County, the action area includes approximately 846 ac, which includes the 500-ft buffer surrounding the area directly impacted by the Project. The action area contains 123.56 ac of coastal sage scrub; 64.74 ac of chaparral; 72.24 ac of riparian forest/scrub; 24.44 acres of oak woodland; 90.83 ac of nonnative grassland; 13.82 ac of deepwater aquatic; 113.79 ac of mixed ruderal and ornamental; and 342.53 ac of developed lands.

Subsequent to vegetation mapping conducted in 2008, the Freeway Complex fire in November 2008 burned large areas of CHSP, including a small part of the coastal sage scrub in the action area. Because these small burned areas are located west of Coal Canyon, coastal sage scrub occupied by gnatcatchers in Coal Canyon was not impacted by the fire. The coastal sage scrub and other vegetation communities in the action area burned by the fire have been recovering. These burned areas appear to be returning to pre-fire conditions, although there appears to be a higher percentage of nonnative grasses, e.g., black mustard (*Brassica nigra*) and foxtail chess (*Bromus madritensis*) (E. Hohertz , LSA Associates, pers. comm. 2011).

Chino Hills State Park

This 12,500-ac State park is located near the northern end of the Peninsular Ranges and is within Orange, Riverside, and San Bernardino counties. The Chino Hills are part of the group of hills that include the Puente Hills to the northwest. These hills form a roughly triangular area of approximately 35 square miles of valleys, canyons, hills, and steep slopes. The park serves a valuable function as a large open space preserve in a wildlife linkage that extends over 30 miles from the Santa Ana Mountains to the southeast to the Whittier Hills to the northwest. Moreover, the Coal Canyon undercrossing, which provides a wildlife crossing under SR-91 between the Santa Ana Mountains south of SR-91 and the Puente-Chino Hills north of SR-91, is in park. The CHSP supports a number of native plant communities including coastal sage scrub, riparian, chaparral, grasslands, and oak woodland communities. Approximately 95 percent of the area in the park was burned in the 2008 Freeway Complex Fire.

Habitat restoration activities in the Coal Canyon area, just north of SR-91, have been ongoing in the park since 2004 to restore coastal sage scrub and other habitats suitable to support gnatcatcher breeding, feeding, and sheltering requirements. These restoration areas have met stated success criteria and gnatcatchers were recently observed within these areas (F. Sirchia, Service biologist, personal observation during the October 20, 2011, site visit).

Coal Canyon Undercrossing Landscaping

Coal Canyon and the associated SR-91 undercrossing are considered one of the most important remaining wildlife connections between the Santa Ana Mountains and the Puente-Chino Hills and Prado Basin (LSA 2010). As such, State officials and other stakeholders have been working nearly two decades to preserve and enhance Coal Canyon as a viable wildlife corridor. Towards

that end, a landscaping project to enhance the Coal Canyon crossing under SR-91 is proposed to begin mid-2012.

Caltrans District 12 is proposing to conduct planting in the Caltrans right-of-way at Coal Canyon. The purpose of this planting is to beautify the site and attract more wildlife to this vital crossing. The proposed planting area is composed of compacted gravel and nonnative grasses and ornamental vegetation. Caltrans District 12 has anticipated the Project may impact the Coal Canyon Wildlife Corridor Planting area. Because of this potential impact, a plant palette is being selected (in coordination with Caltrans biologists, landscape architects, and the Service) that would facilitate gnatcatcher dispersal but is unlikely to be used as nesting habitat.

Status of and Factors Affecting Gnatcatcher and its Critical Habitat in the Action Area

A number of projects have reduced and degraded gnatcatcher habitat in the vicinity of the Project. Roads and urban development have degraded upland habitat and have led to the loss and isolation of remaining coastal sage scrub. Specific past actions that have adversely affected gnatcatchers and/or designated critical habitat in the vicinity of the Project include (1) the SR-91 Eastbound Lane Addition Project, (2) widening of SR-91 between SR-241 and SR-71, (3) SAR Reach 9 Flood Control Projects, (4) Eastern Transportation Corridor (SR-241), and (5) SARI project. In general, all of these projects have decreased and fragmented the amount of suitable gnatcatcher habitat containing PCEs within the Project vicinity. In addition, since 1980, the Coal Canyon area has experienced 25 separate wildland fires, burning a total of 82,734 acres (OCFA 2008). A number of these wildland fires were large, burning thousands of acres, including the 2008 Freeway Complex Fire (30,305 ac), 2006 Sierra Peak Fire (10,506 ac), 1982 Gypsum Fire (19,986 ac), and 1980 Owl Fire (18,332 ac). As stated above, though areas burned in the most Freeway Complex Fire are recovering to pre-fire conditions, an increase in percent cover of nonnative grasses is apparent. This observation may indicate some burned areas may be experiencing type conversion to nonnative grasslands, which may decrease the amount of suitable habitat for the gnatcatcher in the action area (Service 2010).

