

Appendix K Biological Opinions

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
 Carlsbad Field Office
 2730 Loker Avenue West
 Carlsbad, California 92008

July 6, 1994

Mr. Peter C. Markle
 Acting Division Administrator
 U.S. Department of Transportation
 Federal Highway Administration
 California Division
 980 9th Street, Suite 400
 Sacramento, California 95814

OPTIONAL FORM 99 (7-70)

FAX TRANSMITTAL

To	Mary Gray	From	Acting FS
Dept/Agency	FHWA	Phone	619/431-9440
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NSN 7540 01-347 TUGI		5098-101 GENERAL SERVICES ADMINISTRATION	

Attn: Ms. Mary Gray

Re: Biological Opinion on the Effects of the Eastern Transportation Corridor (ETC) on the Coastal California Gnatcatcher, and Conference Report on the Brauntons Milkcatch, Orange County, California (1-6-94-1-17)

Dear Mr. Markle:

This Biological Opinion responds to your January 14, 1994 request to the Fish and Wildlife Service (Service) for a formal consultation, pursuant to Section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act) on the effects of the ETC on the coastal California gnatcatcher (*Polioptila californica californica*). On February 22, 1994 the Service sent you a letter that indicated that the Biological Assessment for the ETC project satisfactorily addressed impacts to the listed and candidate species affected by the ETC project. However, after further review and analysis, the Service determined that additional information was needed regarding the impact of the ETC project on Orange County's Natural Community Conservation Plan (NCCP) Program before the Service could proceed with completion of the biological opinion; you were notified of the additional information needs in a letter from the Service dated March 10, 1994. On June 7, 1994, the Service received the final package containing the additional information needed to complete the biological opinion via your letter dated June 2, 1994.

The Service listed the coastal California gnatcatcher (*Polioptila californica californica*), hereinafter referred to as "the gnatcatcher", as a threatened species on March 25, 1993. On May 2, 1994, the listing was invalidated by the United States District Court of Columbia on the basis that the Secretary of the Interior failed to obtain and make available for public review and comment the data underlying a published scientific report on the specific taxonomy of the gnatcatcher. On June 16, 1994, Judge Sporkin granted a stay of his earlier decision to vacate the listing of the gnatcatcher, allowing the gnatcatcher to retain its threatened status while the Service made the data in question available to the public for review and comment. On June 2, 1994, the Service published a 60 day notice of availability (Notice) of the data in the Federal Register. In compliance with the Judge's order, the Secretary of the

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Biological Opinion

It is the biological opinion of the Service that the proposed project, including the mitigation and avoidance measures required by the Final EIS and Biological Assessment, and as modified by the additional mitigation measures proposed in the Federal Highway Administration's final submittal to the Service (FHA 1994c), is not likely to jeopardize the continued existence of the coastal California gnatcatcher. Critical habitat for this species has not been proposed and, therefore, no critical habitat would be modified.

The Service further concludes that the proposed project is not likely to jeopardize the continued existence of the Braunton's milkvetch.

This Biological Opinion is based upon the best available information, including the draft Subregional Reserve Design for the Central and Coastal NCCP Subregions of the County of Orange, presented to the Service on April 22, 1994, as discussed later in this document. If these conditions change substantially, reinitiation of formal consultation may be required, pursuant to 50 CFR 402.16.

Description of the Proposed Action

The Transportation Corridor Agencies (TCA) and Caltrans propose to authorize and have built a multiple lane tollway that would extend from State Route 91 south and west to Interstate 5 in central Orange County. The tollway would include a North Leg and an East Leg. As shown on Figure 1 of the Biological Assessment (P&D Technologies 1994), the North Leg would begin at State Route 91 and would traverse Gypsum and Blind Canyons to the East Orange Interchange. It would include six general purpose lanes, either one concurrent flow high occupancy vehicle (HOV) lane in each direction or two reversible HOV lanes and climbing and auxiliary lanes. The East Leg would begin at the East Orange interchange near Santiago Canyon Road and would extend southeast to connect with the Laguna Freeway at Interstate 5 near the United States Marine Corps Air Station in El Toro. It would include six general purpose lanes, two concurrent flow HOV lanes, and climbing and auxiliary lanes. The East Leg includes an interchange connection with the Foothill Transportation Corridor (North), west of Sand Canyon Avenue. The ETC (North) would extend from the ETC east to Oso Parkway. The ETC (North and East Legs) would be approximately 16.8 miles in length and have a grading width that varies from approximately 500 feet to 2,200 feet. Two maintenance stations to serve the tollway would be constructed as part of this project.

The ETC also includes, as a local related project, a West Leg, which would extend from a connection with the North and East Legs of the ETC at the East Orange Interchange to Jamboree Road south of Interstate 5 in Irvine, with no connection with Interstate 5. The West Leg would be constructed by TCA as a separate, locally funded project and is not part of the federal action assessed in this Biological Opinion. However, a separate Biological Opinion will be prepared for the West Leg ETC in consultation with the U.S. Army Corps of Engineers.

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Interior must make a determination whether the listing should be revised or revoked in light of his review of the data and public comments received, no later than 100 days following the Notice. This 100-day period concludes on September 10, 1994.

The referenced action may affect the gnatcatcher. The project also may adversely affect this species' habitat, coastal sage scrub, in the project area and environs, and an avian species being considered for imminent listing by the Service, the coastal cactus wren (Campylorhynchus brunneicapillus coqui); we have included technical assistance recommendations concerning the effects of the project on this species in the opinion. This biological opinion also constitutes the conference report on a plant species proposed for federal listing, the Brauntons' milkvetch (Astragalus brauntonii). In addition, as requested by the project applicant, the Service has also provided technical assistance on two Category 2 candidate plant species that would be affected by the project in this opinion: the many-stemmed dudleya (Dudleya multicaulis) and chaparral beargrass (Nolina cismontana).

At issue in this biological opinion, are impacts to the gnatcatcher, cactus wren and the Brauntons' milkvetch that may result from direct, indirect, interrelated or interdependent actions that are enabled or regulated by the Federal Highway Administration and implemented by one or more of its agents (e.g. California Department of Transportation, [Caltrans], Transportation Corridor Agencies [TCA], private construction firms, private parties).

This Biological Opinion was prepared using the following information: 1) Eastern Transportation Corridor, Final Environmental Impact Report/Environmental Impact Statement, Foothill/Eastern Transportation Corridor Agency, March 1994 (hereinafter referred to as "EIS"); 2) Biological Resources Analysis Technical Report, P&D Technologies, May 1992; 3) Deer Telemetry Study, Foothill/Eastern Transportation Corridor Agency, March 1992; 4) Supplemental Draft Environmental Impact Study, Foothill/Eastern Transportation Corridor Agency, January 1993; 5) Federal Action on the Eastern Transportation Corridor Biological Assessment, Foothill/Eastern Transportation Corridor Agency, February 1994; 6) Southern California Coastal Sage Scrub Natural Community Conservation Planning (NCCP) Process Guidelines, including Attachment A: Conservation Guidelines and all attached and referenced documents, prepared by California Department of Fish and Game and California Resources Agency, November 1993 (hereinafter referred to as "Conservation Guidelines"); 7) County of Orange Coastal and Central NCCP/HCP Preliminary Reserve Design and Supporting Documentation, County of Orange, April 22, 1994; 8) various communications, including additional data and information developed between March through June 1994 by the Federal Highway Administration and/or their agents (on file); 9) Biological Opinion on the effects of the San Joaquin Hills Transportation Corridor on the Coastal California Gnatcatcher and Coastal Cactus Wren (on file); 10) Other biological references (see below, "Literature Cited and References").

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As part of the proposed project, the Federal Highway Administration or its agents (specifically TCA) have agreed to implement the following mitigation measures, summarized below. For additional detail, refer to the Final EIS, Biological Assessment, and additional mitigation measures contained in the Federal Highway Administration's final submittals to the Service (FHA 1994b, 1994c). These measures are also further discussed in the "Terms and Conditions" related to the incidental take statement later in this document. In part, TCA (or the Federal Highway Administration) has agreed to:

- ✓ 1. Shift the ETC an estimated 500 feet further east away from Siphon Ridge. This shift reduces coastal sage scrub impacts, gnatcatcher and cactus wren impacts and provides a larger block of contiguous open space around Siphon Reservoir;
- ✓ 2. *very similar* Develop and implement a Siphon Reservoir/Ridge Preservation and Restoration Program. Approximately 82 acres of existing coastal sage scrub in the Siphon Ridge area will be preserved. Another 112 acres of coastal sage scrub habitat located generally to the west and northwest of the reservoir will be restored, through a restoration/enhancement program developed in cooperation with the Service;
- ✓ 3. *very similar* Implement a one-half acre pilot coastal sage scrub restoration/revegetation project. The results of this pilot program will be the basis for developing the coastal sage scrub restoration/enhancement project described above. The ultimate goal is to restore native coastal sage scrub to the surrounding reservoir hills, historically in agricultural production, providing increased forage and nesting, not only for the California gnatcatcher but many other coastal sage scrub-associated species;
- ✓ 4. Contribute \$1,515,000 to a Conservation Fund. The Conservation Fund is to be used to support the Natural Communities Conservation Planning Efforts, including but not limited to management, restoration and enhancement of lands preserved through the Central and Coastal Subregional NCCP Planning effort. The Conservation Fund will be set up in a phased-installment program over a three-year period. Each installment will be for the amount of \$505,000. The first installment will be paid by January 1996 or within 90 days after the bond sale (based on the bond sale occurring on or after October 1, 1995), the second installment will be paid by January 1, 1997 and the third installment will be paid by January 1, 1998;
- ✓ 5. Restore 170 acres at designated areas along the ETC graded slopes with coastal sage scrub plant species. (There would be a 14-foot buffer between pavement and the restored vegetation to accommodate Caltrans maintenance activities (P&D Technologies 1994);
- ✓ 6. Construct a minimum of four wildlife crossings at four locations. These locations are described in the FEIS (FHA 1994a), Biological Assessment (P&D Technologies 1994) and subsequent documentation developed between the Service, the Federal Highway Administration and the TCA (FHA 1994b and 1994c). In conjunction with construction at the

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four wildlife crossings, natural springs or seeps will be protected and/or gallinaceous guzzlers (catch basin/watering devices) or other water storage containers and salt licks shall be constructed and installed to encourage the use of the wildlife crossings. The Federal Highway Administration or its agents will coordinate with the Service during preparation of the final grading plan for the wildlife crossing at Station No. 816;

7. Provide 10 culverts at least 54" in diameter along the East Leg and 9 culverts at least 54" in diameter along the North Leg, and three culverts at least 54" in diameter for the Foothill Transportation Corridor Connection to enhance wildlife crossing. The locations and dimensions of the culverts meeting this criteria are described in FHA 1994c;
8. Revegetate the area disturbed by construction of the wildlife crossings. A wildlife crossing revegetation plan for each crossing will be coordinated with the Service prior to the construction of the crossings;
9. Obtain wildlife conservation easements for all habitat mitigation areas and movement corridors under the wildlife crossings related to the ETC;
10. Conduct wildlife movement studies near each of the four wildlife crossing locations during the Spring and Fall. Reports shall be prepared annually, beginning one year after the opening of ETC and continuing for a total of five years. Alternatively, TCA may participate in or provide monetary contributions to radio tracking studies of predators in the region, conducted by the Service or other parties approved by the Service.

If the studies indicate the wildlife crossings are less than successful, as determined by the Service, then additional corrective measures shall be conducted, as necessary;

11. Ensure the operation of twenty cowbird traps in the Siphon Reservoir area and along the East Leg in perpetuity. Funds shall be provided sufficient to conduct trapping annually or to establish an endowment sufficient to provide trapping in perpetuity;

12. Perform a series of monitoring studies until performance criteria are met, to provide additional information on gnatcatcher habitat utilization. The purposes of these studies shall be as follows:

- a. To determine the success of the revegetation efforts in providing nesting opportunities for the gnatcatcher with consideration of predation, nest parasitism and other factors, and, in addition,
- b. A banding study will be conducted to determine extent of juvenile gnatcatcher dispersal at Siphon Reservoir and along the frontal slopes across the East Leg of the ETC. The banding study will be initiated in March of 1995.

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The study methodologies shall be approved by the Service;

- ✓ 13. Immediately replace or restore all coastal sage scrub habitat outside of the approved construction footprint, at a ratio of five acres replaced for each acre lost, that is destroyed or significantly modified as a result of the construction, implementation, or operation of the proposed project;
- ✓ 14. Implement all mitigation measures that are implied or identified in the Technical Studies or EIS, pertaining to water quality or erosion to prevent the dissemination or concentration of pollutants in the project area or "Action Area";
- ✓ 15. Mitigate light and glare impacts according to the measures identified in the EIS;
- ✓ 16. Provide a minimum of seven, and if feasible, 14 days prior notice to the Service before commencing grading activities. Grubbing or other land clearing activities shall not occur unless and until construction of the ETC is ready to begin in earnest. The following construction monitoring measures will be implemented to minimize impacts to gnatcatchers, coastal cactus wrens, and coastal sage scrub habitat:
 - a) Construction will be monitored by a biologist to minimize construction impacts on natural resources outside the actual construction zone. The monitor will observe the contractor's work to ensure that work does not take place in high value natural areas outside the clearing limits as staked in the field.
 - b) The contractor will review the rough grading plans and staking to ensure that the grading is within the project footprint as described for the Biological Opinion.
 - c) Construction monitoring activities will include the prevention of harm, harassment, injury, or death of wildlife by means of the education of contractor and construction crews. In addition, the monitor will work to prevent violation of existing laws, such as the Migratory Bird Treaty, Clean Water Act, and Fish and Game Code. If any violations or potential violations of these and other laws are noted, the monitor will advise the TCA accordingly. If necessary, work will be stopped, and the monitor shall advise the Federal Highway Administration, TCA, Service, and the Department of Fish and Game and other appropriate resource agencies to resolve the situation.
 - d) Monitoring of coastal sage scrub habitat within or immediately adjacent to active or future project construction areas will occur throughout the construction period, in order for the monitor to be aware of gnatcatcher and coastal cactus wren locations.
 - e) Continuous monitoring of gnatcatchers in active territories will be conducted during any construction operations that occur within

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100 feet of occupied habitat. The purpose of this monitoring will be either to verify that the construction does not significantly adversely affect the gnatcatcher activity or to determine whether "take" occurs, whichever the case may be. If this monitoring indicates that unauthorized take of gnatcatchers may occur, construction will cease pending coordination with the Service; and,

17. Mitigation measures for the many-stemmed dudleya and the chaparral beargrass will be conducted, as outlined in the ETC FEIS and the Biological Assessment, as modified below (FHA 1994a and P&D Technologies 1994):

a. The North Lake Interchange, as evaluated in the FEIS, will not be built as part of the ETC in order to avoid impacts to the many-stemmed dudleya. If this interchange should become necessary in the future, based on traffic demand, it will be redesigned to avoid impacts on the many-stemmed dudleya, or the impacts will be mitigated through the selection of an alternative site for transplantation and establishment of the plants, and as approved by the Service. The dudleya will be transplanted prior to the impact and reach a level of success, as approved by the Service, prior to impact by construction; and

- b. A salvage program will be developed to remove and relocate chaparral beargrass that would be impacted by ETC construction, in consultation with the Service, CDFG and other qualified resources specialists. Revegetation/transplantation and enhancement of beargrass will occur along the graded slopes of the ETC alignment and within Open Space Area 31 and Blind Canyon; a 20 acre area in the Limestone Regional Park ETC reservation area has been set aside for chaparral beargrass preservation (P&D Technologies 1994).

In addition, the Service notes that the TCA has enrolled in the NCCP Program. The NCCP Program was established in 1991 by the State of California through passing of the Natural Community Conservation Planning Act of 1991. Planning and implementation of the NCCP Program is the responsibility of the California Department of Fish and Game, in collaboration with The Resources Agency. The purpose of the NCCP Program is to provide long-term, regionally designated protection of natural wildlife diversity while permitting appropriate and compatible land development. Subregional Conservation Plans are guided by the Natural Community Conservation Guidelines, which are based on recommendations by a five-member panel of experts on various aspects of coastal sage scrub ecology. The ultimate goal of a NCCP Program is to provide for the establishment and management of permanent multi-species preserves. This establishment of preserves under the NCCP Program includes the identification and subsequent permanent protection of a network of core reserves, and the incorporation of biological corridors and linkages between core reserves and with other natural lands. NCCP planning is currently underway in Orange, San Diego, Riverside and Los Angeles counties.

In Orange County, two subregions have been designated that encompass most of the coastal sage scrub habitat in the county - the Southern Subregion, and the

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Central and Coastal Subregion. Draft NCCP plans are being prepared for both subregions, through a collaborative effort between local governments, environmental group representatives, land owners, land developers, TCA, CDFG and the Service.

The ETC project would affect the Central and Coastal NCCP planning effort, specifically, the Central subarea. A draft reserve design for this subregion was presented on April 22, 1994. The reserve design incorporates the ETC, along with its proposed wildlife crossings intended to preserve connectivity between habitat reserves bisected by the ETC. While a significant amount of coastal sage scrub habitat, including most gnatcatcher and coastal cactus wren population centers appear to have been included in habitat preserves, this reserve design was clearly identified as a preliminary design and subject to change as the planning process proceeded (County of Orange 1994). The Service has reviewed the draft reserve design and provided preliminary comments, but has not had the opportunity to review the data upon which the habitat reserves were based. Once the data have been received and analyzed by the Service, final comments on the Central and Coastal NCCP reserve design will be provided.

As discussed above, TCA is an active member of the Central and Coastal Subregional NCCP planning effort. In this capacity, TCA has responded to a number of requests for modification of the ETC project, including a strategic alignment shift in the Siphon Reservoir area to specifically reduce impacts to gnatcatchers, cactus wren and their coastal sage scrub habitat, and has incorporated other modifications to the project to improve wildlife movement across the ETC.

Effects of Proposed Action on Listed Species

Species Accounts

Coastal California Gnatcatcher

Primarily because of substantial, recent reductions in the habitat and range of the species and the inadequacy of existing regulations, the Service listed the gnatcatcher as threatened on March 30, 1993 (58 FR 16742). In recognition of the State's Natural Community Conservation Planning Program (NCCP Program), being implemented under the authority of the State of California's Natural Community Conservation Planning Act of 1991 (NCCP Act), and several local government on-going multi-species conservation planning efforts that intend to apply Federal Endangered Species Act standards to activities affecting the gnatcatcher, on December 10, 1993, the Service issued a special rule, pursuant to section 4(d) of the Act, defining the conditions under which take of the gnatcatcher would not be a violation of section 9 (58 FR 65088). Under the special rule, incidental take of the gnatcatcher by land-use activities addressed in an approved Natural Community Conservation Plan (NCCP) would not be considered a violation of section 9 of the Act, provided that the Service determined that the NCCP meets the issuance criteria for an "incidental take" permit, pursuant to section 10(a)(2)(B) of the Act and 50 CFR 17.32 (b)(2). A limited amount of incidental take of the gnatcatchers within subregions actively engaged in preparing a NCCP would also not be considered a violation

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of section 9 of the Act, provided that such take results from activities conducted consistent with the State's NCCP Conservation and Process Guidelines. The Conservation Guidelines limit this "interim take" to no more than 5% of existing coastal sage scrub habitat.

The coastal California gnatcatcher is a recognized subspecies of the California gnatcatcher (*Polioptila californica* [Brewster]) and is endemic to coastal southern California and northwestern Baja California, Mexico (American Ornithologists' Union 1983, 1989; Atwood 1980, 1988, 1990, 1991).

The gnatcatcher, a small, gray songbird, is an obligate resident of coastal sage scrub dominated plant communities from Los Angeles County generally south along the coast to El Rosario at about 30 degrees north latitude (American Ornithologists' Union 1957, Atwood 1990, Phillips 1991, Banks and Gardner 1992). The appropriate habitat or habitat type, occurs in a patchy or mosaic distribution. The distribution and size of these patches of suitable habitat varies throughout the range of the species from year to year due to the expressed effects of a variety of variables.

Typical coastal sage scrub habitat constituents are relatively low-growing, drought-deciduous, and succulent plant species. Representative plant taxa in this plant community include coastal sagebrush (*Artemisia californica*), several species of sage (*Salvia* spp.), California buckwheat (*Eriogonum fasciculatum*), California encelia (*Encelia californica*), various species of cactus and cholla (*Opuntia* spp.), and several species of *Haplopappus* (Munz 1974; Kirkpatrick and Hutchinson 1980). Of the 11 subassociations of coastal sage scrub identified by Kirkpatrick and Hutchinson (1977), the gnatcatcher apparently routinely occupies only three of these.

The gnatcatcher is primarily insectivorous and defends territories ranging in size from approximately 2 to 40 acres (Atwood 1990; John Konecny, personal communication). Atwood's comprehensive studies (1988, 1991) and status review (1990) further reveal that the breeding season of the species extends from February through July, and apparently peaks in April. Juveniles associate with their parents for several weeks or even months after fledgling.

Although considered locally common fewer than 50 years ago (Grinnell and Miller 1944), Atwood (1990, 1992b) estimated that the approximately 1,811 to 2,291 pairs of gnatcatchers remain in the United States population. In the listing package, the Service estimated that there could be as many as 2,562 pairs gnatcatchers in Southern California (58 FR 16742). Although the documented decline of the gnatcatcher undoubtedly is the result of numerous factors, including nest depredation and brood parasitism by the essentially non-native brown-headed cowbird (*Molothrus ater*), habitat destruction, fragmentation or modification are the principal reasons for the gnatcatcher's current, precarious status (58 FR 16742). It has been estimated that as much as 90 percent of coastal sage scrub vegetation has been lost as a result of development and land conversion (Westman 1981a, 1981b; Barbour and Major 1977), leaving coastal sage scrub as one of the most depleted habitat types in the United States (Kirkpatrick and Hutchinson 1977; Axelrod 1978; Klopatek et al. 1979; Westman 1987; O'Leary 1990).

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For references that contain thorough accounts of the gnatcatcher and its coastal sage scrub habitat, please see the section entitled "References and Literature Cited" at the conclusion of this document.

Species Accounts

Coastal Cactus Wren

The cactus wren (Campylorhynchus brunneicapillus) is a large (length 18-22 cm) member of the wren family (Troglodytidae). Its body plumage is brown above and whitish below. The crown is often a rust-colored brown bordered by a conspicuous whitish eyebrow. The underparts are heavily spotted with black especially on the upper breast. The back is streaked, and the wings and tail are conspicuously barred in black and white (Dunn 1987, Terrill 1988, Rea and Weaver 1990).