Based on the Carlsbad Fish and Wildlife Office (CFWO) species occurrence database, the action area within Orange County has supported at least two breeding pairs of gnatcatchers dating back to 1998 (survey reports 3015, 5259, 7717, and 0517). Protocol surveys conducted in 2006 for the SR-91 Eastbound Lane Addition Project detected two breeding pairs and one juvenile in the vicinity of Coal Canyon within or near the Caltrans ROW. Protocol surveys in 2008 for the Project detected one breeding pair of gnatcatchers and at least two juveniles on several occasions just south of the Coal Canyon underpass within or near the ROW, which is in the Project impact area. Gnatcatchers were observed primarily in vegetation community types dominated by California sagebrush (*Artemisia californica*) and California buckwheat (*Eriogonum fasciculatum*). During the October 20, 2011, site visit, within CHSP, one gnatcatcher was observed in the Scully Hill area, and at least two were observed in the restoration area north of the Coal Canyon underpass. These 2011 observations in areas north of the Coal Canyon underpass were not expected to be directly impacted by Project construction activities.

The segment of the Project in Orange County includes small portions of Units 7 and 9 of gnatcatcher designated critical habitat and suitable gnatcatcher habitat outside of designated critical habitat (Figure 1). The action area includes 182.09 ac of gnatcatcher designated critical habitat. Outside critical habitat, the action area includes 85.67 ac of coastal sage scrub, the preferred habitat for gnatcatchers, and another 100.75 ac of vegetation communities that gnatcatchers likely use for dispersal and foraging habitat (Table 3). As stated above, the ecological functions and values of these critical habitat units include sage scrub used for individual and population growth, breeding, reproduction, nesting, dispersal, and foraging (PCE 1); and non-sage scrub communities (e.g., chaparral, grassland, riparian areas) in proximity to sage scrub that provide space for dispersal, foraging, and nesting (PCE 2) and serve as linkages between populations of gnatcatchers in the Santa Ana Mountains and Puente-Chino Hills and Prado Basin. Moreover, the land contained within Units 7 and 9 in the action area may require special management considerations or protection to minimize impacts associated with habitat type conversion and degradation occurring in conjunction with freeway widening and other development projects (72 FR 72040).

Table 2: Gnatcatcher Habitat in Orange County Action Area Inside and Outside of Designated Critical Habitat

Habitat Type	Amount Outside of Critical Habitat	Amount in Critical Habitat			Total Habitat
		Unit 7	Unit 9	Total	
Coastal Sage Scrub	85.67	16.28	21.61	37.89	123.56
Chaparral	14.53	46.70	3.51	50.21	64.74
Riparian Forest	31.38	0.41	37.49	37.90	69.28
Riparian Scrub	2.16	0.80	0.00	0.80	2.96
Nonnative Grassland	52.68	6.44	31.71	38.15	90.83
Mixed Ruderal and Ornamental		4.78	12.36	17.14	17.14
Total	**186.42**	**75.41**	**106.68**	**182.09**	**368.51**

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species, together with the effects of other activities that are interrelated and interdependent with that action, which will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action, are later in time, and still reasonably certain to occur.

Direct Effects

Habitat Loss

The Project in Orange County will result in the permanent loss of 4.25 ac of coastal sage scrub, and 4.17 ac of vegetation communities (2.96 ac of chaparral, 0.01 ac of riparian forest, and 1.20 ac of nonnative grassland) used by gnatcatchers for dispersal and foraging (Campbell *et al.*

1998). The loss of habitat associated with Project construction will be distributed over a linear distance of approximately 4.2 miles and a width of approximately 50 to 100 ft from the edge of existing structures. To offset this loss, RCTC will restore 16.03 ac of habitats suitable for gnatcatcher breeding, dispersal, and foraging in CHSP, which will increase the amount of conserved habitat available for gnatcatchers in the action area.