One recognized subspecies of cactus wren (C. b. couesi) occurs in the United States. Although Rea (1986) proposed a new subspecies of cactus wren, C. b. sandiegensis (San Diego cactus wren), the American Ornithologists' Union Committee on Classification and Nomenclature has not accepted this proposed change in taxonomy (Dr. Burt Monroe, American Ornithologists' Union, pers. comm.).

On September 21, 1990, the Service received two petitions to list the San Diego cactus wren, C. b. sandiegensis (Rea 1986), as an endangered species pursuant to Section 4 of the Act. Given the biological information contained therein pertaining to sandiegensis and the remainder of the coastal population of the cactus wren, the Service affirmed that the petitioned action may be warranted on January 24, 1991, pursuant to Section 4(b)(3)(A) of the Act. This finding was subsequently published in the Federal Register on March 22, 1991 (56 FR 12146).

Accordingly, it is the coastal population of C. b. couesi that is referred to herein as the coastal cactus wren. A discussion of the nomenclatural history of the coastal California population of the cactus wren is presented by Rea and Weaver (1990).

The coastal cactus wren occurs from southern Ventura County southeast to the Baldwin Hills and the Palos Verdes Peninsula in Los Angeles County, east along the southern flank of the San Gabriel and San Bernardino Mountains from the northern San Fernando Valley in Los Angeles County to Mentone in San Bernardino County, and south along the coastal slopes and interior valleys west of the Peninsular ranges in western Riverside, Orange, and San Diego Counties to extreme northwestern Baja California, Mexico, in the vicinity of Tijuana and Valle de las Palmas. Maps depicting the distribution of the coastal population of the cactus wren are presented in Garrett and Dunn (1981) and Rea and Weaver (1990).

The geographic isolation of coastal and interior cactus wren populations has been enhanced by the urbanization of southern California and may be facilitating their genetic differentiation (e.g., see Rea and Weaver 1990). The hiatus of suitable habitat formed by the Transverse and Peninsular ranges

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also serves to maintain and define the disjunct distribution of coastal and interior populations of the cactus wren. In addition, Garrett (1992) concluded that "...the habitat occupied by coastal Los Angeles and Ventura County cactus wrens (never considered to be part of the sandiegensis subspecies) is strikingly different than that occupied by the nearest desert populations in the western Antelope Valley..." and that "...all of the coastal slope populations are now functionally isolated from the desert ones..."

The coastal cactus wren is an obligate, nonmigratory resident of the coastal sage scrub plant community. As its common name suggests, this species is found in association with various species of cacti which provide sites for nesting, roosting, and foraging. The coastal cactus wren occurs almost exclusively in thickets of tall prickly pear (Opuntia littoralis and O. oricola) and coastal cholla (O. prolifer) at elevations up to 450 m above sea level (Rea and Weaver 1990). Rea and Weaver (1990) reported that "The wrens are absent from areas where only low, sprawling cacti grow."

From the early 1880's to the early 1930's, the coastal cactus wren was considered a locally common resident of cactus-dominated habitat from San Diego northwest to Santa Paula in Ventura County (Grinnell 1915; Willett 1912, 1933). However, even during this period, a decline in its status was noted. Dawson (1923) reported that "All proper desert areas west of San Geronimo Pass are being threatened sharply by the human invasion ... The cactus wren has receded from many parts of the San Diego-Ventura section already, and is in danger of being altogether cut off."

Willett (1933) noted that this species had declined significantly in Ventura County (including its apparent extirpation from Simi Valley) as a result of land clearing activities for agricultural purposes. Grinnell and Miller (1944) characterized the range of the cactus wren on the coastal slope of southern California as "now much restricted as compared with conditions in the 1880's and 1890's, owing to great reduction of requisite habitat..."

The coastal cactus wren has been extirpated from at least 57 sites known to be occupied between 1976 and 1990 (Salata 1992). Many of the sites currently occupied by the coastal cactus wren contain very few pairs and are threatened by urban development, fire, agriculture, and a variety of other factors (Salata 1992). Rea and Weaver (1990) reported that only 10 of 52 sites currently occupied by the coastal cactus wren in San Diego County support five or more pairs. Overall, it is estimated that fewer than 2,400 pairs of coastal cactus wrens remain throughout its entire range (Salata 1992).

Considering the small overall population size of the coastal cactus wren, the precarious status of the coastal sage scrub plant community upon which it depends (O'Leary 1990), and the high degree of wren habitat fragmentation (Rea and Weaver 1990), further losses of habitat can be expected to have a significant adverse effect on the viability of extant subpopulations. Indeed, the status of the coastal cactus wren is symptomatic of the status of the coastal sage scrub plant community upon which it depends for its continued existence. As was indicated above, this plant community is one of the most depleted habitat types in the United States (Kirkpatrick and Hutchinson 1977; Axelrod 1978; Klopatek et al. 1979; Westman 1981a,b, 1987; O'Leary 1990).

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Braunton's milkvetch

The Service first proposed Braunton's milkvetch (Astragalus brauntonii) for listing as federally threatened or endangered in January 1975. No action on the proposal was taken prior to 1978, when ESA amendments were enacted that required all proposals over two years old be withdrawn. A one-year grace period was provided to those proposals already more than two years old; however, Braunton's milkvetch was included in a Federal Register notice of withdrawal of the proposals that had expired in September 1979. The Service published an updated notice of review for the plants for which proposals had been withdrawn in December 15, 1980. This list included Braunton's milkvetch as Category 1 candidate species. In September 27, 1985 the list was revised and Braunton's milkvetch was listed as a Category 2 candidate species. More recent reviews of the threats facing the species throughout its range resulted in its elevation to a Category 1 candidate. In subsequent years, the Service found the petitioned listing of Braunton's milkvetch and other species warranted, but listing was precluded by other pending proposals of higher priority. Braunton's milkvetch was proposed for listing as endangered on November 30, 1992 (USFWS 1993).

The Braunton's milkvetch is a stout perennial of the legume family (Fabaceae). This species is approximately four to five feet tall covered with dense white hairs (Hickman 1993). This characteristic and its two-chambered pod allow it to be easily distinguished from other species of Astragalus. Fire or other site perturbation is required for seed germination. Individual plants live only two to three years; thus, the plant is only visible for a short period following a fire event. Braunton's milkvetch is thought to be associated with limestone soils and chaparral beargrass. The majority of the populations outside of limestone soils, occurrences have thus far been attributed to seed drift following a fire event (USFWS 1993). Braunton's milkvetch is known to occur in Ventura, Orange and Los Angeles Counties. Specific sites of known populations include Simi Hills, Coal and Gypsum Canyons, and historically Clamshell Canyon and the Santa Monica Mountains. In Orange County, it commonly occurs in areas supporting chaparral beargrass (Roberts 1993, pers. comm.). The current estimate of extant individuals of Braunton's milkvetch is approximately 300 plants (USFWS 1993).

Analysis of Impacts

Pursuant to the regulations at 50 CFR 402, the following constitutes an analysis of impacts to the gnatcatcher, coastal cactus wren, and Braunton's milkvetch in and around the project Action Area, which includes all of the land that would be directly impacted by project construction, and indirectly affected by project construction and operation (e.g. noise effects), or affected because of potential induced growth.

As described above, there may be as many as 2,562 gnatcatchers remaining in the U.S. Of this total, about 757 pairs of gnatcatchers were estimated to occur in Orange County (58 FR 16743), prior to the wildfires that burned a significant amount of Orange County, primarily the coastal areas, in October 1993. Over 7,700 acres of coastal sage scrub burned as a result of the 1993 wildfires in Orange County. An estimated 144 pairs of gnatcatchers were

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assumed lost (USFWS 1993). The most significant fire damage to the Orange County coastal sage scrub ecosystem occurred in the coastal areas, especially in the San Joaquin Hills area. Impacts to the gnatcatcher and coastal cactus wren resulting from this fire were analyzed in the Biological Opinion for the San Joaquin Hills Transportation Corridor (USFWS 1994). While significant impacts to the coastal populations of gnatcatchers and cactus wrens, it is expected that these populations will eventually increase as the habitat recovers from the fire (USFWS 1994).

The existing information on the abundance and distribution of the gnatcatcher in Orange County was supplemented by field surveys conducted as part of the NCCP planning effort. Intensive field surveys for the NCCP target species (gnatcatcher, coastal cactus wren and orange-throated whiptail lizard) were conducted in various locations within the coastal sage scrub habitat in the Santa Ana Mountains/Lomas de Santiago Ridge that comprises the reserve planning area for the Central subarea. Field surveys were conducted in 1991 through 1992 and again in the spring of 1994. Field survey locations included lands owned by the Irvine Company (a substantial portion of the Central Subarea) and County regional parks. In 1994, additional survey locations were selected, the basis of selection being those areas determined to have the greatest potential presence of gnatcatchers and cactus wrens. The purpose of these surveys were merely to note the presence or absence of NCCP target species, including the gnatcatcher. No attempt was made to determine the status of individuals sighted; NCCP survey results are reported as sightings. During the 1991-1992 field surveys in the Central subarea, approximately 163 gnatcatchers and 476 cactus wren were sighted. In the 1994 spring surveys, 174 gnatcatchers and 190 coastal cactus wren were sighted (R.J. Meade, Pers. Comm).

As stated above, the gnatcatcher is an obligate species of the coastal sage scrub habitat. Gnatcatchers are found more consistently and in higher densities in subassociations of coastal sage scrub generally found near the coast and lower in elevation (NCCP Scientific Review Committee: J. Atwood, J. Rotenberry and D. Murphy, Pers. Comm.). This is particularly noticeable in Orange County, where there is a relatively quick transition between the flatter, coastal areas, and the steeper, more mountainous portions of the county in the Santa Ana Mountains. Coastal sage scrub habitat in the foothill portion of the Loma Ridge and adjacent lowland areas provide an example of this observation. The Loma Ridge foothill area and adjacent lowlands traversed by the ETC range in elevation from about 500 to 1,200 feet in elevation and the existing patches of coastal sage scrub habitat supports significant populations of the gnatcatcher and coastal cactus wren (P&D Technologies 1994). Steeper areas immediately adjacent to these flatter foothill/lowland areas in the vicinity of the Limestone Canyon area have more scattered, less dense populations of gnatcatchers (P&D Technologies 1994). The coastal sage scrub patches in the foothill/lowland areas of the Loma Ridge may be the source population of gnatcatchers for the steeper, more mountainous areas to the east (NCCP Scientific Review Committee: J. Atwood, J. Rotenberry and D. Murphy, Pers. Comm).

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Direct and Indirect Effects

As described in the Biological Assessment and as modified by the alignment shift off the Siphon Ridge area, the project will result in the permanent, direct loss of 250 acres of coastal sage scrub habitat. In addition it is estimated that indirect effects of project construction and operation (e.g., noise, light impacts, potential pollutant dispersal) may extend up to 1,000 feet from the centerline of the ETC. It is estimated that the construction will directly affect approximately 14 pairs and 5 single gnatcatchers for a total of 33 gnatcatchers; indirect effects may include an additional 9 pairs of gnatcatchers (P&D Technologies 1994, FHA 1994b).

Approximately 19.2 acres of potential habitat for the Braunton's milkvetch would be subject to direct impacts due to construction of the ETC. (P&D Technologies 1994).

Technical AssistanceCoastal Cactus Wren

Approximately 10 pairs and 11 single cactus wrens, for a total of 30 wrens would be directly affected by ETC construction. An additional 6 pairs and 10 individual cactus wrens may be indirectly affected (P&D Technologies 1994, FHA 1994b).

Many-stemmed Dudleya and Chaparral Beargrass

For the many-stemmed dudleya, approximately 4,500 to 6,256 plants would be directly affected by ETC construction. Indirect impacts could occur as a result of soil erosion, fugitive dust, and air pollution. The mitigation measure proposed, elimination of (possibly only temporarily) the North Lake Interchange, will significantly reduce the impacts to dudleya. If the translocation program should become necessary, a monitoring program of at least three to five years would likely be required to determine success.

A minimum of about 19.2 acres of chaparral beargrass would be lost by ETC construction. Indirect impacts could occur as a result of soil erosion, fugitive dust, and air pollution. Since the potential for success of revegetation/transplantation of this species is unknown, a minimum Monitoring Program of 5 years would likely be necessary to ensure that the transplanted population is selfsustaining. Selection of the Limestone Canyon site for mitigation would depend upon the suitability of the soils.

Habitat Fragmentation

While the direct and indirect impacts associated with the ETC pose a significant threat to gnatcatcher populations in the Central Subarea, a more serious aspect of the ETC for gnatcatcher populations is habitat fragmentation, which tends to disrupt various ecosystem processes.

As discussed previously, habitat destruction and fragmentation are the most significant threats to gnatcatchers (and coastal cactus wrens). As noted by

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Noss (1992) and Soule et al. (1992). "In the coastal sage of Southern California, a classic sequence of habitat destruction and fragmentation has occurred, involving a reduction in total habitat area and apportionment of the remaining area into small isolated pieces. These pieces, mostly canyons, then continue to lose native vegetation as human activities fragment them internally and nibble at their edges." The NCCP Conservation Guidelines notes that "...threats to coastal sage scrub habitat are more than losses of total habitat area alone. Threats also include losses of distinct subtypes of sage scrub and losses of the special conditions needed to maintain the broad suite of coastal sage scrub-resident species" (CDFG 1993). Habitat fragments have little long-term value for conservation, as smaller habitat areas contain fewer species. Also, smaller habitat patches with proportionally larger perimeters are more vulnerable to deleterious edge effects, although such effects have not yet been documented in coastal sage scrub (Atwood 1990).

In the County of Orange, relatively large, contiguous patches of coastal sage scrub still exist. This is due to a combination of a unique and proactive approach to land-use planning, which requires dedication of open space in return for development rights, and geography. In the Central subarea, open space dedication has been concentrated in the higher elevation areas adjacent to the Cleveland National Forest, such as the Limestone Regional Park and large canyon areas, such as Weir Canyon Wilderness Area. These dedicated open space lands contain a significant amount of coastal sage scrub. Development has tended to be more focused in the flatter, lower elevation areas, such as the coast and the inland valley area. The more steep foothill and mountain areas have been traditionally less attractive for development.

The ETC would bisect these contiguous coastal sage scrub patches, embedded within a mosaic of other natural habitats such as grasslands or chaparral. This will result in fragmentation of relatively contiguous patches of habitat into smaller patches to the west of the ETC, to a lesser extent, to the east of the corridor. Along the East Leg, the ETC would isolate the south-facing, lower elevation coastal sage scrub patches along the Loma Ridge and adjacent lowland areas, which support a significant population of gnatcatchers, away from a significantly larger, contiguous block of coastal sage scrub currently protected within Limestone Regional Park. Along the North Leg, Irvine Park, Weir Wilderness and Planning Area 31 would be isolated from coastal sage scrub and matrix habitats in the Gypsum and Coal Canyon areas, which abut the Cleveland National Forest. As discussed previously, coastal sage scrub typically exists in a patchy distribution, embedded within a matrix of other natural habitats, such as grassland or chaparral. Thus, the gnatcatcher and other species wholly dependent upon coastal sage scrub appear to be able to survive on small patches of habitat. Fragmentation of coastal sage scrub would impact gnatcatchers, and other obligate species, by isolating populations and preventing dispersal.

Fragmentation of habitat by the ETC is expected to inhibit, to some degree, juvenile dispersal of gnatcatchers and thus affect immigration between subpopulations that would be separated by the ETC. Little is known about juvenile gnatcatcher dispersal, or to what extent large roadways act as barriers to the gnatcatchers. Recent information suggests that 96% of juvenile gnatcatchers disperse within 1.5 miles of their natal territory; 80%

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disperse within 1.25 miles of their natal territory (G. Braden, USFWS, Pers. Comm). Gnatcatchers have been observed flying high over roadways; it may be that they fly high to get a view of where they want to go, and if they see coastal sage scrub, they may move there (Bontrager, Pers. Comm). Since gnatcatchers probably prefer to utilize natural habitats to disperse (Noss 1992), the ETC may act as a barrier, especially in those areas where coastal sage scrub or other native habitat cannot be seen across the corridor. The ETC would be a significant barrier to terrestrial wildlife species, such as the coyote and other large predators and their prey, which would ultimately affect the coastal sage scrub ecosystem, and therefore the gnatcatcher and cactus wren.

In the Loma Ridge area, the alignment of the ETC is generally along the less steep portion of the foothill area, immediately adjacent to much steeper terrain, which may already form a barrier to gnatcatcher dispersal into this area. The ETC would effectively broaden this existing natural barrier, and further impair dispersal of gnatcatchers from coastal sage scrub patches located west of the ETC to coastal sage scrub habitat located to the east (NCCP Scientific Review Committee: J. Atwood, J. Rotenberry and D. Murphy, Pers. Comm).

At Siphon Reservoir, fragmentation would also have a more significant effect on gnatcatchers due to the relative isolation of coastal sage scrub habitat. A total of approximately 115 acres of occupied gnatcatcher habitat exists within the Siphon Reservoir area. Approximately 26 acres occurs within proposed ETC grading limits. Gnatcatchers in the Siphon Reservoir area subject to direct or indirect impacts may attempt to disperse to adjacent habitats. However, little suitable habitat exists in proximity to this population to allow for potentially successful colonization by these birds. The gnatcatcher population at Siphon Ridge is bordered by avocado and citrus orchards to the east, citrus and row crops to the south, citrus orchards to the west and a combination of citrus and native open space to the north. Consequently, this population is surrounded by non-native habitats, except for a fairly narrow opening to natural open space to the north. It would appear that the best chance for successful dispersal would be to the north.

The project description includes a coastal sage scrub preservation/restoration program to partially mitigate the effects of the ETC construction and operation on the gnatcatcher population in the Siphon Ridge/Reservoir area. While only a few small scale efforts at coastal sage scrub restoration have been attempted, they indicate that net enhancement of habitat quality may be attainable. As stated in the Conservation Guidelines, ecological studies of coastal sage scrub show natural recovery from disturbance, which suggests that active restoration may be successful. The Conservation Guidelines recognize the feasibility of active coastal sage scrub restoration projects and conservatively estimate that a 5% habitat quality enhancement potential exists for coastal sage scrub habitat. The Conservation Guidelines' acknowledgement that up to a 5% interim habitat loss is acceptable during the period in which NCCPs are being developed is based upon the 5% restoration/enhancement potential estimate. The goal of the Restoration/Preservation Program at Siphon Ridge is to restore native coastal sage scrub to the surrounding reservoir hills, historically in agricultural production providing increased

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forage and nesting, not only for the California gnatcatcher but for many other coastal sage scrub-associated species. Approximately 82 acres of existing coastal sage scrub in the Siphon Ridge area will be preserved, and another 112 acres of coastal sage scrub habitat located generally to the west and northwest of the reservoir will be restored. If successful, this restoration program will improve the connectivity to coastal sage scrub habitat mosaic in the Loma Ridge area to the north.

In summary, the Service finds that fragmentation of coastal sage scrub habitat by the ETC poses a threat to the long-term viability of the gnatcatcher and likely other coastal sage scrub-associated species. The habitat patches remaining on the west side of the ETC, particularly in the Loma Ridge foothill and adjacent lowland areas, would be isolated to some degree from habitat to the east of the corridor.

As noted earlier, another negative result of fragmentation is edge effects. The 16.8-mile long corridor will create artificial edges along its length as it bifurcates natural, undisturbed habitat. The remaining habitat adjoining the ETC will have deteriorated value for wildlife to some distance away from the road due to the adverse effects of noise, air pollution and other factors. The ETC will also be a cause of mortality to a variety of species that move across the landscape.

The artificial edge created by the construction of the ETC could result in increased habitat disruption in areas that were previously inaccessible, and in increased rate of weedy plants (Noss 1992). This affect should be minimized by the revegetation of the graded slopes along the corridor with coastal sage scrub plant species, as proposed as part of the project's mitigation package (P&D Technologies 1994). The habitat fragmented and remaining on the west side of the ETC will be exposed to edge effects on both its east and west sides. Edge effects will include those created by the corridor along the eastern boundary of the habitat fragment, and those that will be created in the future along the western boundary of the habitat fragment by anticipated development, as it proceeds to press eastward into the foothill areas from the valley below.

Brood parasitism by the brown-headed cowbird (Molothrus ater), could be exacerbated by increased edge effect, likely affecting the reproductive potential of the gnatcatcher. Cowbird parasitism and the direct and indirect impacts of a variety of projects currently limit the distribution and potential expansion of gnatcatchers in Orange County, and in California as a whole. A composite of the best scientific information available suggests that cowbird abatement program proposed as part of the project should alleviate or offset the depression of gnatcatcher productivity that might otherwise result from the direct or indirect effects of the project. Specifically, management programs including cowbird abatement and predator surveillance have been extraordinarily successful in bringing about rapid and statistically significant increases in southern California populations of the least Bell's vireo (Vireo bellii pusillus), a Federally-listed endangered species (Salata 1987; Hays 1989; The Nature Conservancy 1993). More importantly, the available data reveal that 40% of the 10 gnatcatcher nests monitored in the Coyote Hills in Fullerton, California were parasitized by cowbirds (UNOCAL

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1993) as were 31% (54) of 176 gnatcatcher nests monitored in Riverside County study sites during the 1992-1993 breeding seasons (G. Braden, Pers. Comm.). It is critical that the reproductive capability of the gnatcatcher and coastal cactus wren be maximized to the extent possible in the short-term and in perpetuity to conserve and recover the local populations of these species. The cowbird management measures proposed as part of the Project (P&D Technologies 1994), will contribute to the elimination of a significant threat to gnatcatcher reproductive capability.

Impacts to Central and Coastal NCCP Reserve Design

The impact of fragmentation of coastal sage scrub and its resident species, including the gnatcatcher, must be analyzed with respect to the County of Orange's NCCP planning efforts in the Central Subregion. As discussed earlier, the listing of the gnatcatcher as threatened was followed by the issuance of a special rule, which, in general, would allow land-use activities associated with a NCCP plan to not be considered a violation of section 9 of the Act. Orange County is enrolled in the NCCP Program and is currently preparing a NCCP for the Central and Coastal Subregions (and Southern Subregion); a draft reserve design for the Central/Coastal Subregional NCCP plan has been prepared (County of Orange 1994a).

The NCCP program is intended to establish and manage a viable, permanent system of coastal sage scrub reserves complete with its matrix of other habitats, as well as identify areas that would be appropriate for development within the Central Subregion. The potential for establishment of a viable reserve system in the Central Subregion is the critical element in determining the impact of the ETC on the gnatcatcher; the ETC is a critical factor affecting/influencing reserve design and viability in this area. If it can be found that a viable coastal sage scrub reserve system can be established in the Central Subregion that includes the ETC project and its accompanying mitigation measures, the ETC, (assuming these are adequate means to minimize and mitigate impacts) would likely not impair the overall utility of the habitat in the Central Subregion as essential gnatcatcher population centers.

Connectivity

Connectivity between habitat reserve areas is essential for maintenance of the viability of the wide range of species inhabiting coastal sage scrub, including the gnatcatcher, over the long-term. As discussed above, while it is not clear to what extent major highways act as barriers to gnatcatcher movement, the ETC would be a significant barrier to terrestrial species, such as the coyote, mountain lion and other large predators and their prey. The presence of a full complement of resident species is important to the health and viability of a naturally functioning ecosystem. Since the Central subarea is bifurcated by the ETC, connectivity between reserve units must be provided through wildlife crossings.

The ETC has incorporated four wildlife crossings into its project design: three along the North Leg and one along the East Leg. The sites for these four wildlife crossings were selected to optimize wildlife crossing, particularly the wide-ranging mountain lion and deer, as determined by

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movement studies conducted for both these species, and expert opinion (FHA 1994a, P&D Technologies 1994, FHA 1994b, 1994c). The wildlife crossing locations and sizes are described briefly here and in more detail in FHA 1994c. The North Leg wildlife crossings include: the Oak Canyon wildlife crossing at ETC Station Number 710, approximately 50 feet high, 100 feet wide at bottom to 250 feet wide at the top, with a 220-foot traverse; the Southern California Edison easement crossing at ETC Station Number 758, approximately 29 to 40 feet high, 100 feet wide (which includes a dirt maintenance and fire road) to 230 feet wide at the top, with a 250-foot traverse; and the Windy Ridge crossing at ETC Station Number 816, approximately 30 feet high, 80 feet wide at the bottom to 220 feet wide at the top, with a 260-foot traverse. The East Leg wildlife crossing includes the Haul Road, at ETC Station Number 395, approximately 20 feet high, 70 feet wide at the bottom to 130 feet wide at the top, with a 600-foot traverse. The ETC structure above this crossing has three large gaps between bridges, ranging between approximately 40 to 160 feet. In addition, the ETC mitigation program provides for 10 culverts at least 54 inches in diameter along the East Leg, 3 culverts at least 54 inches in diameter for the Foothill Transportation Corridor Connection and 9 culverts at least 54" in diameter along the North Leg to further enhance wildlife crossing of the ETC (FHA 1994c).

The NCCP Conservation Guidelines state that "Corridors or linkages function better when the habitat within them resembles habitat that is preferred by target species". As part of the project description, the area disturbed by construction of the wildlife crossings will be revegetated with the appropriate vegetation, to provide appropriate cover, as described in a revegetation plan that will be coordinated with the Service. In addition, wildlife conservation easements will be obtained for all habitat mitigation areas and movement corridors under the wildlife crossings. Also, natural seeps or springs will be protected and/or water guzzlers and salt licks will be constructed/installed as part of each wildlife crossing, to induce wildlife to use these artificial structures. The Service finds that the four wildlife crossings and other associated mitigation measures proposed as part of the project and included in "Terms and Conditions" below, together with the Central Subarea NCCP Reserve Design that includes large reserve areas which could be connected via the crossings, will provide connectivity between the Central Subregion reserve units, as described below.

Along the North Leg, the northern-most wildlife crossing is located on Windy Ridge (FHA 1994c). This crossing location would provide a major connection between existing dedicated open space and NCCP reserve areas on both sides of the ETC (County of Orange 1994). This crossing is located approximately 500 feet downslope of an existing wildlife corridor, and although there has been some doubt as to whether this crossing would be effective, especially for deer (Padly, Pers. Comm), deer and mountain lion would likely use this crossing (FHA 1994b, Heffley, CDFG, Pers. Comm.). The topography is steep. In consultation with the Service, the TCA proposes to recontour the area leading to the crossing on the eastern side of the alignment to modify and flatten the slope, and make the area more attractive for wildlife movement. Careful consideration will be required to ensure that the topography is favorable to wildlife movement, while ensuring that a revegetation plan will be successful

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for this crossing. The water guzzlers should also help to induce wildlife to use this crossing.

Another crossing is provided about midway along the North Leg, at the Southern California Edison easement. This crossing would provide animals with access across the corridor into the Weir Canyon Wilderness Area, as expanded by the NCCP reserve. This crossing is located in the "Policy Plan" area of the Central Subarea NCCP; a designation which means that planning and reserve design decisions will be delayed until some time in the future, but will be dictated by "Policy Plan development criteria" developed as part of the Central Subregion NCCP (County of Orange 1994). The NCCP, through specific development criteria, will be required to ensure the use of these areas as wildlife crossings.

The third crossing along the North Leg of the ETC will occur at the Oak Canyon Crossing. This site is considered to be excellent for ensuring both deer and mountain lion movement (TCA 1992, FHA 1992, FHA 1994a, FHA 1994b). Fremont, Weir and Blind Canyons all connect in this area, providing animals with numerous possibilities for dispersal. The topography is easily traversed. This crossing is also located within the "Policy Plan" area of the Central subarea and will have the same requirements as the Southern California Edison easement crossing.

A large bridge spanning Santiago Canyon would be constructed as part of the ETC. This structure, designed primarily to avoid flood control problems, will also provide for recreational pedestrian, bikeway, and equestrian pathways between development proposed on both sides of the ETC in this area. This bridge will allow for the movement of coyotes and other small mammals, but will primarily encourage movement of nuisance species, such as skunks, opossums and red fox.

On the East Leg, a wildlife crossing has been sited within the Hick's Canyon Watershed near Haul Road (FHA 1994b, 1994c). This crossing will provide for wildlife movement from the Cleveland National Forest, through the currently designated Limestone Canyon Wilderness area, as augmented by NCCP reserve design, across the ETC to the Lomas Ridge Open Space area, as significantly augmented by the NCCP reserve design. While it presents a long traverse for wildlife (approximately 600 feet), the design of the bridge structure above the crossing includes three large gaps of space that will allow a significant amount of natural light will penetrate the crossing and reduce its potential to be tunnel-like. There are gaps ranging from 40 feet to 160 feet at regular intervals (50 to 110 feet) that accommodate the bridge structures planned. The most important animal anticipated to use this corridor is the coyote. Along the East Leg, there are also three culverts at least 54 inches in diameter associated with the ETC/FTC(N) interchange in this area that will allow movement of small mammals. In addition, the existing Bee Canyon Access Road will also provide for wildlife movement. The Haul Road crossing is essential to maintaining the health and viability of the Lomas Ridge reserve unit. The Haul Road Crossing will reduce the impacts to wildlife movement in this area.

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As discussed earlier, the ETC design includes large culverts along both legs which may be used by small mammals and provide additional potential for wildlife to traverse the corridor. Coyotes have been known to use culverts with a diameter of 54 inches or greater. These culverts will supplement the main wildlife crossings considered minimally necessary to maintain connectivity between habitat fragments.

Central Subregional NCCP Reserve Design

As discussed previously, a draft Reserve Design for the Central and Coastal Subregions was presented on April 22, 1994 (County of Orange 1994). In general, the Central Subregional Reserve Design incorporates already committed open space and areas of open space contemplated in conjunction with the approval of certain development projects in other areas. This open space system would also be augmented by adding reserve areas known to contain significant populations of gnatcatchers and cactus wren, and to provide linkages of natural habitat. The Central Subregion draft Reserve Design incorporates over 21,000 acres of coastal sage scrub and its matrix of other associated habitats, including lands necessary for connectivity (R.J. Meade, Pers. Comm.). Existing, planned and/or proposed regional open space lands in the Central Subregion, as identified in the Biological Assessment, includes a total of 8,379 acres of coastal sage scrub in Weir Canyon Wilderness Park, Santiago Oaks Regional Park, Irvine Regional Park, Open Space Area 31 in Gypsum Canyon, Peter's Canyon Regional Park, the Loma Ridge Open Space system, miscellaneous open space associated with the East Orange General Plan, Limestone Canyon Regional Park, and Whiting Ranch Wilderness Park. Significant areas which were added as reserve unit areas as part of the NCCP planning process include: a significant expansion to incorporate coastal sage scrub and significant gnatcatcher and coastal cactus wren populations south of the existing Loma Ridge Open Space system, including Upper Rattlesnake Canyon, Hicks Canyon, lower Foothills of Bee/Round Canyons - a NCCP reserve unit totalling 2,441 acres in size, with connections to the Limestone Canyon Regional Park NCCP reserve unit, totaling 10,934 acres; and a major expansion of natural habitat around the Weir Canyon Wilderness Area - a NCCP reserve unit totalling 3,923 acres, which would connect with a significant amount of coastal sage scrub habitat in a habitat matrix in the Weir, Gypsum and Coal Canyon areas across the ETC - a NCCP reserve unit totaling about 2,579 acres (R.J. Meade Pers. Comm.).

The Reserve Design provides substantial acreage both east and west of the ETC, and utilizes the wildlife crossings included in the ETC project to maintain connectivity between significant reserve areas. As discussed previously, the ETC includes three wildlife crossings at strategic locations along the North Leg to provide for connectivity between reserve units. The reserve design, together with these crossings, is intended to allow for the movement of small and large mammals, including predators and their prey base among the Cleveland National Forest, Gypsum and Coal Canyon areas across the ETC into the Weir Canyon Wilderness Area as expanded by the Central Subregional draft Reserve Design. Gnatcatchers (and cactus wren) would be more likely to disperse over the ETC.

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The East Leg of the ETC essentially fragments the south-facing frontal slopes and lowland areas of the Loma Ridge, from a large, contiguous block of natural habitat to the east, which could have disastrous impacts to coastal sage scrub ecosystem in this area, including significant impacts to the viability of gnatcatcher and coastal cactus wren populations. As stated previously, the ETC, in combination with the existing natural barrier of rugged, steep terrain immediately adjacent to this area could provide a significant barrier to gnatcatcher dispersal from the Loma Ridge source populations to the more scattered, less dense eastern subpopulations. The Central Subregional reserve design shows coastal sage scrub patches on these south facing frontal slopes and lowland areas of the Loma Ridge preserved as an approximately 2,400-acre reserve unit. This reserve unit provides for connectivity of coastal sage scrub in a matrix of grassland habitat, from the Siphon Reservoir north to the Loma Ridge/Santiago Hills area. Connectivity to preserved habitat across the ETC to the 10,934-acre Limestone Canyon NCCP reserve unit is provided by the Haul Road wildlife crossing, and to a lesser extent, the Bee Canyon access road and the three culverts associated with the ETC/FTC interchange near Siphon Reservoir. Maintenance/management of this area as a NCCP reserve unit, as a probable source population for the populations associated with the larger Limestone Canyon NCCP reserve unit, is likely essential to maintenance of gnatcatcher population in the Central Subregion over the long-term.

As discussed in the NCCP Conservation Guidelines, little is known about the coastal sage scrub ecosystem. The optimal size of a reserve unit to maintain coastal sage scrub ecosystem viability has not been studied. However, by applying a couple of the basic tenants of conservation biology, it is possible to reach some initial conclusions regarding the reserve design of the Lomas Ridge: 1. "Larger Reserves are Better" - Large blocks of habitat containing large populations of the target species are superior to small blocks of habitat containing small populations (CDFG 1993); and 2. "Link Reserves with Corridors" - Interconnected blocks of habitat serve conservation purposes better than do isolated blocks of habitat. The Lomas Ridge reserve unit is approximately 2,400 acres in size, and contains significant populations of gnatcatchers (and cactus wrens). This reserve unit is linked to a much larger NCCP reserve unit, the Limestone Canyon reserve unit, via the Haul Road wildlife crossing. The Limestone Canyon NCCP reserve unit consists of approximately 10,900 acres of contiguous habitat east of the East Leg of the ETC and north of the FTC (North). This area contains scattered populations of gnatcatchers and cactus wren.

While the Service has only recently obtained some of the digital data for the Central and Coastal Subregional NCCP (Stine, USFWS, Pers. Comm.), we conclude at this time that the Loma Ridge NCCP reserve unit as currently designed, in concert with the ETC-proposed wildlife crossing at Haul Road that will provide connectivity to the Limestone Canyon NCCP reserve unit, and with management provided through the NCCP plan, will likely provide for the long-term viability of the gnatcatcher, and likely other coastal sage scrub associated species in this area.

The County of Orange (County of Orange 1994b) has determined, in consultation with County's NCCP consultant, Dr. Rob Schonholtz, that the ETC would not

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preclude or prevent the preparation of an effective subregional NCCP program.

In summary, the Service concludes that the proposed project will not jeopardize the overall survival and recovery of these species or the maintenance of viable populations of the species within the Northern Orange County Santa Ana Mountains and project "Action Area", primarily because of the habitat reserves proposed as part of the draft Central Subregional NCCP Reserve Design, and the substantial impact avoidance and compensation measures incorporated into the project description. Further, given these impact avoidance and compensation measures and the best scientific information, the Service concludes that the project-related bifurcation, the removal of coastal sage scrub habitat, and the indirect impacts likely will not impact the overall utility of the Northern Orange County Santa Ana Mountains as important, and probably essential, coastal cactus wren and gnatcatcher habitats and population centers. This conclusion is based upon the best available information, including the draft Subregional Reserve Design for the Central and Coastal NCCP Subregions, presented to the Service on April 22, 1994. If these conditions change or if subsequent information is received that determines that the NCCP reserve design is not valid, then this conclusion would also be invalidated.

Technical Assistance

Coastal Cactus Wren

The proposed project effects described above for the gnatcatcher are similar to those likely to affect the coastal cactus wren.

Consistency with NCCP Guidelines

In addition to reviewing the project for its impacts to the NCCP Planning Process ongoing in Orange County, the Service has reviewed the ETC project for consistency with the NCCP Process and Conservation Guidelines. The project applicant, TCA, has enrolled the ETC in the Central and Coastal NCCP Planning Effort, and is participating in the NCCP planning process. In general, the Service concludes that the ETC is generally consistent with the Guidelines and with the Central and Coastal Subregional NCCP. Specifically, the Service concludes that project-related impacts:

- 1) will not foreclose future conservation planning efforts until such time as an NCCP has been completed and long-term enhancement and management programs are formulated. The Central and Coastal Subregional NCCP is being prepared in concurrent with plans for the ETC. The NCCP plan is currently in the design phase, which includes the ETC alignment and associated mitigation measures. As discussed earlier, the ETC was shifted approximately 500 feet east, in order to reduce impacts to the Central Subregion NCCP reserve design, and to lessen impacts to significant populations of gnatcatchers and coastal cactus wrens. To address the issue of connectivity between reserve units that would be bifurcated by the ETC, an additional wildlife crossing was added to the project description. The project, including the proposed mitigation package, will provide funding necessary to assist in providing for the perpetual enhancement and management of conservation areas containing significant blocks

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of coastal sage scrub habitat within the federal "Action Area" and the Central Subregion.

2) will not result in an interim loss equal to, or exceeding, 5% of the coastal sage scrub in any one subregion. The loss of coastal sage scrub by the ETC project would represent approximately 1.0 percent of the coastal sage scrub within the Central Subarea (FHA 1994b).

3) are, to the maximum extent practicable, limited to areas with smaller populations of target species. While the ETC has been in the planning process for a number of years, it is also being planned concurrent with the Central and Coastal Subregional NCCP. Areas of major biological importance, such as the Weir Wilderness Park and the Lomas Ridge/Siphon Ridge areas have been avoided to the maximum extent possible by project design and alignment changes. NCCP target species are generally present along the alignments of the North as well as the East Legs of the project. Out of an estimated eight populations of California gnatcatcher that are concentrated in the subregion (i.e. Weir/Santiago Regional Park, Peters Canyon, Irvine Park, Loma Ridge, Rattlesnake Reservoir, Siphon Reservoir, Aqua Chignon Wash and scattered locations in Limestone Regional Park), the project avoids all, except for a portion of the Siphon Reservoir population (P&D Technologies 1994, FHA 1994b). Throughout most of the coastal sage scrub adjacent to the project and within the grading limits, particularly on the north leg, the California gnatcatcher has been only sparsely reported (P&D Technologies 1994). The exception to that observation occurs at Siphon Reservoir. The TCA has recently moved the Corridor to address this concern and further reduced biological impacts. This shift of alignment further east of Siphon Ridge reduces coastal sage scrub impacts by an estimated 14 acres and reduces impacts to gnatcatcher pairs from eight to four. The ETC is located within the Santa Ana Foothills, which contains significant, but scattered, populations of the gnatcatcher and coastal cactus wren. Project design changes have minimized impacts to a large array of sensitive species.

4) do not, to the maximum extent practicable, disproportionately affect specific subunits of the environmental gradient in each subregion (as defined by vegetation subcommunity, latitude, elevation, distance from coast, slope, aspect or soil type. The ETC, as an essentially linear project, traverses a variety of vegetation communities, elevations, slopes, aspects and soil types (FHA 1994).

5) do not compromise the NCCP effort to protect, prior to completion of a subregional plan, areas of higher long-term conservation value as defined by the extent of coastal sage scrub habitat, proximity of that habitat to other habitat, the value of the habitat as landscape linkages or corridors, or the presence of sensitive species. While the Service only recently received some of the Central Subregional NCCP data from the County of Orange, and has not been able to determine the long-term conservation value of lands within the Central subregion, the Central Subregional draft reserve design has attempted to identify and include in the NCCP reserve, those areas that would appear to be of high value for long-term conservation (notable exceptions to this are the Tustin Ranch area and portions of the East Orange Planning Area). In addition, by incorporating the four wildlife crossings in strategic locations

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along the ETC, the ETC project provides for the connectivity essential to maintaining the long-term health and viability of the NCCP reserves. In the Siphon Reservoir area, where an earlier alignment of the ETC had posed significant impacts to gnatcatcher and coastal cactus wren populations, the alignment was shifted 500 feet off the ridge to reduce these impacts, and to accommodate the NCCP reserve design. The revegetation and preservation measures which are proposed as a part of the project promote coastal sage scrub and biological values to help maintain and potentially enhance target species and their occupation of the southern foothills of the Santa Ana Mountains. The program will help facilitate gnatcatcher movement among Peters Canyon, Loma Ridge, Rattlesnake Canyon, Hicks Canyon and Siphon Ridge as well to the east at Aqua Chignon Wash. The revegetation and preservation area has been selected within and adjacent to open space areas which support substantive populations of California gnatcatcher and cactus wren populations.

6) do not compromise the NCCP effort to direct development pressure to areas that have lower conservation value. As discussed above, much of the coastal sage scrub habitat in the North Orange County Santa Ana Foothills is in committed open space or existing conservation areas, as augmented by the Central Subarea NCCP reserve design. The ETC will not necessarily direct development pressure towards (or away from) areas of higher long-term conservation value. Subregional planners have the task of identifying areas of long-term conservation value (the Reserve system) to steer development pressure into areas of lower conservation value within the North Orange County Santa Ana Foothills and federal "Action Area" through the continued NCCP effort.

7) do not compromise the NCCP effort to ensure that all interim habitat losses are adequately mitigated and that said mitigation contributes to the interim subregional mitigation program that will be subsumed in the long-term subregional NCCP. As is indicated above, the project, including the proposed compensation measures, will enhance the NCCP's goal to provide for the perpetual enhancement and management of coastal sage scrub, gnatcatcher and coastal cactus wren conservation areas within the Central subregion.

In addition, the Service concludes that the research, management and restoration measures that have been developed for this project constitute special mitigation measures, as required for the NCCP Program (CDFG 1993). The Conservation Guidelines emphasize the importance of management and restoration research to subregional NCCP planning and further state that such efforts are "essential to the adaptive management of coastal sage scrub habitat". It is further recognized that such efforts "undertaken as mitigation during the interim program will add to the overall ability of these conservation tools to be employed more successfully in the future" (CDFG 1993).

In summary, the Service concludes that the loss of the habitat within the project footprint and the overall direct and indirect effects of the project will not result in the extirpation of the Northern Orange County Santa Ana Mountains populations of the gnatcatcher or Brauntons' milkvetch. Given the commitment of the Federal Highway Administration and the applicant to provide the resources to conduct and fund the restoration, enhancement and management

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activities for coastal sage scrub habitat in the Central Subregion, and the perpetual, intensive monitoring and management activities proposed, the Service concludes that project related impacts likely will not jeopardize the survival or recovery of the gnatcatcher.

Cumulative Impacts

Cumulative effects are those impacts of future State, local government, and private actions affecting endangered and threatened species that are reasonably certain to occur in the project "Action Area". Future federal actions will be subject to the consultation requirements established in Section 7 of the Endangered Species Act (Act) and, therefore, are not considered cumulative to the proposed action.

The majority of activities anticipated to affect these species within the foreseeable future are local projects with no direct Federal involvement. A large number of projects that lack a Federal nexus also have occurred or are proposed within the current range of the gnatcatcher and the coastal cactus wren. These projects could result, overtime, in significant cumulative effects to the gnatcatcher and to Brauntons' milkvetch. However, private projects with no Federal nexus are subject to certain other regulatory constraints of the Act. For example, Section 4 of the Act requires the Service to list species that are threatened or endangered, and section 9 of the Act prohibits the unlawful "take" [e.g., harm, harass] of listed species "by any 'person', including private individuals and entities."

Anticipated prohibitions against "take" and a desire to engage in proactive planning have prompted efforts by local governments and large land owners to develop Habitat Conservation Plans (HCPs), pursuant to authorization for incidental take under section 10 of the Act. In addition and as discussed within this document, The Resources Agency, the Department of Fish and Game, together with local governments, landowners and environmental groups and in cooperation with the Service, are together developing a Natural Communities Conservation Plans that would cover most of Orange County, including the project area. The efforts of all parties, working cooperatively with the agencies, and combined with current federal protection for the gnatcatcher that limits loss of coastal sage scrub habitat to no more than 5% during the planning stages are intended to provide mitigation for project-related impacts to the gnatcatcher, coastal cactus wren, orange-throated whiptail, and the entire suite of sensitive species resident in coastal sage scrub in the future. However, in the absence of NCCPs/HCPs incorporating substantive impact avoidance and compensation measures, the Service believes that habitat destruction, cowbird parasitism, and indirect impacts resulting from a variety of individual projects will effect the distribution and potential expansion of gnatcatchers and cactus wren throughout their historic range.

Nearly all of the land in the "Action Area" and in the Central Subregion that is not developed is within jurisdictions that have enrolled in the NCCP Program. As a result, all such lands are subject to the interim strategy outlined in the special rule, the Conservation Guidelines and other requirements of the NCCP process. This ensures that future land uses in this Subregion will be evaluated as to their impacts to the subregional planning

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effort, and will be required to provide mitigation to ensure protection of the gnatcatcher and other target species in enrolled areas.