The Project will result in the temporary loss of 1.29 ac of coastal sage scrub and 1.72 ac of other vegetation communities (0.71 ac of chaparral, 0.34 ac of riparian forest, and 0.67 ac of nonnative grassland) used by gnatcatchers for dispersal and foraging. This habitat will be unavailable for gnatcatcher foraging and breeding activities until it is successfully restored. RCTC will restore temporarily impacted habitat with in-kind or better vegetation after the completion of the Project. Also, the proposed restoration of the temporarily impacted areas will help ensure there is no long-term loss or degradation of the habitat as a result of invasion by nonnative plant species.

Based on recent surveys, the Project impact area supports part of at least one gnatcatcher pair or territory. We do not have specific information on the size or shape of this territory, but breeding season territories vary greatly in size from less than 2.5 ac to 25 ac (Atwood *et al.* 1998; Preston *et al.* 1998) and fluctuate given the time of year. The permanent and temporary loss of 5.54 ac of coastal sage scrub and the permanent and temporary loss of 5.89 ac of other habitat could significantly reduce the amount of habitat available to this gnatcatcher pair for breeding, foraging, and dispersal activities within their existing territory. Gnatcatchers are expected to be displaced by grading activities during and after construction disturbance and forced to shift or move their territory location. The displacement of this pair and reestablishment of all or part of their territory in another location could involve increased competition with other gnatcatchers for nesting, roosting, and foraging sites, and displaced gnatcatchers will likely be more vulnerable to predation while seeking new habitat. Therefore, we expect that one pair of gnatcatchers will be killed or injured because of impacts to a potentially significant portion of an existing territory and the subsequent displacement of the pair.

Construction activities are not anticipated to result in the death or injury of any gnatcatchers or destruction of nests. The Designated Biologist will be present to ensure that gnatcatchers are not killed or injured during vegetation removal and other construction activities, and the clearing and grubbing of suitable gnatcatcher habitat will be conducted outside of the breeding season (i.e., February 15 to September 15).

Indirect Effects

Noise, vibrations, increased activity, and night lighting associated with the use of heavy equipment during construction of the proposed facilities have the potential to disrupt gnatcatcher behaviors in adjacent habitat by masking intraspecific communication and startling birds (e.g., see Dooling and Popper (2007) for a discussion of observed effects of highway noise on birds). However, gnatcatchers that occupy habitats adjacent to the existing SR-91 freeway are subjected to existing noise and vibration and continue to occupy the habitat, and the addition of lanes is not expected to increase noise and vibration above existing levels (Caltrans 2011). Additionally,

measures to avoid and minimize construction impacts include seasonal restrictions on vegetation removal, noise control, biological monitoring, and shielded night lighting.

Operation of existing roadways can affect species and habitats through factors such as increased noise and lighting, increased fire risk, invasion of exotic plants, road mortality, and barriers to wildlife movement (e.g., Conard and Weise 1998; Forman and Deblinger 2000; Forman *et al.* 2003). Given the potentially broad-reaching, long-term nature of the aforementioned impacts, they are difficult to quantitatively assess. However, the gnatcatchers that occupy habitats adjacent to the existing SR-91 freeway are subjected to existing adverse road effects from freeway operations and continue to occupy suitable habitat adjacent to the freeway; moreover, some of these impacts (noise and lighting) will not increase with implementation of the Project. Therefore, SR-91 widening is not expected to have significant adverse impacts on the gnatcatchers due to noise and lighting, invasion of exotic plants, road mortality, and barriers to wildlife movement. In addition, measures to avoid and minimize these impacts, like restoration of native habitats, native landscaping in the Coal Canyon underpass, and weed abatement, will help to offset some of these impacts.

As stated previously, wildland fire is a significant threat to gnatcatchers due to habitat type conversion and the temporary destruction of habitat the gnatcatcher depends on for foraging, sheltering, dispersal, and nesting. The Project is not anticipated to significantly increase the threat of wildlife fire in the action area but Caltrans has agreed to coordinate with the Service to identify locations along SR-91 where placement of k-rail or other barriers would help to minimize the threat of fire ignitions.