In the event that it is determined that any future proposed development in the "Action Area" would have adverse impacts on gnatcatchers, cactus wrens or other coastal sage scrub sensitive species covered in the NCCP plans, appropriate and adequate mitigation measures would be developed in concert with representatives from the Service and Department of Fish and Game to ensure the protection of those species. For any property in the "Action Area" that is not covered by a jurisdictional enrollment in the NCCP, that property would still be subject to the requirements of CEQA and the Endangered Species Act. The following quotation from the NCCP Process Guidelines addresses this specific issue:

CEQA has a mandatory finding of significance wherever:

'(a) The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal,....' (CEQA Guidelines, section 15065)

By that standard, most coastal sage scrub habitat in the NCCP Program area is sensitive and could trigger a CEQA finding of significance. Accordingly, the presence of coastal sage scrub would be disclosed and potential impacts to the gnatcatcher and coastal cactus wren would be revealed.

The EIS analyzes growth inducing impacts effects and land uses in the "Action Area" in detail. The EIS states that potential growth-inducing impacts generated by the ETC are most likely to affect nearby developed and undeveloped lands located in portions of north and central Orange County. These areas of potential impact include areas within the City of Anaheim's and Orange's Sphere of Influence. Siphon Ridge, Hick's Canyon, and Rattlesnake Canyon contain the majority of coastal sage scrub that is occupied by the gnatcatcher. The ETC would have no growth inducing impacts in these areas, as growth here is already planned as part of the City of Irvine General Plan (FHA 1994). Specifically, from north to south, Loma Ridge and the south-facing slopes in upper Rattlesnake Canyon are planned as open space, whereas further south in Hick's Canyon, the designation is residential estate and recreation. Siphon Ridge is designated agriculture, with a development reserve zoning designation. The ETC is not anticipated to change these designations to the east or west within this reach.

Aside from Siphon Ridge, Hick's Canyon and Rattlesnake Canyon, other significant biological resources are present in Blind, Fremont, and Gypsum watersheds. There are no current development plans in Blind and Fremont Canyons. However, the ETC does provide access to these areas, particularly to Blind Canyon. Consequently, the ETC does potentially have growth-inducing impacts in Blind and Fremont Canyon. However, these areas support little occupied habitat for the gnatcatcher. Growth-inducing impacts in these areas would not substantially affect habitat for the gnatcatcher, or other coastal sage scrub-associated species. Nevertheless, full environmental review of

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future projects in areas along the ETC will be required prior to development. As described above, this entire area will be addressed in the Central and Coastal NCCP, which will address the anticipated impacts that would occur throughout the Subregion to coastal sage scrub habitat and the three target species.

In summary, the Service concludes, given all relevant information and analysis, that while the project could induce growth in portions of the project "Action Area", all future growth, whether planned or unplanned will be evaluated to determine its effects on the gnatcatcher under the Act, the NCCP Program and/or CEQA and will be constrained by the protective mandates of those statutes.

While little is known about where the Brauntons' milkvetch occurs, potential habitat occurs throughout the Gypsum Canyon and the northern end of Blind Canyon and the majority of Cypress Canyon. The growth-inducing impacts associated with the ETC in the Gypsum and Blind Canyon areas could be substantial.

Technical Assistance

Coastal Cactus Wren

Effects to the coastal cactus wren resulting from the above cumulative, growth-inducing actions are similar to those described for the gnatcatcher.

Many-stemmed Dudleya and Chaparral Beargrass

Significant cumulative and growth-inducing impacts on the many-stemmed dudleya in the project area would result from development in the East Orange, Mountain Park and Cypress Canyon areas.

Chaparral Beargrass is already under consideration for listing on an emergency basis because of cumulative impacts to this species. Significant cumulative effects would occur as a result of ETC construction.

Incidental Take

Sections 4(d) and 9 of the Act prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined 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 (50 CFR section 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR section 17.3). 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 to be prohibited taking, provided that such taking is in compliance with the

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reasonable and prudent measures, and terms and conditions that implement them, as set forth below.

The Service hereby incorporates by reference the 17 mitigation measures from the Federal Highway Administration's "Description of Proposed Action" into this incidental take statement as part of these "Terms and Conditions". The "Terms and Conditions" reflect the mitigation measures as proposed, with modifications where necessary as determined by the Service. Where these "Terms and Conditions" vary from or contradict mitigation measures proposed under "Description of Proposed Action", specifications in these terms and conditions shall apply.

The Federal Highway Administration has a continuing duty to regulate the activity that is covered by this incidental take statement. If the Federal Highway Administration fails to require the applicant adhere to the "Terms and Conditions" of the incidental take statement the protective coverage of section 7(o)(2) of the Act may lapse. This incidental take authorization is null and void if the above project description changes, if any mitigation or conservation measure in the EIS, Technical Report, Biological Assessment, or supplemental documentation is not fully carried out or executed, or if any Terms and Conditions or Reasonable and Prudent Measures as defined or described below are not met by The Federal Highway Administration, Transportation Corridor Agencies or their designated agents or successors, if the draft NCCP Reserve Design presented to the Service on April 22, 1994 is significantly modified, or if subsequent information received by the Service determines that the April 22, 1994 draft NCCP Reserve Design, incorporating the ETC alignment does not represent a viable reserve system for maintenance of the coastal sage scrub ecosystem.

It is not possible to precisely predict the amount of incidental take that would be associated with ETC construction, for several reasons:

- The number and location of birds will vary from season to season.
- The precise effects on breeding territories near the edge of the grading area are not known.
- The precise effects of noise and other disturbance on breeding territories outside the area of direct effect, but within the area affected by noise from the Corridor, can only be estimated.

However, given the information in the Biological Assessment and data and information developed supplemental to the Biological Assessment (FHA 1994b and 1994c), the Service anticipates that the following take could occur as a result of the proposed action:

1. Fifty one (51) gnatcatchers may be accidentally injured or killed during project construction or operation activities.
2. An unknown number of gnatcatcher eggs may be destroyed during project activities.

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3. An unknown number of gnatcatcher fledglings may be destroyed during project activities.

The incidental take statement provided in this opinion satisfies the requirements of the Endangered Species Act, as amended. This statement does not constitute an authorization for take of listed migratory birds under the more restrictive provisions of the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The Service is developing a program to address incidental take under the Migratory Bird Treaty Act.

If, during the course of the construction and operation of the project, gnatcatchers are injured or killed or if the take limit is reached, the Federal Highway Administration shall notify the Service at once in writing. If, during the course of the construction, implementation, or operation of the project, the amount or extent of the incidental take limit is exceeded, the Federal Highway Administration or its agents must cease the activity resulting in take and reinstitute consultation with the Service immediately to avoid further violation of Section 9 of the Act. Operations must be stopped in the interim period between the initiation and completion of the new consultation if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the species, as required by 50 CFR 402.14(i). The Federal Highway Administration and its agents should provide an explanation of the causes of the taking.

Reasonable and Prudent Measures

The Service believes that the following Reasonable and Prudent Measures are necessary and appropriate to minimize incidental take:

1. The Federal Highway Administration or its agents shall provide mitigation as described, implied, or suggested in the EIS, Technical Report, Biological Assessment and all other relevant letters and documents to minimize incidental take and to compensate for unavoidable impacts to the species.
2. The Federal Highway Administration and its agents shall minimize to the extent possible the harming or harassing of gnatcatchers and removal of coastal sage scrub habitat in conjunction with construction or other site development activities.
3. The Federal Highway Administration or its agents shall obtain all applicable state and Federal permits to take the gnatcatcher or coastal cactus wren and remove coastal sage scrub habitat. The incidental take authorization in this Biological Opinion is summarily revoked in the absence of such permits.

Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the Act, the Federal Highway Administration and its agents (e.g., CALTRANS, TCA, construction personnel, private parties) are responsible for compliance with the following terms and conditions, which implement the "Reasonable and

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Prudent Measures" described above. To this end, the Federal Highway Administration or its agents shall, at a minimum, provide mitigation as described, implied, or suggested in the EIS, Technical Report, Biological Assessment and other relevant letters and documents to minimize incidental take (except as these measures are modified by the following Terms and Conditions). In part:

1. The Federal Highway Administration or its agents shall shift the ETC an estimated 500 feet further east away from Siphon Ridge. This shift effectively reduces coastal sage scrub impacts, gnatcatcher impacts and provide a larger block of contiguous open space around Siphon Reservoir.
2. The Federal Highway Administration or its agents shall implement the Siphon Reservoir/Ridge Preservation and Restoration Program as described in the biological assessment or in subsequent information developed in consultation with the Service. The general area for the 194-acre preservation/restoration program is described as follows: the McCollough water line marks the northern-most boundary; Bee Canyon borders the area to west; Portola Parkway borders the area to the south; and the ETC itself forms the easternmost boundary. The preservation program shall include an estimated 48 acres near Siphon Ridge, and 34 acres to the southwest of Siphon Reservoir. This preservation acreage totals an estimated 82 acres. The restoration component of the Program includes creation of an estimated 112 acres of coastal sage scrub habitat located generally to the west and northwest of the reservoir, within the above defined parameters. It is anticipated that the restoration of the remaining acreage could begin implementation in the Fall of 1995. Coastal sage scrub habitat shall be deemed to be 'acceptable' if:
 - a. the habitat is occupied by breeding pairs of gnatcatchers; or
 - b. the Service and the Federal Highway Administration or its agents unanimously agree that the habitat has the structure and composition of naturally-occurring gnatcatcher habitat or fully functional coastal sage scrub; or
 - c. the Federal Highway Administration or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago.
3. The Federal Highway Administration or its agents shall conduct a one-half acre pilot coastal sage scrub restoration/revegetation project. The program could also serve as a demonstration project for the NCCP. Coastal sage scrub restoration/revegetation efforts on recently cleared agricultural areas has been limited and not clearly documented; therefore, the results of this pilot program are anticipated to provide valuable data for future projects of this kind, and will also be the basis for developing larger coastal sage scrub restoration/revegetation projects, including remaining available agricultural land surrounding

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Siphon Reservoir. The site is one-half acre of recently cleared orange groves located on the east facing slopes just northwest of Siphon Reservoir within The Irvine Company Orange Orchard No. 300. The orange trees were cut six inches above the trunk and treated with an herbicide approximately six months ago, leaving the root system intact. The top of the trees were chipped into mulch piles with some still remaining on the site.

The ultimate goal is to restore native coastal sage scrub to the surrounding reservoir hills, historically in agricultural production providing increased forage and nesting, not only for the California gnatcatcher but many other coastal sage scrub-associated species.

The one-half acre pilot coastal sage scrub program started in January 1994 and is currently underway with native seed collection being the first activity conducted. The initial program is planned to be conducted in two phases over the first year including seed and cactus pad collection, staking the site, collecting soil samples, site preparation, planting and seeding, monitoring and watering and preparing monitoring reports.

4. The Federal Highway Administration or its agents shall contribute \$1,515,000 to a conservation fund established by the Service. Payments to the fund shall be made to the Fish and Wildlife Foundation. The conservation fund is to be used to support the Natural Communities Conservation Planning effort, including but not limited to management, restoration and enhancement of lands preserved through the Central and Coastal Subregional Planning effort. Uses and disbursement of this Conservation Fund shall be determined by the Service. The Conservation Fund will be set up in a phased-installment program over a three-year period. Each installment will be for the amount of \$505,000. The first installment will be paid by January 1996 or within 90 days after the bond sale (based on the bond sale occurring on or after October 1, 1995), the second installment will be paid by January 1, 1997 and the third installment will be paid by January 1, 1998. These payments and this compensation measure shall be undertaken above and beyond (and in addition to) all other compensation measures or impact avoidance measures identified herein.
5. The Federal Highway Administration or its agents shall restore 170 acres at designated areas along the Corridor graded slopes with coastal sage scrub plant species. The revegetation effort shall be considered acceptable if the total cover by native coastal sage scrub species is at least 70 percent and the vegetation is not being artificially sustained, or if the Federal Highway Administration or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago. In addition, this roadside revegetation effort shall provide for a maintenance zone that should help to prevent fires adjacent to the ETC. This maintenance area shall include an unvegetated strip of four feet in

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width adjacent to the paved shoulder, and an additional 10 foot strip of low fuel volume native plants that can be routinely mowed.

6. The Federal Highway Administration or its agents shall construct a minimum of four wildlife crossings at four locations as described in the FEIS (FHA et al 1994), the Biological Assessment (P&D Technologies 1994) and in subsequent documentation developed between the Service, the Federal Highway Administration and the TCA (FHA 1994c). In conjunction with construction at the four wildlife crossings, natural springs or seeps will be protected and/or gallinaceous guzzlers (catch basin/watering devices) or other water storage containers and salt licks shall be constructed and installed at both ends of each of the four wildlife crossings to encourage the use of the crossings. A final grading plan that includes a topsoil preservation program shall be approved by the Service prior to the construction of the wildlife crossing at Station 816 (Windy Ridge Crossing). In addition, fencing at least 10 feet in height shall be installed along the both sides of the ETC in the general vicinity of the Windy Ridge wildlife crossing, to prevent roadside mortality and to assist in funneling animals toward the Windy Ridge crossing. Placement of the fencing shall be approved by the Service prior to construction of the wildlife crossing.
7. The Federal Highway Administration or its agents shall provide 10 culverts at least 54" in diameter along the East Leg and 9 culverts at least 54" in diameter along the North Leg, and 3 culverts at least 54" in diameter for the Foothill Transportation Corridor Connection to enhance wildlife crossing. The locations and sizes of the culverts shall be as described in documentation developed subsequent to the Biological Assessment (FHA 1994c).
8. The Federal Highway Administration or its agents shall revegetate the area disturbed by construction of the wildlife crossings with native habitat indigenous to the area. A revegetation plan for each crossing shall be approved by the Service prior to the construction of the wildlife crossings. The revegetation effort shall be considered acceptable if the total cover by native species indigenous to the area, including coastal sage scrub, is at least 70 percent and the vegetation is not being artificially sustained, or, the Federal Highway Administration or its agents can demonstrate, to the satisfaction of the Service, that restored coastal sage scrub habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago.
9. The Federal Highway Administration or its agents shall conduct movement studies near each of the four wildlife crossing locations during the Spring and Fall. Reports shall be prepared annually, beginning one year after the opening of ETC and continuing for a total of five years. Alternatively, TCA may participate in or provide monetary contributions to radio tracking surveys of predators in the region, conducted by the Service or other parties approved by the Service.

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If the studies indicate the measures are less than successful, as determined by the Service, then additional corrective measures shall be conducted, including the possibility of the construction of a new wildlife crossing, as necessary.

10. The Federal Highway Administration or its agents shall ensure the operation of twenty cowbird traps in the Siphon Reservoir area and along the East Leg of the ETC in perpetuity. Funds shall be provided sufficient to conduct trapping annually or to establish an endowment sufficient to provide trapping in perpetuity. Cowbird trapping shall begin during the spring of 1995 and shall continue for a minimum of five months each calendar year, unless the Service and the Federal Highway Administration or its agents unanimously agree that a lesser effort is justified during a given calendar year. The design, placement, and operation of the traps shall be directed and approved by the Service. A report detailing cowbird management activities shall be provided to the Service within two months of the conclusion of trapping efforts during each and every calendar year. Upon request of the Federal Highway Administration or its agents, the Service shall attempt to locate a suitable public or non-profit foundation or organization that is willing to provide, under contract, the services necessary to meet this mitigation requirement. In any case, The Federal Highway Administration or its agents shall be responsible for obtaining permission from The Irvine Company to operate traps on their property.
11. The Federal Highway Administration or its agents shall perform a series of monitoring studies until performance criteria are met, to provide additional information on gnatcatcher habitat utilization. The purposes of these studies shall be as follows:
 - a. To determine the success of the revegetation efforts in providing nesting opportunities for the gnatcatcher with consideration of predation, nest parasitism and other factors, and in addition,
 - b. A banding study will be conducted to determine extent of juvenile gnatcatcher dispersal at Siphon Reservoir. The banding study will be initiated in March of 1995.

The Service shall approve the study methodologies and shall set performance standards for the above studies, prior to the initiation of the studies. In addition, the Service shall require that researchers involved in such studies obtain permits pursuant to Section 10(a)(1)(a) of the Endangered Species Act.

12. The Federal Highway Administration or its agents shall obtain wildlife conservation easements for all habitat mitigation areas, as identified in the FEIS and Biological Assessment, and movement corridors under the wildlife crossings related to the Corridor, as described in the Biological Assessment, and supplemental information provided to the Service (FHA 1994b and 1994c).

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13. The Federal Highway Administration or its agents shall be responsible for immediately replacing or restoring all coastal sage scrub habitat outside of the approved construction footprint of the ETC, at a ratio of five acres replaced for each acre lost, that is destroyed or significantly modified as a result of the construction, implementation, or operation of the proposed project. The replacement or restoration of coastal sage scrub habitat shall be held to the same standards as the other revegetation efforts, and shall be considered acceptable if the total cover by native coastal sage scrub species is at least 70 percent and the vegetation is not being artificially sustained, or if the Federal Highway Administration or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago.
14. The Federal Highway Administration or its agents shall implement all mitigation measures that are implied or identified in the Technical Studies or EIS, as referenced in the EIS pertaining to water quality or erosion to prevent the dissemination or the concentration of pollutants in the project area or "Action Area."
15. Light and glare shall be mitigated according to measures identified in the EIS.
16. The Federal Highway Administration or its agents shall provide a minimum of seven, and if feasible, 14 days prior notice to the Service before commencing grading activities. Grubbing or other land clearing activities shall not occur unless and until construction of the Corridor is ready to begin in earnest. The Federal Highway Administration shall, to the extent possible, minimize the take of gnatcatchers by employing whatever means or measures that are necessary to prevent the harm and death of individual birds during grubbing, clearing, and other construction activities.

At a minimum, the following construction monitoring measures shall be implemented to minimize impacts to gnatcatchers, coastal cactus wrens, and coastal sage scrub habitat:

- a) Construction shall be monitored by a biologist to minimize construction impacts on natural resources outside the actual construction zone. The monitor will observe the contractor's work to ensure that work does not take place in high value natural areas outside the clearing limits as staked in the field.
- b) The contractor shall review the rough grading plans and staking to ensure that the grading is within the project footprint as described for the Biological Opinion.
- c) Construction monitoring activities shall include the prevention of harm, harassment, injury, or death of wildlife by means of the education of contractor and construction crews. In addition, the monitor shall work to prevent violation of existing laws, such as

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the Migratory Bird Treaty, Clean Water Act, and Fish and Game Code. If any violations or potential violations of these and other laws are noted, the monitor will advise the TCA accordingly. If necessary, work will be stopped, and the monitor shall advise the Federal Highway Administration, TCA, Service, and the Department of Fish and Game and other appropriate resource agencies to resolve the situation.

- d) Monitoring of coastal sage scrub habitat within or immediately adjacent to active or future project construction areas shall occur throughout the construction period, in order for the monitor to be aware of gnatcatcher and coastal cactus wren locations.
 - e) Continuous monitoring of gnatcatchers and coastal cactus wrens in active territories shall be conducted during any construction operations that occur within 100 feet of occupied habitat. The purpose of this monitoring will be either to verify that the construction does not significantly adversely affect the gnatcatcher activity or to determine whether "take" occurs, whichever the case may be. If this monitoring indicates that unauthorized take of gnatcatchers and coastal cactus wrens may occur, construction will cease pending coordination with the Service.
17. The Federal Highway Administration or its agents shall obtain necessary local, State and Federal permits to take, harm, or destroy the gnatcatcher and coastal sage scrub habitats. The authorizations granted herein, including the incidental take authorization, are null and void absent such permits. In particular, the Federal Highway Administration shall comply with all pertinent provisions of the Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended).
18. The Federal Highway Administration, as the Federal action agency, shall retain ultimate responsibility for the implementation of all preceding terms and conditions in the event of financial or institutional incapacity of TCA to perform them.

Technical Assistance

Coastal Cactus Wren

1. The above terms and conditions for gnatcatchers should also remove the adverse effects of project construction and operation on the coastal cactus wren.

Disposition of Sick, Injured, or Dead Individuals

The Service's Carlsbad Office must be notified within three working days should any listed species be found dead or injured in or adjacent to the project area. Notification must include the date, time, and location of the carcass, cause of death or injury, and any other pertinent information. If

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necessary, the Service will provide a protocol for the handling of dead or injured, listed animals. In the event that the Federal Highway Administration or its agents suspect that a species has been taken in contravention of any federal, State, or local law, all relevant information shall be reported within 24 hours to the Service's Carlsbad Enhancement Office at (619) 431-9440 or to the Service Division of Law Enforcement, Torrance, California at (310) 297-0062.

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. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's 7(a)(1) responsibility for these species.

1. The Federal Highway Administration and Service should analyze and consider the goals and progress of the proposed NCCP and other conservation planning efforts to insure consistency with Biological Opinions issued in conjunction with Federal projects or projects that are Federally-funded or permitted. This analysis should be extended to a consideration of the success of proposed avoidance and mitigation measures associated with this project and other projects throughout the range of the gnatcatcher and coastal cactus wren.
2. The Service, in consultation with other Federal agencies and working group or recovery team members, should assess the efficacy of various measures for mitigating project-related direct or indirect impacts to gnatcatchers, and their habitat. Thus far, it is apparent that successful creation or restoration of coastal sage scrub habitat has been achieved by relatively few revegetation specialists. Because the creation or restoration of coastal sage scrub habitat is often an essential component of effective mitigation for impacts to said habitat, revegetation methodologies and related data bases warrant close scrutiny and constant refinements.

Conclusion

This concludes the biological opinion on the Federal Highway Administration/Eastern Transportation Corridor proposed project. As found at 50 CFR 402.16, reinitiation of formal consultation is required if the action is significantly modified from that described above or if new information becomes available on listed species or impacts to listed species. Specifically, if the draft Central and Coastal Subregional NCCP reserve design changes substantially (as determined by the Service), especially in the area of the Lomas de Santiago ridge, or if analysis of the forthcoming data from the County of Orange refutes the determinations made by the Service at this time, reinitiation of formal consultation will be required. Additionally,

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should any of those species for which the Service provided technical assistance in this opinion, including the coastal cactus wren, the many-stemmed dudleya or the chaparral beargrass, be proposed for listing by the Service, formal consultation should be initiated immediately.

If you have any questions on this biological opinion, please call me at (619) 431-9440 or Tara Wood of my staff, at (916) 978-4613.

Sincerely,

Peter A. Shino
for Gail C. Kobetich
Field Supervisor

Peter G. Markle (1-6-94-F-17)

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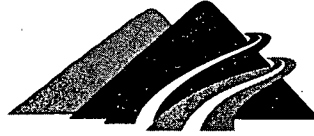
**WEST LEG
BIOLOGICAL OPINION**

San Joaquin Hills
Corridor Agency

Foothill/Eastern
Corridor Agency

Chairman:
Peter Buffa
Costa Mesa

Chairman:
Mike Ward
Irvine



TRANSPORTATION CORRIDOR AGENCIES

William Woollett, Jr.
Chief Executive Officer

Walter D. Kreutzen
Chief Operating Officer

Colleen E. Clark
Chief Financial Officer

Jerry E. Bennett
Chief Engineer

January 21, 1999

Mr. Jim Bartell
Assistant Field Supervisor
2730 Loker Ave. West
Carlsbad, CA 92008

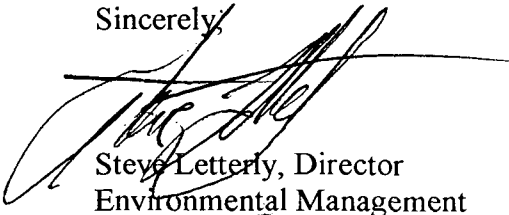
Subject: Eastern Transportation Corridor West Leg Biological Opinion (1-14-94-F-16)

Dear Mr. Bartell:

The Transportation Corridor Agencies (TCA) is pleased to have made our final payment to the Nature Reserve of Orange County (NROC) on January 4, 1999. This final payment of \$500,000 is in accordance with the payment schedule identified in the U.S. Fish and Wildlife Service Biological Opinion (1-14-94-F-16) for the Eastern Transportation Corridor West Leg and the Central Coastal NCCP Implementation Agreement. This final payment brings TCA's contribution to the NROC to \$6.6 million. We at the TCA remain committed to multi-species habitat planning as the best method of protecting Orange County's natural resources while providing for sustainable development. We look forward to seeing our funds being used to manage the 43,000-acre reserve.

Should you have any questions or concerns regarding this information, please feel free to contact Laura Coley Eisenberg, Principal of Resource Management at (714) 513-3482.

Sincerely,



Steve Letterly, Director
Environmental Management

Attachment

cc: Terry Dickerson, CDFG (5-139-93)
Fari Tabatabai, ACOE (94-245-BH)
Ron Thronton, NGKE
Laura Coley Eisenberg

201 E. SANDPOINTE AVE., SUITE 200, P.O. BOX 28870, SANTA ANA, CA 92799-8870 714/436-9800 FAX 714/436-9848
<http://www.tcagencies.com>

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\$1,262,750,597.70
FOOTHILL/EASTERN TRANSPORTATION CORRIDOR AGENCY
TOLL ROAD REVENUE BONDS SERIES 1995A (FIXED RATE)
AND
\$245,600,000
FOOTHILL/EASTERN TRANSPORTATION CORRIDOR AGENCY
TOLL ROAD REVENUE BONDS

\$93,400,000 Series 1995B	(Variable Rate)	(MGT)
\$61,400,000 Series 1995C	(Variable Rate)	(CS)
\$61,400,000 Series 1995D	(Variable Rate)	(IBJ)
\$29,400,000 Series 1995E	(Variable Rate)	(BNP)

DISBURSEMENT REQUEST NO. 565

Bank of New York, Western Trust Company, a successor trustee (the "Trustee") under the Master Indenture of Trust and the First Supplemental Indenture of Trustee each dated as of May 15, 1995 and the Second Supplemental Indenture of Trust dated as of May 15, 1995 as amended by the First Amendment to the Second Supplemental Indenture, dated as of June 21, 1995 (collectively, the "Indenture"), each by and between the Trustee and the Foothill/Eastern Transportation Corridor Agency (the "Agency"), hereby is requested and instructed to pay to the parties set forth in Appendix I hereto, from the respective accounts in the Construction Fund established pursuant to the Indenture, the respective amounts specified.

The undersigned is an Authorized Agency Representative as defined in the Indenture and certifies that said amounts are now due and owing, are properly payable as a Cost of the Pledged Facilities, any Special Project, or any proposed addition to, or betterment, improvement, or enlargement of the Pledged Facilities or any portion of any of the foregoing (as defined in the Indenture) from the account specified and have not been previously the subjects of any Disbursement Request.

Dated: 12/16/98

FOOTHILL/EASTERN TRANSPORTATION
CORRIDOR AGENCY

by: Margaret Hulson
Authorized Agency Representative

by: Eileen H. H. H.
Authorized Agency Representative

Disbursement Request #: 565
FETCA

APPENDIX I

NAME OF PAYEE	AMOUNT OF PAYMENT	NAME OF ACCOUNT	ADDRESS/Writing INSTRUCTIONS	TYPE OF PAYMENT	DESCRIPTION
Nature Reserve of Orange County for the USFW Service	\$500,000.00	FLE Variable Rate Construction General Acct # 419688	Nature Reserve of Orange County Bank of America South County RCOO ABA 121000 58 Acct 0694417405	Wire	Biological Opinion West Leg 1-14-94-F-16

Please transfer funds on 1/4/99

HISTORY OF TRANSACTIONS LIST AS OF 01/07/99
ACCT 419688 F/E 95 VAR RATE CONST-GENERAL

POSTINGS OF 01/01/99 - 01/08/99
REPORT TYPE: A

POST-DTE	TYPE	RG	UNITS	INC CASH	PRIN, CASH
01/04/99	SALE	51	593.20	.00	.00
BNY HAMILTON TRSY MONEY FD PREMIER # 74				593.20	
CUS # S99990560 SEC # 9999056					
ITC: 000 PTC: 800 CP: 0 B/C: ZERO DC: 18					
TRN#:990040010 TD/DOR:01/04/99 CSD:01/04/99					
01/04/99	SALE	01	318,430.34	.00	318,430.34
BNY HAMILTON TRSY MONEY FD PREMIER # 741					
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ITC: 000 PTC: 800 CP: 0 B/C: ZERO DC: 18					
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EARNINGS TRNSFR FR 419703 TO 419688 /					
PER SEC 7.7 2ND SUPP INDENT					
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PER SEC 7.7 2ND SUPP INDENT					
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TRN#:990040016					
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BNY HAMILTON TRSY MONEY FD PREMIER # 741					
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ITC: 000 PTC: 960 CP: 0 B/C: ZERO DC: 18					
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ITC: 050 PTC: 000 CP: B/C: ZERO DC: 18					
TRN#:990050011					



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
Carlsbad Field Office
2730 Loker Avenue West
Carlsbad, California 92008

July 13, 1994

Colonel Michael R. Robinson, District Engineer
Los Angeles District, Corps of Engineers
P.O. Box 2711
Los Angeles, California 90053-2325

Attn: Mr. Bruce Henderson

Re: Biological Opinion on the Effects of the Eastern Transportation
Corridor (ETC), West Leg, on the Coastal California Gnatcatcher;
Orange County, California (1-14-94-F-16)

Dear Colonel Robinson:

This Biological Opinion responds to your January 14, 1994 request to the Fish and Wildlife Service (Service) for formal consultation, pursuant to Section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act). In March, the Service determined that additional information was needed regarding the impact of the ETC project on Orange County's Natural Community Conservation Plan (NCCP) Program before the Service would be able to proceed with completion of the biological opinion. This information was received by the Service on June 7, 1994.

The Service listed the coastal California gnatcatcher (Polioptila californica californica), hereinafter referred to as "the gnatcatcher" as a threatened species, on March 25, 1993. On May 2, 1994, the listing was invalidated by the United States District Court of Columbia on the basis that the Secretary of the Interior failed to obtain and make available for public review and comment the data underlying a published scientific report on the specific taxonomy of the gnatcatcher. On June 16, 1994, Judge Sporkin granted a stay of his earlier decision to vacate the listing of the gnatcatcher, allowing the gnatcatcher to retain its threatened status while the Service made the data in question available to the public for review and comment. On June 2, 1994, the Service published a 60 day Notice of Availability (Notice) of the data in the Federal Register. In compliance with the Judge's order, the Secretary of the Interior must make a determination whether the listing should be revised or revoked in light of his review of the data and public comments received no later than 100 days following the published date of the Notice. This 100 day period concludes on September 10, 1994.

The referenced project may adversely affect the gnatcatcher, and its coastal sage scrub habitats in the project area and environs. The project may also adversely affect an avian species being considered for imminent listing by the Service, the coastal cactus wren (Campylorhynchus brunneicapillus couesi), which is also associated with coastal sage scrub; we have included technical assistance recommendations concerning the effects of the project on this species in the opinion. At issue herein, are impacts to the gnatcatcher that may result from direct, indirect, and interrelated or interdependent actions in association with the project that are enabled or regulated by the U.S. Army Corps of Engineers and implemented by one or more of its agents (e.g., California Department of

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Transportation, [Caltrans], Transportation Corridor Agencies [TCA], private construction firms, private parties).

This Biological Opinion was prepared using the following information: 1) Eastern Transportation Corridor, Final Environmental Impact Report/Environmental Impact Statement; Foothill/Eastern Transportation Corridor Agency; May, 1992; 2) Biological Resources Analysis Technical Report, P&D Technologies; May 1992; 3) Supplemental Draft Environmental Impact Study; Foothill/Eastern Transportation Corridor Agency; January 1993; 4) Biological Assessment of the Eastern Transportation Corridor for the West Leg; Foothill/Eastern Transportation Corridor Agency; February 1994; 5) Natural Communities Conservation Planning (NCCP) Process Guidelines, including Attachment A: Conservation Guidelines and all attached and referenced documents, prepared by California Department of Fish and Game and California Resources Agency, November 1993 (hereinafter referred to as "Conservation Guidelines"); 6) County of Orange Coastal and Central NCCP/HCP Preliminary Reserve Design and Supporting Documentation; County of Orange; April 22, 1994; 7) biological opinion on the effects of the Eastern Transportation Corridor on the Coastal California gnatcatcher and Brauntons' milkvetch, (on file); 8) various communications, including additional data and information developed between March through June 1994 by the Corps of Engineers and/or their agents (on file); and 9) Other biological references (see below, "Literature Cited and References").

Biological Opinion

It is the opinion of the Service that the proposed project, including the mitigation and avoidance measures as required by the Final EIS/EIR, and Biological Assessment, and as modified by additional mitigation measures proposed by the U.S. Army Corps of Engineers and their agent, the Transportation Corridor Agencies (USACOE 1994), is not likely to jeopardize the continued existence of the coastal California gnatcatcher. Critical habitat for this species has not been proposed and, therefore, no critical habitat would be modified.

This Biological Opinion is based upon the best available information, including the draft Subregional Reserve Design for the Central and Coastal NCCP Subregions of the County of Orange, presented to the Service on April 22, 1994. If these conditions change substantially, reinitiation of formal consultation may be required, pursuant to 50 CFR 402.16.

Description of the Proposed Action

The Transportation Corridor Agencies (TCA) and Caltrans propose to authorize and have built a multiple lane tollway that would extend from State Route 91 to Interstate 5 in northeastern Orange County. The ETC facility would consist of three legs, the North, East and West Legs. The West Leg, which is the subject of this biological opinion, is a locally funded project with no connections to the Interstate 5 Freeway. The North and East Legs connect with Interstate freeways and are the subject of a separate formal consultation conducted with the Service by the Federal Highway Administration.

The West Leg would extend from its interchange with the North and East Legs at the East Orange Interchange south to its terminus south of I-5. The West Leg would traverse parts of Peters Canyon and the Tustin Plain and would have no interchange with I-5. The West Leg would include a total of four general purpose lanes and two high occupancy vehicle (HOV) lanes which may be either concurrent (one in each direction) or reversible. The West

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Leg would be approximately 5.3 miles in length and have a grading width that varies from approximately 500 to 2,200 feet.

As part of the proposed project, the U.S. Army Corps of Engineers or its agents (specifically TGA) have agreed to implement the following mitigation measures (discussed in more detail in the EIS and Final Biological Assessment):

- SOW {
1. Preserve an estimated 20 acres of coastal sage scrub at Siphon Ridge;
 2. Contribute \$500,000 to a conservation fund. The conservation fund is to be used to support the Natural Communities Conservation Planning Efforts, including but not limited to management, restoration and enhancement of lands preserved through the Central and Coastal Subregional NCCP Planning effort. The West Leg installment will be paid after the three installments for the North and East Leg, (totaling \$1,515,000), have been paid;
 - NEAC { 3. Ensure the operation of five cowbird traps near Peters Canyon Regional Park/Loma Ridge along the West Leg in perpetuity. Funds will be provided sufficient to conduct trapping annually or to establish an endowment sufficient to provide trapping in perpetuity;
 4. Restore coastal sage scrub habitat adjacent to the corridor on appropriate graded slopes that are adjacent to permanent open space (Loma Ridge Open Space Unit, Peters Canyon Regional Park), outside proposed developed areas;
 5. Provide 1 bridge structure and 4 culverts at least 54" in diameter along the West Leg, at the dimensions and locations specified in USACOE 1994, to enhance wildlife crossing;
 - SOW { 6. Revegetate the area disturbed by construction of the bridge/wildlife crossing at Station 2701 with habitat indigenous to the area. The revegetation plan will be approved by the Service prior to the construction of the crossings. The revegetation effort will be considered acceptable if:
 - a. the habitat is occupied by breeding pairs of gnatcatchers, or;
 - b. the Service and the U.S. Army Corps of Engineers or its agents unanimously agree that the habitat has the structure and composition of naturally-occurring gnatcatcher habitat or fully functional coastal sage scrub, or;
 - c. the U.S. Army Corps of Engineers or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago.
 7. Obtain wildlife conservation easements for all habitat mitigation areas and movement corridors under the wildlife crossings related to the ETC;
 8. Replace or restore all coastal sage scrub habitat outside of the approved construction footprint, at a ratio of five acres replaced for each acre lost, that is destroyed or significantly modified as a result of the construction, implementation, or operation of the proposed project;

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9. Implement all mitigation measures that are implied or identified in the Technical Studies or EIS, as referenced in the EIS pertaining to water quality or erosion to prevent the dissemination or the concentration of pollutants in the project area or environs;
10. Mitigate light and glare impacts as identified in the EIS;
11. Provide a minimum of seven, and if feasible, 14 days prior notice to the Service before commencing grading activities. Grubbing or other land clearing activities will not occur unless and until construction of the Corridor is ready to begin in earnest. The following construction monitoring measures will be implemented to minimize impacts to gnatcatchers and coastal sage scrub habitat:
 - a) Construction will be monitored by a biologist to minimize construction impacts on natural resources outside the actual construction zone. The monitor will observe the contractor's work to ensure that work does not take place in high value natural areas outside the clearing limits as staked in the field;
 - b) The contractor will review the rough grading plans and staking to ensure that the grading is within the project footprint as described for the Biological Opinion;
 - c) Construction monitoring activities will include the prevention of harm, harassment, injury, or death of wildlife by means of the education of contractor and construction crews. In addition, the monitor shall work to prevent violation of existing laws, such as the Migratory Bird Treaty, Clean Water Act, and Fish and Game Code. If any violations or potential violations of these and other laws are noted, the monitor will advise the TCA accordingly. If necessary, work will be stopped, and the monitor shall advise the U.S. Army Corps of Engineers, TCA, Service, and the Department of Fish and Game and other appropriate resource agencies to resolve the situation;
 - d) Monitoring of coastal sage scrub habitat within or immediately adjacent to active or future project construction areas will occur throughout the construction period, in order for the monitor to be aware of gnatcatcher and coastal cactus wren locations;
 - e) Continuous monitoring of gnatcatchers and coastal cactus wrens in active territories will be conducted during any construction operations that occur within 100 feet of occupied habitat. The purpose of this monitoring will be either to verify that the construction does not significantly adversely affect the gnatcatcher activity or to determine whether "take" occurs, whichever the case may be. If this monitoring indicates that unauthorized take of gnatcatchers and coastal cactus wrens may occur, construction will cease pending coordination with the Service.

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Effects of Proposed Action on Listed Species

Species Accounts

Coastal California Gnatcatcher

Primarily because of substantial, recent reductions in the habitat and range of the species and the inadequacy of existing regulations, the Service listed the gnatcatcher as threatened on March 30, 1993 (58 FR 16742). In recognition of the State's Natural Community Conservation Planning Program (NCCP Program), being implemented under the authority of the State of California's Natural Community Conservation Planning Act of 1991 (NCCP Act), and several local government on-going multi-species conservation planning efforts that intend to apply Federal Endangered Species Act standards to activities affecting the gnatcatcher, on December 10, 1993, the Service issued a special rule, pursuant to section 4(d) of the Act, defining the conditions under which take of the gnatcatcher would not be a violation of section 9 (58 FR 65088). Under the special rule, incidental take of the gnatcatcher by land-use activities addressed in an approved Natural Community Conservation Plan (NCCP) would not be considered a violation of section 9 of the Act, provided that the Service determined that the NCCP meets the issuance criteria for an "incidental take" permit, pursuant to section 10(a)(2)(B) of the Act and 50 CFR 17.32 (b)(2). A limited amount of incidental take of the gnatcatchers within subregions actively engaged in preparing a NCCP would also not be considered a violation of section 9 of the Act, provided that such take results from activities conducted consistent with the State's NCCP Conservation and Process Guidelines. The Conservation Guidelines limit this "interim take" to no more than 5% of existing coastal sage scrub habitat.

The coastal California gnatcatcher is a recognized subspecies of the California gnatcatcher (*Polioptila californica* [Brewster]) and is endemic to coastal southern California and northwestern Baja California, Mexico (American Ornithologists' Union 1983, 1989; Atwood 1980, 1988, 1990, 1991).

The gnatcatcher, a small, gray songbird, is an obligate resident of coastal sage scrub dominated plant communities from Los Angeles County generally south along the coast to El Rosario at about 30 degrees north latitude (American Ornithologists' Union 1957, Atwood 1990, Phillips 1991, Banks and Gardner 1992). The appropriate habitat or habitat type, occurs in a patchy or mosaic distribution. The distribution and size of these patches of suitable habitat varies throughout the range of the species from year to year due to the expressed effects of a variety of variables.

Typical coastal sage scrub habitat constituents are relatively low-growing, drought-deciduous, and succulent plant species. Representative plant taxa in this plant community include coastal sagebrush (*Artemisia californica*), several species of sage (*Salvia* spp.), California buckwheat (*Eriogonum fasciculatum*), California encelia (*Encelia californica*), various species of cactus and cholla (*Opuntia* spp.), and several species of Haplopappus (Munz 1974; Kirkpatrick and Hutchinson 1980). Of the 11 subassociations of coastal sage scrub identified by Kirkpatrick and Hutchinson (1977), the gnatcatcher apparently routinely occupies only three of these.

The gnatcatcher is primarily insectivorous and defends territories ranging in size from approximately 2 to 40 acres (Atwood 1990; John Konecny, personal communication). Atwood's comprehensive studies (1988, 1991) and status review (1990) further reveal that the breeding season of the species extends from February through July, and apparently peaks in April.

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Juveniles associate with their parents for several weeks or even months after fledgling.

Although considered locally common fewer than 50 years ago (Grinnell and Miller 1944), Atwood (1990, 1992b) estimated that the approximately 1,811 to 2,291 pairs of gnatcatchers remain in the United States population. In the listing package, the Service estimated that there could be as many as 2,562 pairs gnatcatchers in Southern California (58 FR 16742). Although the documented decline of the gnatcatcher undoubtedly is the result of numerous factors, including nest depredation and brood parasitism by the essentially non-native brown-headed cowbird (*Molothrus ater*), habitat destruction, fragmentation or modification are the principal reasons for the gnatcatcher's current, precarious status (58 FR 16742). It has been estimated that as much as 90 percent of coastal sage scrub vegetation has been lost as a result of development and land conversion (Westman 1981a, 1981b; Barbour and Major 1977), leaving coastal sage scrub as one of the most depleted habitat types in the United States (Kirkpatrick and Hutchinson 1977; Axelrod 1978; Klopatek et al. 1979; Westman 1987; O'Leary 1990).

For references that contain thorough accounts of the gnatcatcher and its coastal sage scrub habitat, please see the section entitled "References and Literature Cited" at the conclusion of this document.

Species Accounts

Coastal Cactus Wren

The cactus wren (*Campylorhynchus brunneicapillus*) is a large (length 18-22 cm) member of the wren family (Troglodytidae). Its body plumage is brown above and whitish below. The crown is often a rust-colored brown bordered by a conspicuous whitish eyebrow. The underparts are heavily spotted with black especially on the upper breast. The back is streaked, and the wings and tail are conspicuously barred in black and white (Dunn 1987, Terrill 1988, Rea and Weaver 1990).

One recognized subspecies of cactus wren (*C. b. couesi*) occurs in the United States. Although Rea (1986) proposed a new subspecies of cactus wren, *C. b. sandiegensis* (San Diego cactus wren), the American Ornithologists' Union Committee on Classification and Nomenclature has not accepted this proposed change in taxonomy (Dr. Burt Monroe, American Ornithologists' Union, pers. comm.).

On September 21, 1990, the Service received two petitions to list the San Diego cactus wren, *C. b. sandiegensis* (Rea 1986), as an endangered species pursuant to Section 4 of the Act. Given the biological information contained therein pertaining to *sandiegensis* and the remainder of the coastal population of the cactus wren, the Service affirmed that the petitioned action may be warranted on January 24, 1991, pursuant to Section 4(b)(3)(A) of the Act. This finding was subsequently published in the Federal Register on March 22, 1991 (56 FR 12146).

Accordingly, it is the coastal population of *C. b. couesi* that is referred to herein as the coastal cactus wren. A discussion of the nomenclatural history of the coastal California population of the cactus wren is presented by Rea and Weaver (1990).

The coastal cactus wren occurs from southern Ventura County southeast to the Baldwin Hills and the Palos Verdes Peninsula in Los Angeles County, east along the southern flank of the San Gabriel and San Bernardino

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Mountains from the northern San Fernando Valley in Los Angeles County to Mentone in San Bernardino County, and south along the coastal slopes and interior valleys west of the Peninsular ranges in western Riverside, Orange, and San Diego Counties to extreme northwestern Baja California, Mexico, in the vicinity of Tijuana and Valle de las Palmas. Maps depicting the distribution of the coastal population of the cactus wren are presented in Garrett and Dunn (1981) and Rea and Weaver (1990).