Restoration

Some restoration activities may disturb resident gnatcatchers and biological monitors are anticipated to disturb gnatcatchers as part of their monitoring efforts. The frequency and level of disturbance by the biological monitors is not anticipated to substantially affect the gnatcatchers' ability to acquire sufficient resources to survive and reproduce. Furthermore, the restoration plan will include measures to avoid and minimize impacts to resident gnatcatchers such as pre-restoration surveys and avoidance of the breeding season.

Critical Habitat

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR § 402.02. Instead, we have relied upon the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

Implementation of the Project will result in the permanent loss of 6.32 ac of designated critical habitat, including 1.24 ac of coastal sage scrub, located in Units 7 and 9 (2.48 ac in Unit 7 and 3.84 ac in Unit 9). This loss represents 0.02 percent of the gnatcatcher designated critical habitat within Unit 7 and 0.02 percent in Unit 9. Additionally, the Project will result in the temporary loss of 2.09 ac of designated critical habitat, including 0.72 ac of coastal sage scrub, located in

Units 7 and 9 (1.02 ac in Unit 7 and 1.07 ac in Unit 9). This temporary loss represents a small fraction of the habitat available within Units 7 and 9, and the impacted area will be restored after construction. As stated above, the primary function of these units is to provide sage scrub for individual and population growth, breeding, reproduction, nesting, dispersal, and foraging (PCE 1); and non-sage scrub communities (e.g., chaparral, grassland, riparian areas) in proximity to coastal sage scrub that provide space for dispersal, foraging, and nesting (PCE 2).

Because the Project will temporarily impact only a small portion of gnatcatcher critical habitat, which will be revegetated immediately following Project completion, the temporary impacts associated with the Project will have negligible impacts on the ability of Units 7 and 9 to support core gnatcatcher populations and on connectivity between critical habitat units. Also the permanent impacts to critical habitat are small and will primarily affect non-breeding habitat (i.e., vegetation communities other than coastal sage scrub). Therefore, the Project will not have a substantial impact on the ability of Units 7 and 9 to support core populations of gnatcatchers, and affected critical habitat would remain functional to serve its intended conservation role for the species.

Habitat loss will occur within the Coal Canyon wildlife corridor. Loss of PCEs within this corridor could result in an incremental decrease in connectivity and increase the isolation of gnatcatcher populations in Unit 9. To offset this potential adverse impact, RCTC will minimize permanent impacts in the Coal Canyon underpass area to the extent possible and restore landscaped areas in and around the Coal Canyon underpass to facilitate gnatcatcher dispersal. Additionally, 16.03 ac of gnatcatcher habitat that would support PCEs 1 and 2 would be restored in Unit 9 within CHSP, and 2.50 ac of mixed ruderal and ornamental vegetation in the Coal Canyon underpass will be replanted with native species per the Coal Canyon Planting Plan to facilitate gnatcatcher dispersal between critical habitat units 7 and 9. In addition to maintaining connectivity, the proposed restoration will result in a net increase in the amount of coastal sage scrub (PCE 1) in gnatcatcher critical habitat, likely leading to a slight increase in the ability of Unit 9 to support core gnatcatcher populations. Thus, the affected critical habitat would remain functional to serve its intended conservation role for the species.

Recovery

The Project is not anticipated to impede recovery of the gnatcatcher. Conservation and recovery of the gnatcatcher has largely been accomplished through the development and implementation of regional conservation plans (i.e., HCP/NCCPs). Much of the range of the gnatcatcher today within southern California is covered by these plans. Furthermore, although no recovery plan exists for the gnatcatcher, the Project is consistent with the general recovery goals of maintaining core gnatcatcher populations and maintaining connectivity between them, because restoration of 16.03 ac is expected to increase the available habitat in the action area to support core gnatcatcher populations and restoration in the Coal Canyon underpass area will facilitate dispersal and maintain connectivity.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

We have no information on any non-Federal actions affecting listed species that are reasonably certain to occur in the action area considered by this opinion.

CONCLUSION

After reviewing the current status of the gnatcatcher, environmental baseline for the action area, effects of the proposed action, and the cumulative effects, it is our biological opinion the proposed action is not likely to jeopardize the continued existence of the gnatcatcher and is not likely to result in the destruction or adverse modification of gnatcatcher designated critical habitat. Our conclusion is based on the following reasons:

1. Although 8.42 ac of gnatcatcher habitat (4.25 ac of coastal sage scrub, and 4.17 ac of vegetation communities used by gnatcatchers for dispersal and foraging), including designated critical habitat, will be permanently impacted in Orange County, this will affect only a small fraction of available habitat in the action area and an even smaller fraction rangewide.