The geographic isolation of coastal and interior cactus wren populations has been enhanced by the urbanization of southern California and may be facilitating their genetic differentiation (e.g., see Rea and Weaver 1990). The hiatus of suitable habitat formed by the Transverse and Peninsular ranges also serves to maintain and define the disjunct distribution of coastal and interior populations of the cactus wren. In addition, Garrett (1992) concluded that "...the habitat occupied by coastal Los Angeles and Ventura County cactus wrens (never considered to be part of the sandiegensis subspecies) is strikingly different than that occupied by the nearest desert populations in the western Antelope Valley..." and that "...all of the coastal slope populations are now functionally isolated from the desert ones...".

The coastal cactus wren is an obligate, nonmigratory resident of the coastal sage scrub plant community. As its common name suggests, this species is found in association with various species of cacti which provide sites for nesting, roosting, and foraging. The coastal cactus wren occurs almost exclusively in thickets of tall prickly pear (Opuntia littoralis and O. oricola) and coastal cholla (O. prolifer) at elevations up to 450 m above sea level (Rea and Weaver 1990). Rea and Weaver (1990) reported that "The wrens are absent from areas where only low, sprawling cacti grow."

From the early 1880's to the early 1930's, the coastal cactus wren was considered a locally common resident of cactus-dominated habitat from San Diego northwest to Santa Paula in Ventura County (Grinnell 1915; Willett 1912, 1933). However, even during this period, a decline in its status was noted. Dawson (1923) reported that "All proper desert areas west of San Geronio Pass are being threatened sharply by the human invasion ... The cactus wren has receded from many parts of the San Diego-Ventura section already, and is in danger of being altogether cut off."

Willett (1933) noted that this species had declined significantly in Ventura County (including its apparent extirpation from Simi Valley) as a result of land clearing activities for agricultural purposes. Grinnell and Miller (1944) characterized the range of the cactus wren on the coastal slope of southern California as "now much restricted as compared with conditions in the 1880's and 1890's, owing to great reduction of requisite habitat..."

The coastal cactus wren has been extirpated from at least 57 sites known to be occupied between 1976 and 1990 (Salata 1992). Many of the sites currently occupied by the coastal cactus wren contain very few pairs and are threatened by urban development, fire, agriculture, and a variety of other factors (Salata 1992). Rea and Weaver (1990) reported that only 10 of 52 sites currently occupied by the coastal cactus wren in San Diego County support five or more pairs. Overall, it is estimated that fewer than 2,400 pairs of coastal cactus wrens remain throughout its entire range (Salata 1992).

Considering the small overall population size of the coastal cactus wren, the precarious status of the coastal sage scrub plant community upon which it depends (O'Leary 1990), and the high degree of wren habitat

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fragmentation (Rea and Weaver 1990), further losses of habitat can be expected to have a significant adverse effect on the viability of extant subpopulations. Indeed, the status of the coastal cactus wren is symptomatic of the status of the coastal sage scrub plant community upon which it depends for its continued existence. As was indicated above, this plant community is one of the most depleted habitat types in the United States (Kirkpatrick and Hutchinson 1977; Axelrod 1978; Klopatek et al. 1979; Westman 1981a,b, 1987; O'Leary 1990).

Analysis of Impacts

Pursuant to the regulations at 50 CFR 402, the following constitutes an analysis of impacts to the gnatcatcher and coastal cactus wren, in and around the project Action Area, which includes all of the land that would be directly impacted by project construction, and indirectly affected by project construction and operation (e.g. noise effects), or affected because of potential induced growth.

As described above, there may be as many as 2,562 gnatcatchers remaining in the U.S. Of this total, about 757 pairs of gnatcatchers were estimated to occur in Orange County (58 FR 16743), prior to the wildfires that burned a significant amount of Orange County, primarily the coastal areas, in October 1993. Over 7,700 acres of coastal sage scrub burned as a result of the 1993 wildfires in Orange County. An estimated 144 pairs of gnatcatchers were assumed lost (USFWS 1993). The most significant fire damage to the Orange County coastal sage scrub ecosystem occurred in the coastal areas, especially in the San Joaquin Hills area. Impacts to the gnatcatcher and coastal cactus wren resulting from this fire were analyzed in the Biological Opinion for the San Joaquin Hills Transportation Corridor (USFWS 1994). While the Orange County wildfires resulted in significant impacts to the coastal populations of gnatcatchers and cactus wrens, it is expected that these populations will eventually increase as the habitat recovers from the fire (USFWS 1994).

The existing information on the abundance and distribution of the gnatcatcher in Orange County was supplemented by field surveys conducted as part of the NCCP planning effort. Intensive field surveys for the NCCP target species (gnatcatcher, coastal cactus wren and orange-throated whiptail lizard) were conducted in various locations within the coastal sage scrub habitat in the Santa Ana Mountains/Lomas de Santiago Ridge that comprises the reserve planning area for the Central subarea. Field surveys were conducted in 1991 through 1992 and again in the spring of 1994. Field survey locations included lands owned by the Irvine Company (which includes a substantial portion of the Central Subarea) and County regional parks. In 1994, additional survey locations were selected, the basis of selection being those areas determined to have the greatest potential presence of gnatcatchers and cactus wrens. The purpose of these surveys were merely to note the presence or absence of NCCP target species, including the gnatcatcher. No attempt was made to determine the status of individuals sighted; NCCP survey results are reported as sightings. During the 1991-1992 field surveys in the Central subarea, approximately 163 gnatcatchers and 476 cactus wren were sighted. In the 1994 spring surveys, 174 gnatcatchers and 190 coastal cactus wren were sighted (R.J. Meade, Pers. Comm).

As stated above, the gnatcatcher is an obligate species of the coastal sage scrub habitat. Gnatcatchers are found more consistently and in higher densities in subassociations of coastal sage scrub generally found near the coast and lower in elevation (NCCP Scientific Review Committee: J. Atwood, J. Rotenberry and D. Murphy, Pers. Comm.). This is particularly noticeable

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in Orange County, where there is a relatively quick transition between the flatter, coastal areas, and the steeper, more mountainous portions of the county in the Santa Ana Mountains. Coastal sage scrub habitat on the northern portion of El Toro Marine Corps Air Base, in the foothills and adjacent lowland areas of the Loma Ridge, the Peters Canyon Regional Park and adjacent habitat, and the Tustin Ranch area provide an example of this observation. These low elevation, generally flatter contain patches of coastal sage scrub which support significant populations of the gnatcatcher and coastal cactus wren (P&D Technologies 1994, R.J. Meade Pers. Com.), which are likely source populations for the steeper, more mountainous areas to the north and east.

Direct and Indirect Effects

As described in the Biological Assessment, the project will result in the permanent, direct loss of 44 acres of coastal sage scrub habitat. In addition it is estimated that indirect effects of construction and operation may extend up to 1,000 feet from the centerline of the ETC. It is estimated that the construction will directly affect approximately one California gnatcatcher. There are no expected indirect effects to gnatcatchers (P&D Technologies 1994).

Technical Assistance

Coastal Cactus Wren

As described in the Biological Assessment, the project will directly affect one coastal cactus wren. There are no expected indirect effects to coastal cactus wrens (P&D Technologies).

Habitat Fragmentation

While the direct and indirect impacts associated with the West Leg ETC do not pose a significant threat to gnatcatcher populations in the Central Subarea, a serious threat to gnatcatcher populations in the Project Area and environs is habitat fragmentation by the ETC, an effect which tends to disrupt various ecosystem processes.

As discussed previously, habitat destruction and fragmentation are the most significant threats to gnatcatchers (and coastal cactus wrens). As noted by Noss (1992) and Soule et al. (1992), "In the coastal sage of Southern California, a classic sequence of habitat destruction and fragmentation has occurred, involving a reduction in total habitat area and apportionment of the remaining area into small isolated pieces. These pieces, mostly canyons, then continue to lose native vegetation as human activities fragment them internally and nibble at their edges." The NCCP Conservation Guidelines notes that "...threats to coastal sage scrub habitat are more than losses of total habitat area alone. Threats also include losses of distinct subtypes of sage scrub and losses of the special conditions needed to maintain the broad suite of coastal sage scrub-resident species" (CDFG 1993). Habitat fragments have little long-term value for conservation, as smaller habitat areas contain fewer species. Also, smaller habitat patches with proportionally larger perimeters are more vulnerable to deleterious edge effects, although such effects have not yet been documented in coastal sage scrub (Atwood 1990). Fragmentation of coastal sage scrub habitat would affect gnatcatchers and other obligate species by isolating populations and preventing dispersal.

In the County of Orange, relatively large, contiguous patches of coastal sage scrub still exist. This is due to a combination of a unique and

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proactive approach to land-use planning, which requires dedication of open space in return for development rights, and geography. In the Central subarea, open space dedication has been concentrated in the higher elevation areas adjacent to the Cleveland National Forest, such as the Limestone Regional Park, and large canyon areas, such as Weir Canyon Wilderness Area. These dedicated open space lands contain a significant amount of coastal sage scrub. Development has tended to be more focused in the flatter, lower elevation areas, such as the coast and the inland valley area. The more steep foothill and mountain areas have been traditionally less attractive for development.

The alignment of the West Leg, from its terminus south of Interstate 5 to its interchange and merging with the North Leg ETC, primarily affects existing agricultural land, except as the West Leg approaches the North/East Leg interchange, in the general vicinity east of Peters Canyon Regional Park. Jamboree Road occurs adjacent to and just west of the West Leg ETC and runs parallel to it along its entire length. Jamboree Road presents somewhat of an existing barrier between coastal sage scrub patches in the Peters Canyon/Tustin Ranch area and the Loma Ridge. In addition, the coastal sage scrub habitat matrix in the Peters Canyon and Tustin Ranch areas are almost completely surrounded by disturbed or developed lands in the urban plains of Tustin and Irvine, except along the very western edge of the Loma Ridge, where there is an existing corridor of habitat from Peters Canyon Regional Park to Loma Ridge. The West Leg would bisect this existing corridor of habitat, and would effectively broaden the existing barrier posed by Jamboree Road and existing and future development. As described above, these lower elevation, flatter areas contain significant populations of gnatcatchers (and cactus wren). The West Leg ETC would further isolate the existing coastal sage scrub patches currently found in the Peters Canyon Reservoir Regional Park extending south to the Tustin Ranch area, away from the generally contiguous coastal sage scrub patches along the Loma Ridge and adjacent lowland areas.

Fragmentation of coastal sage scrub would impact gnatcatchers, and other obligate species, by isolating populations and preventing dispersal. The Peters Canyon population of gnatcatchers is connected via an existing corridor with the Loma Ridge populations to the east, and with the Santiago Hills, Irvine and Santiago Oaks Regional Parks populations via an existing corridor to the north. Fragmentation of habitat by the West Leg ETC is expected to inhibit, to some degree, juvenile dispersal of gnatcatchers and thus affect immigration between these subpopulations.

Little is known about juvenile gnatcatcher dispersal, or to what extent large roadways act as barriers to the gnatcatchers. Recent information suggests that 96% of juvenile gnatcatchers disperse within 1.5 miles of their natal territory; 80% disperse within 1.25 miles of their natal territory (G. Braden, USFWS, Pers. Comm). The maximum dispersal distance has been estimated from between 6.3 miles and 13 miles (P.J. Mock, as reported by Noss 1992). Gnatcatchers have been observed flying high over roadways; it may be that they fly high to get a view of where they want to go, and if they see coastal sage scrub, they may move there (Bontrager, Pers. Comm). Since gnatcatchers probably prefer to utilize natural habitats to disperse (Noss 1992), the ETC may act as a barrier, especially in those areas where coastal sage scrub or other native habitat cannot be seen across the corridor. The ETC would be a significant barrier to terrestrial wildlife species, such as the coyote and other large predators and their prey, which would ultimately affect the coastal sage scrub ecosystem, and therefore the gnatcatcher and cactus wren.

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In summary, the Service finds that fragmentation of coastal sage scrub habitat by the West Leg ETC poses a threat to the long-term viability of the gnatcatcher and likely other coastal sage scrub-associated species. The habitat patches remaining on the west side of the ETC, including the Peters Canyon Regional Park and the Tustin Ranch areas, would be isolated to some degree from habitat to the east of the corridor.

As noted earlier, another negative result of fragmentation is edge effects. The 5.3-mile long West Leg of the ETC will create artificial edges along its length where it bifurcates natural, undisturbed habitat. The remaining habitat adjoining the ETC will have deteriorated value for wildlife to some distance away from the road due to the adverse affects of noise, air pollution and other factors. The ETC will also be a cause of mortality to a variety of species that move across the landscape.

The artificial edge created by the construction of the ETC could result in increased habitat disruption in areas that were previously inaccessible, and in increased rate of weedy plants (Noss 1992). This effect should be minimized by the revegetation of appropriate graded slopes along the corridor in the vicinity of the Loma Ridge and the Peter's Canyon Regional Park with coastal sage scrub plant species, as proposed as part of the project's mitigation package (USACOE 1994). Coastal sage scrub habitat patches to the west of and isolated by the corridor will also be exposed to the edge effects of future urban development spreading eastward from the Tustin and Irvine urban plains.

Brood parasitism by the brown-headed cowbird (Molothrus ater), could be exacerbated by increased edge effect, likely affecting the reproductive potential of the gnatcatcher. Cowbird parasitism and the direct and indirect impacts of a variety of projects currently limit the distribution and potential expansion of gnatcatchers in Orange County, and in California as a whole. A composite of the best scientific information available suggests that cowbird abatement program proposed as part of the project should alleviate or offset the depression of gnatcatcher productivity that might otherwise result from the direct or indirect effects of the project. Specifically, management programs including cowbird abatement and predator surveillance have been extraordinarily successful in bringing about rapid and statistically significant increases in southern California populations of the least Bell's vireo (Vireo bellii pusillus), a Federally-listed endangered species (Salata 1987; Hays 1989; The Nature Conservancy 1993). More importantly, the available data reveal that 40% of the 10 gnatcatcher nests monitored in the Coyote Hills in Fullerton, California were parasitized by cowbirds (UNOCAL 1993) as were 31% (54) of 176 gnatcatcher nests monitored in Riverside County study sites during the 1992-1993 breeding seasons (G. Braden, Pers. Comm.). It is critical that the reproductive capability of the gnatcatcher and coastal cactus wren be maximized to the extent possible in the short-term and in perpetuity to conserve and recover the local populations of these species. The cowbird management measures proposed as part of the Project (USACOE 1994), will contribute to the elimination of a significant threat to gnatcatcher reproductive capability.

Impacts to Central and Coastal NCCP Reserve Design

The impact of fragmentation of coastal sage scrub and its resident species, including the gnatcatcher, must be analyzed with respect to the County of Orange's NCCP planning efforts in the Central Subregion. As discussed earlier, the listing of the gnatcatcher as threatened was followed by the issuance of a special rule, which, in general, would allow land-use activities associated with a NCCP plan to not be considered a violation of

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section 9 of the Act. Orange County is enrolled in the NCCP Program and is currently preparing a NCCP for the Central and Coastal Subregions (as well as for the Southern Subregion); a draft reserve design for the Central and Coastal Subregional NCCP plan has been prepared (County of Orange 1994a).

The NCCP program is intended to establish and manage a viable, permanent system of coastal sage scrub reserves complete with its matrix of other habitats, as well as identify areas that would be appropriate for development within the Central Subregion. The potential for establishment of a viable reserve system in the Central Subregion is the critical element in determining the impact of the ETC on the gnatcatcher; the ETC is a critical factor affecting/influencing reserve design and viability in this area. If it can be found that a viable coastal sage scrub reserve system can be established in the Central Subregion that includes the ETC project and its accompanying mitigation measures, the ETC, (assuming these are adequate means to minimize and mitigate impacts) would likely not impair the overall utility of the habitat in the Central Subregion as essential gnatcatcher population centers.

Central Subregional NCCP Reserve Design

In general, the Central Subregional Reserve Design incorporates already committed open space and areas of open space contemplated in conjunction with the approval of certain development projects in other areas. This open space system would also be augmented by adding reserve areas known to contain significant populations of gnatcatchers and cactus wren, and to provide linkages of natural habitat. The Central Subregion draft Reserve Design incorporates over 21,000 acres of coastal sage scrub and its matrix of other associated habitats, including lands necessary for connectivity (R.J. Meade, Pers. Comm.). Existing, planned and/or proposed regional open space lands in the Central Subregion, as identified in the Biological Assessment, includes a total of 8,379 acres of coastal sage scrub in Weir Canyon Wilderness Park, Santiago Oaks Regional Park, Irvine Regional Park, Open Space Area 31 in Gypsum Canyon, Peter's Canyon Regional Park, the Loma Ridge Open Space system, miscellaneous open space associated with the East Orange General Plan, Limestone Canyon Regional Park, and Whiting Ranch Wilderness Park. Significant areas which were added as reserve unit areas as part of the NCCP planning process include: a significant expansion to incorporate coastal sage scrub and significant gnatcatcher and coastal cactus wren populations south of the existing Loma Ridge Open Space system, including Upper Rattlesnake Canyon, Hicks Canyon, lower Foothills of Bee/Round Canyons - a NCCP reserve unit totalling 2,441 acres in size, with connections to the Limestone Canyon Regional Park NCCP reserve unit, totalling 10,934 acres; and a major expansion of natural habitat around the Weir Canyon Wilderness Area - a NCCP reserve unit totalling 3,923 acres, which would connect with a significant amount of coastal sage scrub habitat in a habitat matrix in the Weir, Gypsum and Coal Canyon areas across the ETC - a NCCP reserve unit totaling about 2,579 acres (R.J. Meade Pers. Comm.). The NCCP Reserve Design also includes a NCCP Reserve Unit that expands the existing Peters Canyon Regional Park to include 490 acres; the Tustin Ranch area, approximately 200 acres in size, is not included in the draft Reserve Design.

Connectivity

Connectivity between habitat reserve areas is essential for maintenance of the viability of the wide range of species inhabiting coastal sage scrub, including the gnatcatcher, over the long-term. As discussed above, while it is not clear to what extent major highways act as barriers to gnatcatcher movement, the ETC would be a significant barrier to terrestrial species, such as the coyote, mountain lion and other large predators and

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their prey. The presence of a full compliment of resident species is important to the health and viability of a naturally functioning ecosystem. Since coastal sage scrub habitat patches will be bifurcated by the West Leg of the ETC, connectivity between NCCP reserve units must be provided through wildlife crossings and culverts.

The West Leg of the ETC includes one bridge that would act as a wildlife crossing, along with four large culverts that will enhance wildlife crossing of the corridor. The bridge/wildlife crossing is located at West Leg ETC Station Number 2701, and is approximately 17 feet high, 100 feet wide at the bottom and 240 feet wide at the top, with a traverse of 200 feet. In addition, the West Leg would include 3 culverts at least 54" in diameter and one culvert at least 96" in diameter. The exact locations and specifications of these crossings are described in USACOE 1994. The undercrossing would be located just south of the Loma Ridge NCCP Reserve Unit. The land in the general vicinity of this crossing is mostly agricultural, with patches of coastal sage scrub on the western side. While the undercrossing would not directly connect reserve units, the crossing and the four culverts would all generally connect the west slope of the Loma Ridge NCCP Reserve Unit with the Peters Canyon Reservoir Regional Park area, as enlarged by the NCCP Reserve Unit. While deer or mountain lions will likely not utilize the crossing in the future because of the proximity of anticipated future development, coyotes and other small mammals would be expected to utilize this crossing. The four culverts could also be used by small mammals and provide additional potential for wildlife to traverse the West Leg of the corridor. Coyotes have been known to use culverts with a diameter of 54 inches or greater. However, how effective this bridge undercrossing and culverts will be for wildlife crossing will depend largely upon the extent of development that could occur in the vicinity of the crossing along both sides of the ETC and between the West Leg ETC and the Peters Canyon Reserve Unit. The NCCP Reserve Design Map shows that this area is already mostly disturbed or developed. If this area is not intensely urbanized, coyotes and other small mammals would probably still utilize the bridge/undercrossing to access Peters Canyon or the Loma Ridge NCCP Reserve Units. The revegetation of the crossing area should help to attract wildlife to utilize the crossing. From the Loma Ridge NCCP Reserve Unit, animals would be able to cross the East Leg of the ETC through another wildlife crossing, The Haul Road crossing, into the Limestone Canyon Regional Park, as expanded, NCCP Reserve Unit.

In the short-term, connectivity to coastal sage scrub patches in the Santiago Hills area north of Peters Canyon Regional Park would remain, however, this area is not included as part of the NCCP Reserve Design; therefore long-term connectivity to habitat north of Peters Canyon Regional Park is not assured.

Impacts to Central Subregional NCCP Draft Reserve Design

The West Leg of the ETC bifurcates the Draft NCCP Reserve Design along the west slope of the Loma Ridge. The only NCCP reserve unit included west of the West Leg is the Peters Canyon Regional Park, as expanded by the NCCP Draft Reserve Design. This Reserve Unit totals about 490 acres (R.J. Meade Pers. Com). This reserve unit is already somewhat isolated by Jamborree Road and existing disturbed and/or developed lands. The Tustin Ranch area (about 200 acres), which supports a significant population of gnatcatchers but is totally surrounded by disturbed and/or developed lands, is not included in the Draft Reserve Design. The Peters Canyon Reserve Unit would be further isolated by the West Leg from the rest of the NCCP reserve units, except for the bridge undercrossing that will be constructed, as

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described above. If the bridge is utilized by wildlife, especially small mammals and coyotes, the ecosystem functions in this small reserve unit could be maintained, at least in the short-term. As stated above, the degree of use of this crossing will depend upon the degree to which the area between the Peters Canyon reserve unit and the West Leg, a narrow strip of land, would be developed.

Not enough is known about the coastal sage scrub ecosystem to determine what the optimal size of a reserve system should be to ensure long-term viability of this habitat (CDFG 1993). Therefore the long-term viability of the Peters Canyon NCCP reserve unit is unknown. This reserve unit is already almost surrounded by disturbed and or developed lands, which reduces its long-term value for ecosystem function. Given the substantial acreage included in the Central Subregional Reserve Design, which includes almost 22,000 acres in mostly large blocks of habitat, especially in the Loma Ridge (about 2,400 acres) and Limestone Canyon Reserve Units (about 10,934 acres), as well as Weir Canyon Wilderness (about 3,923 acres) and the Windy Ridge Reserve Units (about 2,579 acres), and assuming that the current version of the Draft Reserve Design will not change substantially in these areas, and will be approved and implemented, along with the necessary management activities, the Peters Canyon Regional Park Reserve Unit (about 490 acres) is probably not essential to the long-term maintenance of the coastal sage scrub ecosystem in the Central Subarea.

However, the Peters Canyon NCCP Reserve Unit will be of critical importance as a peripheral reserve. Peripheral reserves that are partially isolated are valuable because they serve to isolate portions of the reserve system from catastrophic events, such as wildfires, that may devastate the larger, contiguous reserve area; residual populations of species that are somewhat isolated from the larger core population are also isolated from a catastrophic event. Therefore, these populations act as residua to repopulate areas affected by catastrophes. The importance of this was illustrated recently in the San Joaquin Hill wildfires in the fall of 1993. As described in the Biological Opinion for the San Joaquin Hills Transportation Corridor, unburned portions of the San Joaquin Hills and adjacent areas are expected to act as residua for the gnatcatcher and cactus to repopulate the burned areas as they begin to recover (USFWS 1994). If the Tustin Ranch area is developed, and not incorporated into the NCCP reserve design, the Peters Canyon Reserve Unit could become an important refugia for the existing gnatcatcher population at Tustin Ranch.

As discussed in the Biological Opinion for the Eastern Transportation Corridor (North and East Legs), the Draft Central Subregional Reserve Design provides substantial acreage both east and west of the North and East Legs of the ETC, and utilizes four wildlife crossings to maintain connectivity between significant reserve units. The Draft Reserve Design, together with these crossings, is intended to allow for the movement of small and large mammals, including predators and their prey base among the Cleveland National Forest, and Reserve Units on both sides of the ETC. In the Biological Opinion for the North and East Legs of the ETC, the Service found that the maintenance/management of the Loma Ridge/Limestone Canyon NCCP reserve units is likely essential to maintenance of gnatcatcher population in the Central Subregion over the long-term (USFWS 1994).

The County of Orange has determined, in consultation with County's NCCP consultant, Dr. Rob Schonholtz, that the ETC would not preclude or prevent the preparation of an effective subregional NCCP program (County of Orange 1994b).

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In summary, the Service concludes that the proposed project will not jeopardize the overall survival and recovery of the gnatcatcher or the maintenance of viable populations of the species within the Northern Orange County Santa Ana Mountains and project "Action Area", primarily because of the habitat reserves proposed as part of the draft Central Subregional NCCP Reserve Design, and the substantial impact avoidance and compensation measures incorporated into the project description. Further, given these impact avoidance and compensation measures and the best scientific information, the Service concludes that the project-related bifurcation, fragmentation and the removal of coastal sage scrub habitat, likely will not impact the overall utility of the Northern Orange County Santa Ana Mountains as important, and probably essential, coastal cactus wren and gnatcatcher habitats and population centers. This conclusion is based upon the best available information, including the draft Subregional Reserve Design for the Central and Coastal NCCP Subregions, presented to the Service on April 22, 1994. If these conditions change or if subsequent information is received that determines that the NCCP reserve design is not valid, then this conclusion would also be invalidated.

Technical Assistance

Coastal Cactus Wren

The proposed project effects described above for the gnatcatcher are similar to those likely to affect the coastal cactus wren.

Consistency with NCCP Guidelines

In addition to reviewing the project for its impacts to the NCCP Planning Process ongoing in Orange County, the Service has reviewed the ETC project for consistency with the NCCP Process and Conservation Guidelines. The project applicant, TCA, has enrolled the ETC in the Central and Coastal NCCP Planning Effort, and is participating in the NCCP planning process. In general, the Service concludes that the ETC is generally consistent with the Guidelines and with the Central and Coastal Subregional NCCP. Specifically, the Service concludes that project-related impacts:

- 1) will not foreclose future conservation planning efforts until such time as an NCCP has been completed and long-term enhancement and management programs are formulated. The Central and Coastal Subregional NCCP is being prepared concurrent with plans for the ETC. The NCCP plan is currently in the design phase, which includes the ETC alignment and associated mitigation measures. As discussed in the biological opinion for the East and North Legs of the ETC, the alignment was shifted approximately 500 feet east, in order to reduce impacts to the Central Subregion NCCP reserve design, and to lessen impacts to significant populations of gnatcatchers and coastal cactus wrens. The wildlife crossings provided on all three legs of the ETC will maintain connectivity between NCCP Reserve Units. The project, including the proposed mitigation package, will provide funding necessary to assist in providing for the perpetual enhancement and management of coastal sage scrub habitat within the Central Subregion.
- 2) will not result in an interim loss equal to, or exceeding, 5% of the coastal sage scrub in any one subregion. The loss of coastal sage scrub by the West Leg ETC project would represent approximately 0.2 percent of the coastal sage scrub within the Central Subarea (P&D Technologies 1994).
- 3) are, to the maximum extent practicable, limited to areas with smaller populations of target species. While the ETC has been in the planning process for a number of years, it is also being planned concurrent with the

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Central and Coastal Subregional NCCP. Areas of major biological importance, such as the Weir Wilderness Park and the Lomas Ridge/Siphon Ridge areas have been avoided to the maximum extent possible by project design and alignment changes. NCCP target species are generally present along the alignments of the West, North, and East Legs of the project. However, out of an estimated eight populations of California gnatcatcher that are concentrated in the subregion (i.e. Weir/Santiago Regional Park, Peters Canyon, Irvine Park, Loma Ridge, Rattlesnake Reservoir, Siphon Reservoir, Aqua Chignon Wash and scattered locations in Limestone Regional Park), the project avoids all, except for a portion of the Siphon Reservoir population. The West Leg directly impacts only one gnatcatcher, and one cactus wren.

4) do not, to the maximum extent practicable, disproportionately affect specific subunits of the environmental gradient in each subregion (as defined by vegetation subcommunity, latitude, elevation, distance from coast, slope, aspect or soil type. The ETC, as an essentially linear project, traverses a variety of vegetation communities, elevations, slopes, aspects and soil types (P&D Technologies 1992).

5) do not compromise the NCCP effort to protect, prior to completion of a subregional plan, areas of higher long-term conservation value as defined by the extent of coastal sage scrub habitat, proximity of that habitat to other habitat, the value of the habitat as landscape linkages or corridors, or the presence of sensitive species. While the Service only recently received some of the Central Subregional NCCP data from the County of Orange, and has not been able to determine the long-term conservation value of lands within the Central subregion, the Central Subregional draft reserve design has attempted to identify and include in the NCCP reserve, those areas that would appear to be of high value for long-term conservation (notable exceptions to this are the Tustin Ranch area and portions of the East Orange Planning Area). In addition, by incorporating wildlife crossings in strategic locations along the three legs of the ETC, the ETC project provides for the connectivity essential to maintaining the long-term health and viability of the NCCP reserves. The revegetation and preservation measures which are proposed as a part of the project promote coastal sage scrub and biological values to help maintain and potentially enhance target species and their occupation of the southern foothills of the Santa Ana Mountains. The program will help facilitate gnatcatcher movement among Peters Canyon, Loma Ridge, Rattlesnake Canyon, Hicks Canyon and Siphon Ridge as well to the east at Aqua Chignon Wash.

6) do not compromise the NCCP effort to direct development pressure to areas that have lower conservation value. Much of the coastal sage scrub habitat in the North Orange County Santa Ana Foothills is in committed open space or existing conservation areas, as augmented by the Central Subarea NCCP reserve design. The ETC will not necessarily direct development pressure towards (or away from) areas of higher long-term conservation value. Subregional planners have the task of identifying areas of long-term conservation value (the Reserve system) to steer development pressure into areas of lower conservation value within the North Orange County Santa Ana Foothills and federal "Action Area" through the continued NCCP effort.

7) do not compromise the NCCP effort to ensure that all interim habitat losses are adequately mitigated and that said mitigation contributes to the interim subregional mitigation program that will be subsumed in the long-term subregional NCCP. As is indicated above, the project, including the proposed compensation measures, will enhance the NCCP's goal to provide for the perpetual enhancement and management of coastal sage scrub, gnatcatcher and coastal cactus wren conservation areas within the Central subregion.

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In addition, the Service concludes that the management and restoration measures that have been developed for this project constitute special mitigation measures, as required for the NCCP Program (CDFG 1993). The Conservation Guidelines emphasize the importance of management and restoration research to subregional NCCP planning and further state that such efforts are "essential to the adaptive management of coastal sage scrub habitat". It is further recognized that such efforts "undertaken as mitigation during the interim program will add to the overall ability of these conservation tools to be employed more successfully in the future" (CDFG 1993).

In summary, the Service concludes that the loss of the habitat within the project footprint and the overall direct and indirect effects of the project will not result in the extirpation of the Northern Orange County Santa Ana Mountains populations of the gnatcatcher. Given the commitment of the U.S. Army Corps of Engineers and the applicant to provide the resources to conduct and fund the restoration, enhancement and management activities for coastal sage scrub habitat in the Central Subregion, and the perpetual management activities proposed, the Service concludes that project related impacts likely will not jeopardize the survival or recovery of the gnatcatcher.

Cumulative Impacts

Cumulative effects are those impacts of future State, local government, and private actions affecting endangered and threatened species that are reasonably certain to occur in the project "Action Area". Future federal actions will be subject to the consultation requirements established in Section 7 of the Endangered Species Act (Act) and, therefore, are not considered cumulative to the proposed action.

The majority of activities anticipated to affect this species within the foreseeable future are local projects with no direct Federal involvement. A large number of projects that lack a Federal nexus also have occurred or are proposed within the current range of the gnatcatcher. These projects could result, overtime, in significant cumulative effects to the gnatcatcher. However, private projects with no Federal nexus are subject to certain other regulatory constraints of the Act. For example, Section 4 of the Act requires the Service to list species that are threatened or endangered, and section 9 of the Act prohibits the unlawful "take" [e.g., harm, harass] of listed species "by any 'person', including private individuals and entities."

Anticipated prohibitions against "take" and a desire to engage in proactive planning have prompted efforts by local governments and large land owners to develop Habitat Conservation Plans (HCPs), pursuant to authorization for incidental take under section 10 of the Act. In addition and as discussed within this document, The Resources Agency, the Department of Fish and Game, together with local governments, landowners and environmental groups and in cooperation with the Service, are together developing a Natural Communities Conservation Plans that would cover most of Orange County, including the project area. The efforts of all parties, working cooperatively with the agencies, and combined with current federal protection for the gnatcatcher that limits loss of coastal sage scrub habitat to no more than 5% during the planning stages are intended to provide mitigation for project-related impacts to the gnatcatcher, coastal cactus wren, orange-throated whiptail, and the entire suite of sensitive species resident in coastal sage scrub in the future. However, in the absence of NCCPs/HCPs incorporating substantive impact avoidance and compensation measures, the Service believes that habitat destruction,

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cowbird parasitism, and indirect impacts resulting from a variety of individual projects will effect the distribution and potential expansion of gnatcatchers throughout their historic range.

Nearly all of the land in the "Action Area" and in the Central Subregion that is not developed is within jurisdictions that have enrolled in the NCCP Program. As a result, all such lands are subject to the requirements of the special rule, the Conservation Guidelines and other requirements of the NCCP process. This ensures that future land uses in this Subregion will be evaluated as to their impacts to the subregional planning effort, and will be required to provide mitigation to ensure protection of the gnatcatcher and other target species in enrolled areas.

In the event that it is determined that any future proposed development in the "Action Area" would have adverse impacts on gnatcatchers, cactus wrens or other coastal sage scrub sensitive species covered in the NCCP plans, appropriate and adequate mitigation measures would be developed in concert with representatives from the Service and Department of Fish and Game to ensure the protection of those species. For any property in the "Action Area" that is not covered by a jurisdictional enrollment in the NCCP, that property would still be subject to the requirements of CEQA and the Endangered Species Act. The following quotation from the NCCP Process Guidelines addresses this specific issue:

CEQA has a mandatory finding of significance wherever:

'(a) The project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal,...' (CEQA Guidelines, section 15065)

By that standard, most coastal sage scrub habitat in the NCCP Program area is sensitive and could trigger a CEQA finding of significance. Accordingly, the presence of coastal sage scrub would be disclosed and potential impacts to the gnatcatcher would be revealed.

The EIS for the East and North Legs of the ETC states that potential growth inducing impacts generated by the North and East Legs of the ETC are most likely to affect nearby developed and undeveloped lands located in portions of north and central Orange County. These areas of potential impact include areas within the City of Anaheim's and Orange's sphere of influence (i.e. Blind and Fremont Canyons). The ETC would have no growth inducing impacts along the West Leg, as growth here is already planned as part of the City of Irvine General Plan.

As stated earlier, the NCCP Draft Reserve Design incorporates the Peters Canyon Regional Park and the entire frontal slope area of the Loma Ridge and adjacent lowlands into NCCP reserve units. The NCCP plans for both the Central and Coastal Subregions will address impacts to coastal sage scrub habitat and the three target species. In addition, all future development in the Central and Coastal Subregions will be required to proceed through full environmental review prior to development, consistent with the NCCP Process Guidelines (CDFG 1993).

The Service concludes, given all relevant information and analysis, that the West Leg ETC, together with other proposed and future projects would have cumulatively significant impacts to the gnatcatcher; the West Leg ETC is not anticipated to induce growth in the project "Action Area". However,

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all future development and growth in the Central and Coastal Subregions, whether planned or unplanned, will be evaluated to determine its effects on the gnatcatcher, will be required to mitigate these impacts, and will be constrained by the protective mandates of the Act, the NCCP Program, and/or CEQA.

Technical Assistance

Coastal Cactus Wren

Effects to the coastal cactus wren resulting from the above cumulative, growth inducing actions are similar to those described for the gnatcatcher.

Incidental Take

Sections 4(d) and 9 of the Act prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined 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 (50 CFR section 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR section 17.3). 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 to be prohibited taking, provided that such taking is in compliance with the reasonable and prudent measures, and terms and conditions that implement them, as set forth below.

The Service hereby incorporates by reference the mitigation measures from the U.S. Army Corps of Engineers "Description of Proposed Action" into this incidental take statement as part of these "Terms and Conditions". The "Terms and Conditions" reflect the mitigation measures as proposed, with modifications where necessary as determined by the Service. Where these "Terms and Conditions" vary from or contradict mitigation measures proposed under "Description of Proposed Action", specifications in these terms and conditions shall apply.

The U.S. Army Corps of Engineers has a continuing duty to regulate the activity that is covered by this incidental take statement. If the U.S. Army Corps of Engineers fails to require the applicant adhere to the "Terms and Conditions" of the incidental take statement through enforceable terms that are added to the permits, the protective coverage of section 7(o)(2) of the Act may lapse. This incidental take authorization is null and void if the above project description changes, if any mitigation or conservation measure in the EIS, Technical Report, Biological Assessment, or supplemental documentation is not fully carried out or executed, or if any Terms and Conditions or Reasonable and Prudent Measures as defined or described below are not met by the U.S. Army Corps of Engineers, Transportation Corridor Agencies or their designated agents or successors, if the draft NCCP Reserve Design presented to the Service on April 22, 1994 is significantly modified, or if subsequent information received by the Service determines that the April 22, 1994 draft NCCP Reserve Design, incorporating the ETC alignment does not represent a viable reserve system for maintenance of the coastal sage scrub ecosystem.

It is not possible to precisely predict the amount of incidental take that would be associated with ETC construction, for several reasons:

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- The number and location of birds will vary from season to season;
- The precise effects on breeding territories near the edge of the grading area are not known; and
- The precise effects of noise and other disturbance on breeding territories outside the area of direct effect, but within the area affected by noise from the Corridor, can only be estimated.

However, given the information in the Biological Assessment, the Service anticipates that the following take could occur as a result of the proposed action:

1. One (1) gnatcatcher may be accidentally injured or killed during project construction or operation activities.
2. An unknown number of gnatcatcher eggs may be destroyed during project construction or operation activities.
3. An unknown number of gnatcatcher fledglings may be destroyed during project activities.

The incidental take statement provided in this opinion satisfies the requirements of the Endangered Species Act, as amended. This statement does not constitute an authorization for take of listed migratory birds under the more restrictive provisions of the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The Service is developing a program to address incidental take under the Migratory Bird Treaty Act.

If, during the course of the action, the amount or extent of the incidental take limit is reached, the U.S. Army Corps of Engineers shall immediately notify the Service in writing. If the incidental take limit is exceeded, the U.S. Army Corps of Engineers or its agents must cease the activity resulting in take and reinstitute consultation with the Service immediately to avoid further violation of Section 9 of the Act. Operations must be stopped in the interim period between the initiation and completion of the new consultation if it is determined that the impact of the additional taking will cause an irreversible and adverse impact on the species, as required by 50 CFR 402.14(1). The U.S. Army Corps of Engineers and its agents should provide an explanation of the causes of the taking.

Reasonable and Prudent Measures

The Service believes that the following Reasonable and Prudent Measures are necessary and appropriate to minimize incidental take:

1. The U.S. Army Corps of Engineers or its agents shall provide mitigation as described, implied, or suggested in the EIR, Technical Report, Biological Assessment and all other relevant letters and documents to minimize incidental take and to compensate for unavoidable impacts to the species.
2. The U.S. Army Corps of Engineers and its agents shall minimize to the extent possible the killing, harming or harassing of gnatcatchers and removal of coastal sage scrub habitat in conjunction with construction or other site development activities.
3. The U.S. Army Corps of Engineers or its agents shall obtain all applicable state and Federal permits to take the gnatcatcher and

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remove coastal sage scrub habitat. The incidental take authorization in this Biological Opinion is summarily revoked in the absence of such permits.

Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the Act and to meet the conditions of the conservation plan and conservation agreement, the U.S. Army Corps of Engineers and its agents (e.g., Caltrans, the Transportation Corridor Agencies) are responsible for compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. To this end, the U.S. Army Corps of Engineers or its agents shall, at a minimum, provide mitigation as described, implied, or suggested in the EIR, Technical Report, Biological Assessment and other relevant letters and documents to minimize incidental take. In part:

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1. The U.S. Army Corps of Engineers or its agents shall preserve an estimated 20 acres of coastal sage scrub at Siphon Ridge. This preservation program shall be coordinated with the Preservation/Restoration Program associated with the North and East Leg ETC biological opinion;
 - 22 2. The U.S. Army Corps of Engineers or its agents shall contribute \$500,000 to a conservation fund established by the Service. Payment shall be made to the Fish and Wildlife Foundation. The conservation fund is to be used to support the Natural Communities Conservation Planning Efforts, including but not limited to management, restoration and enhancement of lands preserved through the Central and Coastal Subregional NCCP Planning effort. The West Leg installment shall be paid after the three installments for the North and East Leg, (totaling \$1,515,000), have been paid;
 - 23 3. The U.S. Army Corps of Engineers or its agents shall ensure the operation of five cowbird traps near the Peters Canyon Regional Park/Loma Ridge along the West Leg in perpetuity. Funds shall be provided sufficient to conduct trapping annually or to establish an endowment sufficient to provide trapping in perpetuity. Cowbird trapping shall begin during the spring of 1995 and shall continue for a minimum of five months each calendar year, unless the Service and the U.S. Army Corps of Engineers or its agents unanimously agree that a lesser effort is justified during a given calendar year. The design, placement and operation of the traps shall be directed and approved by the Service. A report detailing cowbird management activities shall be provided to the Service within two months of the conclusion of trapping efforts during each and every calendar year. Upon request of the U.S. Army Corps of Engineers or its agents, the Service shall attempt to locate a suitable public or nonprofit foundation or organization that is willing to provide, under contract, the services necessary to meet this mitigation requirement. In any case the U.S. Army Corps of Engineers or its agents shall be responsible for obtaining permission from the Landowner to operate traps on their property;
 - 19 4. The U.S. Army Corps of Engineers or its agents shall restore/revegetate coastal sage scrub habitat adjacent to the corridor on appropriate graded slopes that are adjacent to permanent open space (Loma Ridge Open Space Unit, Peters Canyon Regional Park), outside proposed developed areas. The revegetation effort will be considered acceptable if:
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- a. the habitat is occupied by breeding pairs of gnatcatchers, or;
- b. the Service and the U.S. Army Corps of Engineers or its agents unanimously agree that the habitat has the structure and composition of naturally-occurring gnatcatcher habitat or fully functional coastal sage scrub, or;
- c. the U.S. Army Corps of Engineers or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago;
- 20 5. The U.S. Army Corps of Engineers or its agents shall provide 1 bridge structure at Station 2701 and 4 culverts at least 54" in diameter along the West Leg, at the dimensions and locations specified in USACOE 1994 to enhance wildlife crossing;
- 24 6. The U.S. Army Corps of Engineers or its agents shall revegetate the area disturbed by construction of the bridge/wildlife crossing at Station 2701 with habitat indigenous to the area. The revegetation plan will be approved by the Service prior to the construction of the crossings. The revegetation effort will be considered acceptable if:
- a. the habitat is occupied by breeding pairs of gnatcatchers, or;
- b. the Service and the U.S. Army Corps of Engineers or its agents unanimously agree that the habitat has the structure and composition of naturally-occurring habitat or fully functional coastal sage scrub, or;
- c. the U.S. Army Corps of Engineers or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago.
- 25 7. The U.S. Army Corps of Engineers or its agents shall obtain a wildlife conservation easements for the movement corridor under the wildlife crossing at Station 2701;
- 26 8. The U.S. Army Corps of Engineers or its agents shall replace or restore all coastal sage scrub habitat outside of the approved construction footprint, at a ratio of five acres replaced for each acre lost, that is destroyed or significantly modified as a result of the construction, implementation, or operation of the proposed project. The revegetation effort will be considered acceptable if:
- a. the habitat is occupied by breeding pairs of gnatcatchers, or;
- b. the Service and the U.S. Army Corps of Engineers or its agents unanimously agree that the habitat has the structure and composition of naturally-occurring gnatcatcher habitat or fully functional coastal sage scrub, or;
- c. the U.S. Army Corps of Engineers or its agents can demonstrate, to the satisfaction of the Service, that the habitat is insignificantly different (statistically) from naturally-occurring gnatcatcher habitats or fully functional coastal sage scrub in the Lomas de Santiago;

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- 27 9. The U.S. Army Corps of Engineers or its agents shall implement all mitigation measures that are implied or identified in the Technical Studies, Biological Assessment or EIR pertaining to water quality or erosion to prevent the dissemination or the concentration of pollutants in the project area or environs;
- 28 10. The U.S. Army Corps of Engineers or its agents shall mitigate light and glare impacts as identified in the EIR or Biological Assessment;
- 29 11. The U.S. Army Corps of Engineers or its agents shall provide a minimum of seven, and if feasible, 14 days prior notice to the Service before commencing grading activities. Grubbing or other land clearing activities shall not occur unless and until construction of the West Leg ETC is ready to begin in earnest. The U.S. Army Corps of Engineers shall, to the extent possible, minimize the take of gnatcatchers by employing whatever means or measures that are necessary to prevent to the harm and death of individual birds during grubbing, clearing, and other construction activities. At a minimum, the following construction monitoring measures shall be implemented to minimize impacts to gnatcatchers and coastal sage scrub habitat:
- a) Construction shall be monitored by a biologist to minimize construction impacts on natural resources outside the actual construction zone. The monitor shall observe the contractor's work to ensure that work does not take place in high value natural areas outside the clearing limits as staked in the field;
 - b) The contractor shall review the rough grading plans and staking to ensure that the grading is within the project footprint as described for the Biological Opinion;
 - c) Construction monitoring activities shall include the prevention of harm, harassment, injury, or death of wildlife by means of the education of contractor and construction crews. In addition, the monitor shall work to prevent violation of existing laws, such as the Migratory Bird Treaty, Clean Water Act, and Fish and Game Code. If any violations or potential violations of these and other laws are noted, the monitor will advise the TCA accordingly. If necessary, work will be stopped, and the monitor shall advise the U.S. Army Corps of Engineers, TCA, Service, and the Department of Fish and Game and other appropriate resource agencies to resolve the situation;
 - d) Monitoring of coastal sage scrub habitat within or immediately adjacent to active or future project construction areas shall occur throughout the construction period, in order for the monitor to be aware of gnatcatcher and coastal cactus wren locations;
 - e) Continuous monitoring of gnatcatchers and coastal cactus wrens in active territories shall be conducted during any construction operations that occur within 100 feet of occupied habitat. The purpose of this monitoring will be either to verify that the construction does not significantly adversely affect the gnatcatcher activity or to determine whether "take" occurs, whichever the case may be. If this monitoring indicates that unauthorized take of gnatcatchers and coastal

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cactus wrens may occur, construction will cease pending coordination with the Service.