2. Although 3.01 ac of gnatcatcher habitat (1.29 ac of coastal sage scrub, and 1.72 ac of vegetation communities used by gnatcatchers for dispersal and foraging), including designated critical habitat, will be temporarily impacted in Orange County, this habitat will be restored, and within 4 to 5 years will again be suitable for gnatcatcher breeding and foraging.

3. Permanent impacts to suitable gnatcatcher habitat and designated critical habitat will be offset by restoring 16.03 ac of gnatcatcher habitat in Unit 9 within CHSP to be managed and preserved in perpetuity as part of the CHSP. This restoration will result in a net gain of potential breeding, foraging, dispersal, and sheltering habitat for the gnatcatcher locally and within Unit 9 of designated critical habitat.

4. With implementation of the proposed conservation measures, the Project is not expected to a have a long-term effect on the gnatcatcher or its habitat in the action area or rangewide, and is not anticipated to impede recovery of the species or the function and value of its critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act prohibits the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill,

trap, capture, collect, or attempt to engage in any such conduct. Harm is further defined by us to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. We defined harass as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary, and must be undertaken by Caltrans so that they become binding conditions of any grant or permit issued to the permittee, as appropriate, for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to assume and implement the terms and conditions or (2) fails to require RCTC or any contractor discussed above to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of the incidental take, Caltrans must report the progress of the action and its impact on the species to the Palm Springs Fish and Wildlife Office (PSFWO) at 777 East Tahquitz Canyon Road, Palm Springs, California 92262 (760-322-2070) as specified in the incidental take statement [50 CFR § 402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

Incidental take of the gnatcatcher in Orange County for the Project is authorized as follows:

- Incidental take in the form of harm, as defined in 50 CFR § 17.3, of one gnatcatcher pair is authorized due to the permanent removal of 4.25 ac of coastal sage scrub and 4.17 ac of vegetation communities used by gnatcatchers for essential behaviors, including nesting, roosting, foraging, and dispersal, and the temporary removal of 1.29 ac of coastal sage scrub and 1.72 ac of vegetation communities used by gnatcatchers for foraging and dispersal. The take threshold will be exceeded if more than the amount of habitat identified above is graded or grubbed or if more than one pair of gnatcatchers is killed or injured.

No direct death or injury of nestlings or eggs from habitat clearing and construction activities is anticipated; therefore, none is exempted from the section 9 take prohibitions under the Act.

EFFECT OF THE TAKE

In the accompanying biological opinion, the PSFWO determined that this level of anticipated take is not likely to result in jeopardy to the species.

REASONABLE AND PRUDENT MEASURES

Caltrans will implement conservation measures as part of the proposed action to minimize the incidental take of gnatcatchers. In addition to these conservation measures, the following reasonable and prudent measures are necessary to monitor and report the effects of the incidental take on gnatcatchers:

1. Caltrans shall monitor and report on compliance with the established take thresholds for gnatcatchers associated with the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with terms and conditions which implement the reasonable and prudent measures described above.

1. Prior to initiating the Project, three preconstruction surveys will be conducted within all suitable gnatcatcher habitat within the footprint for the Project, within 30 days prior to initiation of vegetation removal activities to verify that no more than one gnatcatcher pair will be taken as a result of the Project. Prior to initiating the Project, Caltrans will provide to the PSFWO a map showing the distribution of gnatcatchers relative to the Project footprint, an estimate of the number of gnatcatchers territories that will be impacted by the Project, and the cumulative total of gnatcatcher territories impacted by the Project, or confirm in writing that maps, distribution information, and the number of territories that will be impacted by the Project as shown in the BA remain correct.

2. Caltrans will notify the PSFWO within 30 days of completing removal of gnatcatcher-occupied habitat. The purpose of this notification is to ensure that impacts to gnatcatcher-occupied habitat from the Project do not exceed the take thresholds.

DISPOSITION OF SICK, INJURED, OR DEAD SPECIMENS

Upon locating dead, injured, or sick individuals of threatened or endangered species, initial notification must be made to our Division of Law Enforcement in either San Diego, California, at 619-557-5063 or in Torrance, California, at 310-328-6307 within 3 working days. Notification should also be sent by telephone and writing to the PSFWO at 760-322-2070 at the address detailed above. Written notification must be made within 5 calendar days and include the collection date and time, the location of the animal, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state. Remains shall be placed with the San Diego Natural History Museum, San Diego. Arrangements regarding proper disposition of potential museum specimens shall be made with the institution by the designated biologist prior to implementation of the action.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Because data are lacking regarding the rate of exchange between gnatcatcher populations on either side of SR-91, we recommend Caltrans fund a study to examine the rate of exchange between those gnatcatcher populations to determine the permeability of SR-91 for the bird.

2. To further minimize the risk of fire from operation of SR-91, we recommend Caltrans monitor and map fire ignitions along SR-91 and coordinate with the Service to develop potential measures to reduce this risk. Measures would include monitoring of the roadway by Caltrans personnel during extreme fire danger conditions, placement of additional barriers, or maintenance of a defined fire management zone adjacent to the roadway.

REINITIATION NOTICE

This concludes formal consultation for the SR-91 Corridor Improvement Project as outlined in materials submitted to us. As provided in 50 CFR § 402.16 reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions or comments about this opinion, please contact Felicia Sirchia of the Palm Springs Fish and Wildlife Office, 777 E. Tahquitz Way, Suite 208, Palm Springs, California 92262 at 760-322-2070.

Sincerely,

Jim A. Bartel
Field Supervisor

cc: Cathy Bechtel, Riverside County Transportation Commission

LITERATURE CITED

Atwood, J., D. Bontrager, and A. Gorospe. 1998. Use of refugia by California gnatcatchers displaced by habitat loss. Western Birds 29:406-412.

Caltrans. 2007. SR-91 Eastbound lane addition between SR-241 and SR-71 biological assessment. Unpublished document submitted to the CFWO. June 2007.

Caltrans. 2011. SR-91 Corridor Improvement Project biological assessment. Unpublished document submitted to the CFWO. June 2011.

Campbell, K., R. Erickson, W. Haas, and M. Patten. 1998. California gnatcatcher use of habitats other than coastal sage scrub: Conservation and management implications. Western Birds 29: 421-433.

Conard, S. G. and D. R. Weise. 1998. Management of fire regime, fuels, and fire effects in southern California chaparral: Lessons from the past and thoughts for the future. Tall Timbers Fire Ecology Conference Proceedings 20:342–350.

Dooling, R. J. and A. N. Popper. 2007. The effects of highway noise on birds. Prepared by Environmental BioAcoustics LLC for the California Department of Transportation, Sacramento, California. 74 pp.

Forman, R. T. T. and R. D. Deblinger. 2000. The ecological road-effect zone for transportation planning and Massachusetts (USA) suburban highway. Conservation Biology 14:36-46.

Forman, R.T.T., D. Sperling, J.A. Bissonette, A.P. Clevenger, C.D. Cutshall, V.H. Dale, L. Fahrig, R. France, C.R. Goldman, K. Heanue, J.A. Jones, F.J. Swanson, T. Turrentine, T.C. Winter. 2003. Road ecology: Science and solutions. Island Press, Washington, DC.

Orange County Fire Authority (OCFA). 2008. After action report Freeway Complex Fire: A report to the Orange County Fire Authority Board of Directors. Orange County, CA.

Preston, K., P. Mock, M. Grishaver, E. Bailey, and D. King. 1998. California gnatcatcher territorial behavior. Western Birds 29:242-257.

U.S. Fish and Wildlife Service (Service). 2004. Intra-Service Formal Section 7 Consultation/Conference for Issuance of Endangered Species Act Section 10(a)(1)(B) Permit TE-088609-0 for the Western Riverside County Multiple Species Habitat Conservation Plan dated June 22, 2004 (FWS-WRIV-870.19).

U.S. Fish and Wildlife Service (Service). 2010. Coastal California gnatcatcher (*Polioptila californica californica*) 5-year Review: Summary and Evaluation. U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office, Carlsbad, California.

Personal Communications

Hohertz, E. September 1, 2011. Electronic mail correspondence regarding status of vegetation recovery in Chino Hills State Park, Orange County, CA.

This page intentionally left blank