- 30 12. The U.S. Army Corps of Engineers or its agents shall obtain necessary local, State and Federal permits to take, harm, or destroy the gnatcatcher and coastal sage scrub habitats. The authorizations granted herein, including the incidental take authorization, are null and void absent such permits. In particular, the U.S. Army Corps of Engineers shall comply with all pertinent provisions of the Migratory Bird Treaty Act, as determined by the Service (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended).
- 31 13. The U.S. Army Corps of Engineers, as the Federal action agency, shall retain ultimate responsibility for the implementation of all preceding terms and conditions in the event of financial or institutional incapacity of TCA to perform them.

Disposition of Sick, Injured, or Dead Individuals

The Service's Carlsbad Office must be notified within three working days should any listed species be found dead or injured in or adjacent to the project area. Notification must include the date, time, and location of the carcass, cause of death or injury, and any other pertinent information. If necessary, the Service will provide a protocol for the handling of dead or injured, listed animals. In the event that the U.S. Army Corps of Engineers or its agents suspect that a species has been taken in contravention of any federal, State, or local law, all relevant information shall be reported within 24 hours to the Service's Carlsbad Enhancement Office at (619) 431-9440 or to the Service Division of Law Enforcement, Torrance, California at (310) 297-0062.

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. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's 7(a)(1) responsibility for these species.

1. The U.S. Army Corps of Engineers and Service should analyze and consider the goals and progress of the proposed NCCP and other conservation planning efforts to insure consistency with Biological Opinions issued in conjunction with Federal projects or projects that are Federally-funded or permitted. This analysis should be extended to a consideration of the success of proposed avoidance and mitigation measures associated with this project and other projects throughout the range of the gnatcatcher.
2. The Service, in consultation with other Federal agencies and working group or recovery team members, should assess the efficacy of various measures for mitigating project-related direct or indirect impacts to gnatcatchers and their habitat. Thus far, it is apparent that successful creation or restoration of coastal sage scrub habitat has been achieved by relatively few revegetation specialists. Because the creation or restoration of coastal sage scrub habitat is often an

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essential component of effective mitigation for impacts to said habitat, revegetation methodologies and related data bases warrant close scrutiny and constant refinements.

Conclusion

This concludes the conference on the U.S. Army Corps of Engineers/Eastern Transportation Corridor West Leg Project. As found at 50 CFR 402.16, reinitiation of formal consultation is required if the action is significantly modified from that described above or if new information becomes available on listed species or impacts to listed species. Specifically, if the draft Central and Coastal Subregional NCCP reserve design changes substantially (as determined by the Service), or if analysis of the forthcoming data from the County of Orange refutes the determinations made by the Service at this time, reinitiation of formal consultation will be required. Additionally, should the coastal cactus wren, for which the Service provided technical assistance in this opinion, be proposed for listing by the Service, formal consultation should be initiated immediately.

If you have any questions on this biological opinion, please call me at (619) 431-9440 or Tara Wood of my staff, at (916) 978-4613.

Sincerely,



Gail C. Kobetich
Field Supervisor

cc: Steve Letterly, TCA

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United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE

Ecological Services
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008



In Reply Refer To:
FWS-OR-14B0086-17F1420

April 17, 2019
Sent electronically

Mr. Charles Baker
Branch Chief – Environmental Planning
Department of Transportation
1750 East 4th Street, Suite 100
Santa Ana, California 92705

Attention: Ms. Kedest Ketsela, Associate Environmental Planner

Subject: Formal Section 7 Consultation for the State Route-241/State Route-91 Express Lane Connector Project, Orange County, California

Dear Mr. Baker:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the State Route-241 (SR-241)/State Route-91 (SR-91) Express Lane Connector Project (project) and its effects on the federally threatened coastal California gnatcatcher (*Poliophtila 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). The California Department of Transportation (Caltrans) has assumed FHWA's responsibilities under the Act for this consultation in accordance with Renewed 23 U.S.C. 326 and 23 U.S.C. 327 and as described in the National Environmental Policy Act (NEPA) assignment Memorandum of Understanding between FHWA and Caltrans (effective October 1, 2012). We initiated consultation on August 29, 2017, the day we received the response to our comments on the Supplemental Draft Environmental Impact Statement (SDEIS) for the project, which we requested upon receipt of your December 21, 2016, request for consultation. Additional project information was provided December 5, 2018.

Based on conservation measures committed to by Caltrans, we concur with your determination that the proposed project is not likely to adversely affect the federally endangered least Bell's vireo (*Vireo bellii pusillus*; vireo), southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher), and Braunter's milk-vetch (*Astragalus braunterii*; milk-vetch); the federally threatened Santa Ana sucker (*Catostomus santaanae*; sucker) and thread-leaved Brodiaea (*Brodiaea filifolia*; brodiaea); and designated critical habitat for the sucker and milk-vetch (Appendix).

This biological opinion is based on information provided in: (1) *Biological Assessment SR-241/SR-91 Express Lanes Connector Project, Orange and Riverside Counties, California* (BA; Caltrans 2016); (2) Memorandum, USFWS Comments on the Draft Supplemental EIR/EIS for the SR-241/SR-91 Tolle Express Lanes Connector and Preparation of Biological Opinion (SDEIS; LSA Associates

Inc. 2017); (3) Follow up Information on Section 7 Consultation for the State Route 241/State Route 91 Express Lanes Connector Project Impacts and Proposed Biological Opinion Conditions for Coastal Sage Scrub and Designated Critical Habitat Outside the 1994 Biological Opinion Area (Caltrans 2018); and (4) other sources of information including survey reports and email correspondence. A complete project file of this consultation is maintained at the Carlsbad Fish and Wildlife Office (CFWO).

CONSULTATION HISTORY

Early coordination between Caltrans, the Transportation Corridor Agencies (TCA), and the CFWO occurred on the project. The following chronology reflects a summary of significant events.

July 6, 1994	The CFWO issued biological opinion 1-6-94-F-17 to the FHWA, consulting on gnatcatcher and conferencing on milk-vetch, for the Eastern Transportation Corridor (ETC) project, which included a direct connector between SR-241 and the tolled lanes in the median of SR-91, but did not extend as far to the east along SR-91 as the proposed project.
May 24, 1996	The CFWO issued a biological opinion for the Central Coastal Natural Community Conservation Plan/Habitat Conservation Plan, which addressed gnatcatcher and included the take of 272 acres of coastal sage scrub habitat in association with the ETC project as described in the July 6, 1994 biological opinion.
July 17, 1996	The CFWO issued permits for the Central Coastal Natural Community Conservation Plan/Habitat Conservation Plan, which addressed gnatcatcher and included the take of 272 acres of coastal sage scrub habitat in association with the ETC project, as described in the July 6, 1994 biological opinion.
Feb 9, 2011	The CFWO provided a letter (FWS-OR-11B0165-11TA0284), conceptually approving the Strawberry Farms restoration site to offset impacts of future TCA projects (FWS-OR-11B0165-11TA0284).
Jan 22, 2014	The Service's Information, Planning, and Conservation System provided a list of federally threatened and endangered species and their critical habitats expected to be present in or near the proposed action area to Caltrans.
Feb 2, 2015	The Service's Information, Planning, and Conservation System provided a list of federally threatened and endangered species and their critical habitats expected to be present in or near the proposed action area to Caltrans.
Sept 9, 2015	Caltrans, TCA, and CFWO staff participated in a conference call to discuss the Service's trust resources in the vicinity of the project, including gnatcatchers, milk-vetch, and suckers, vireos, flycatchers and designated critical habitat for the gnatcatcher, sucker, and milk-vetch.

Feb 11, 2016	The Service's Information, Planning, and Conservation System provided a list of federally threatened and endangered species and their critical habitats expected to be present in or near the proposed action area to Caltrans.
Mar 10, 2016	Caltrans, TCA, and CFWO staff participated in a conference call to discuss proposed project modifications that have the potential to result in effects to the Service's trust resources. Due to numerous changes, including extension of the project farther east along SR-91, several species listings and critical habitat designations, and the extended period of time that has elapsed since the 1994 biological opinion was issued, all parties agreed that the approach that would provide the most clarity while addressing consultation needs would be initiation of a new section 7 consultation.
Dec 21, 2016	Caltrans provided a letter requesting initiation of formal consultation on the proposed action, together with the BA.
Jan 1, 2017	Consultation on the project could not be initiated because the delegation of NEPA responsibilities from FHWA to Caltrans, including consultation under the Act, was suspended due to a lapse in the waiver of sovereign immunity addressing the State's assumption of Federal liability for assigned projects.
Jan 25, 2017	The Department of the Interior provided written comments, including specific comments provided by the CFWO, on the Supplemental Draft Environmental Impact Statement (SDEIS) for the project.
Mar 30, 2017	State legislation reinstated the waiver of sovereign immunity addressing the State's assumption of Federal liability for assigned projects, and Caltrans resumed NEPA responsibilities, including consultation under the Act.
July 11, 2017	Caltrans, TCA, and CFWO staff participated in a meeting to discuss the response to the CFWO's comments on the SDEIS for the project.
July 31, 2017	The CFWO provided not likely to adversely affect concurrence for geotechnical work for the project (FWS-OR-14B0086-17I1053).
Aug 29, 2017	Caltrans provided written responses to CFWO's comments on the SDEIS for the project.
Dec 21, 2017	The CFWO provided the <i>Description of the Proposed Action</i> section of the draft biological opinion to Caltrans for review. Within this section, Conservation Measures, which Caltrans has committed to implement to avoid and minimize impacts to listed species, are described.
Dec 5, 2018	Caltrans provided Follow up Information on Section 7 Consultation for the State Route 241/State Route 91 Express Lanes Connector Project Impacts and Proposed Biological Opinion Conditions for Coastal Sage Scrub and Designated Critical Habitat Outside the 1994 Biological Opinion Area.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Using Federal funds provided through the FHWA, TCA proposes to construct a tolled direct connector between SR-241 and the tolled lanes in the median of SR-91, in cooperation with Caltrans. TCA and Caltrans are hereafter jointly referred to in this document as the project proponents. The project is about 8.7 miles long, extending from just south of the Windy Ridge Wildlife Undercrossing on SR-241, to just east of Green River Road on SR-91, and is bounded on the north by the Santa Ana River, in the cities of Anaheim, Yorba Linda, and Corona, and the Counties of Orange and Riverside (Figures 1-13).

Improvements for the connector are limited to 5.9 miles in the cities of Anaheim and Yorba Linda from south of the Windy Ridge Wildlife Undercrossing on SR-241 to the Coal Canyon Undercrossing on SR-91. The remaining 2.8 miles of the project is limited to FasTrak signage improvements in the cities of Anaheim, Yorba Linda, and Corona. Project improvements will provide a two-lane connector with one lane in each direction.

The project will use the existing two ramps (SR-91 eastbound and westbound) and paved road at the SR-91 Undercrossing as a construction vehicle turnaround, and for access to the SR-91 median. An existing fence separates paved Coal Canyon Road from the dirt wildlife movement area to the east at Coal Canyon Undercrossing. Temporary shoring and grading will occur within the freeway median west of Coal Canyon Road to allow construction vehicles to drive from Coal Canyon Road up the slope to the freeway median. The median turnaround for emergency vehicles that is located west of Coal Canyon Undercrossing is too small to allow for access by construction vehicles. The project will also access the median at the intersection of SR-241 and SR-91 from the Gypsum Canyon Undercrossing. Temporary shoring and grading will occur to allow a drivable access route. To allow an opening for construction access, part of the existing bridge deck will be removed.

There are two design options for the project, the Graded Slope Design Option will result in permanent impacts to 5 acres of land located within the Gypsum Canyon Nature Preserve that is protected by a conservation easement¹ held by The Nature Conservancy. Portions of this area fall within the Irvine Ranch National Natural Landmark. This area would be used for the construction of a maintenance access road and slope grading to accommodate the realigned eastbound SR-91 lanes. The feasibility of the Soil Nail Wall Design Option is still being examined, but if implemented, this design option would minimize impacts in this area through the construction of a soil nail wall.

The project will impact gnatcatcher occupied coastal sage scrub habitat (including some native plant restoration areas consisting of coastal sage scrub species), individual gnatcatchers, and designated gnatcatcher critical habitat,² as summarized in Tables 1, 2 and 3, respectively. Tables 4 and 5 describe the proposed approach to offset impacts gnatcatcher occupied habitat and designated gnatcatcher critical habitat for each of the design options.

¹ The proposed project is a permitted use under the conservation easement.

² For the purpose of this consultation, gnatcatcher occupied habitat includes coastal sage scrub and native plant restoration that is likely used by gnatcatchers for nesting, foraging, and dispersal. Gnatcatcher critical habitat includes those areas designated as critical habitat in 2007 (Service 2007). Gnatcatcher occupied habitat and gnatcatcher critical habitat partially overlap with each other (i.e., a portion of gnatcatcher occupied habitat is gnatcatcher critical habitat, and a portion of gnatcatcher critical habitat is gnatcatcher occupied habitat).

Table 1. Impacts to Coastal California Gnatcatcher Habitat

Coastal California Gnatcatcher Habitat		Graded Slope Design Option		Soil Nail Wall Design Option	
		Temporary (Acres)	Permanent (Acres)	Temporary (Acres)	Permanent (Acres)
Within 1994 Biological Opinion Impact Area¹	Coastal Sage Scrub	26.63	3.81	26.63	3.81
	Total Within 1994 BO	26.63	3.81	26.63	3.81
Outside 1994 Biological Opinion Impact Area²	Coastal Sage Scrub	4.65	9.85	3.61	2.21
	Native Plant Restoration	2.19	0.04	2.31	0.04
	Total Outside 1994 BO	6.84	9.89	5.92	2.25
Grand Total		33.47	13.70	32.55	6.06

¹ Portions of this habitat were occupied by gnatcatchers during 2011 focused surveys for the project. Project impacts in this area have been offset in accordance with the requirements of Biological Opinion 1-6-94-F-17.

² This habitat was not occupied by gnatcatchers during 2011 focused surveys for the project, but four pairs of gnatcatchers were observed in this area in 2017.

Table 2. Impacts to Gnatcatcher

Gnatcatcher	Project Impacts	
	Pairs	Individuals
2011 project surveys	1	1
2017 observations	5 ¹	0

¹ One pair was observed in the direct impact area at the SR-241/SR-91 median, and four pairs were observed adjacent to the project footprint at the Coal Canyon Undercrossing that may be subject to disturbance by project work.

Table 3. Impacts to Designated Coastal California Gnatcatcher Critical Habitat

Designated Critical Habitat for the Coastal California Gnatcatcher		Graded Slope Design Option		Soil Nail Wall Design Option	
		Temporary (Acres)	Permanent (Acres)	Temporary (Acres)	Permanent (Acres)
Outside 1994 Biological Opinion Impact Area	Coastal Sage Scrub ¹	2.64	1.73	2.75	0.67
	Chaparral	0.25	0.29	0.31	0.00
	Nonnative Grassland	4.85	0.96	4.85	0.96
	Native Plant Restoration ¹	2.19	0.04	2.31	0.04
	Oak Woodland	0.05	0.00	0.00	0.00
	Ruderal	2.16	3.01	2.16	3.01
	Total Designated Critical Habitat With Physical and Biological Features	12.14	6.03	12.38	4.68
	Developed	8.61	14.88	8.61	14.88
	Total Designated Critical Habitat Without Physical and Biological Features	8.61	14.88	8.61	14.88
Total Designated Critical Habitat		20.75	20.91	20.99	19.58

¹ Coastal sage scrub and native plant restoration acres are also reported in Table 1 above.

Table 4. Offsetting Conservation for Graded Slope Design Option

		Graded Slope Design Option			
		Temp Impact (Acres)	Offset for Temporary Impact	Perm Impact (Acres)	Offset for Permanent Impact
Within 1994 Biological Opinion Impact Area	coastal sage scrub Within 1994 BO	26.63	Restore 26.63 acres with coastal sage scrub (with some mitigation slopes as identified in NewFields 2012)	3.81	Has been offset in accordance with 1994 BO
Outside 1994 Biological Opinion Impact Area	coastal sage scrub and Native Plant Restoration [NPR] (including Critical Habitat) Outside 1994 BO	6.84	Restore 6.84 acres with coastal sage scrub (not as mitigation slopes, coastal sage scrub will be the baseline condition for future consultations)	9.89	Restore 8.73 acres including: 6.98 acres with coastal sage scrub, 1.75 acres with native fuel mod zone species (not mitigation slopes); Offsite mitigation of 19.63 acres including: Advance restoration of 13.3 acres at Strawberry Farms (9.75 acres of coastal sage scrub restoration, 1.86 acres of coastal sage scrub and prickly pear cactus restoration, 0.39 acre of native perennial grassland restoration, and 1.3 acre of coastal sage scrub enhancement), 6.33 acres at Saddle Club (2.63 acres coastal sage scrub and 3.7 acres coastal sage scrub/chaparral mix)
	Critical Habitat (Chaparral, Oak Woodland, Nonnative Grassland, and Ruderal)	7.31 (12.14-2.64 coastal sage scrub and 2.19 NPR offset as described above)	Restore 7.31 acres with native fuel mod zone species (not mitigation slopes)	4.26 (6.03-1.73 coastal sage scrub and 0.04 NPR offset as described above)	Restore 0.28 acre with native fuel mod zone species, with maintenance activities within 14 feet from edge of pavement (not mitigation slopes); Offsite mitigation of 4.24 acres at Saddle Club with coast live oak woodland
Total Offsite	Total Offsite mitigation of 23.87 acres including: Advance restoration of 13.3 acres at Strawberry Farms (9.75 acres of coastal sage scrub restoration, 1.86 acres of coastal sage scrub and prickly pear cactus restoration, 0.39 acre of native perennial grassland restoration, and 1.3 acre of coastal sage scrub enhancement); 10.57 acres of conservation and management at Saddle Club property (2.63 acres coastal sage scrub and 3.7 acres coastal sage scrub/Chaparral mix, 4.24 coast live oak woodland)				

Table 5. Offsetting Conservation for Soil Nail Wall Design Option

		Soil Nail Wall Design Option			
		Temp Impact (Acres)	Offset for Temporary Impact	Perm Impact (Acres)	Offset for Permanent Impact
Within 1994 Biological Opinion Impact Area	Coastal Sage Scrub Within 1994 BO	26.63	Restore 26.63 acres with coastal sage scrub (with some mitigation slopes as identified in NewFields 2012)	3.81	Has been offset in accordance with 1994 BO
Outside 1994 Biological Opinion Impact Area	Coastal Sage Scrub and Native Plant Restoration (NPR; including Critical Habitat) Outside 1994 BO	5.92	Restore 5.92 acres with coastal sage scrub (not as mitigation slopes, coastal sage scrub will be the baseline condition for future consultations)	2.25	Offsite mitigation of 6.76 acres Advance restoration of coastal sage scrub at Strawberry Farms
	Critical Habitat (Chaparral, Oak Woodland, Nonnative Grassland, and Ruderal)	7.32 (12.38-2.75 coastal sage scrub and 2.31 NPR offset as described above)	Restore 7.32 acres with native fuel mod zone species (not mitigation slopes)	3.97 (4.68-0.67 coastal sage scrub and 0.04 NPR offset as described above)	Offsite mitigation of 8.86 acres including: Advance restoration of 3.13 acres coastal sage scrub at Strawberry Farms; 5.73 acres at Saddle Club (2.63 acres coastal sage scrub and 3.1 acres coastal sage scrub/chaparral mix)
Total Offsite	Total Offsite mitigation of 15.62 acres including: Advance restoration of 9.89 acres at Strawberry Farms (9.75 acres of coastal sage scrub restoration, 0.14 acre of coastal sage scrub and prickly pear cactus restoration); 5.73 acres of conservation and management at Saddle Club property (2.63 acres coastal sage scrub and 3.1 acres coastal sage scrub /Chaparral mix)				

Conservation Measures

The project proponents have agreed to implement the following conservation measures (CM) as part of the proposed action to avoid and minimize impacts to gnatcatchers:

Avoidance and Minimization through Project Design

- CM 1. If feasible, the Soil Nail Wall Design Option will be selected to minimize permanent impacts to approximately 5 acres of land located within the Gypsum Canyon Nature Preserve. The final engineering design for this area will be reported to the CFWO at least 15 working days prior to initiating project impacts.
- CM 2. Permanent project lighting will be of the lowest illumination necessary for safety and will be directed toward the roadway and away from sensitive habitats and wildlife crossing areas. Light glare shields will be used to reduce the extent of illumination into sensitive habitats. The Caltrans Project Biologist³ will review the permanent lighting plans and then submit them to the CFWO for review and approval at least 15 working days prior to initiating project impacts.
- CM 3. A wildlife connectivity plan will be developed and implemented to ensure that ecosystem functions⁴ are maintained by the project for the benefit of listed species. The plan will be provided to the CFWO for review and approval at least 60 days prior to initiating project impacts. The plan will include the following requirements:
 - a. Animals may not be able to navigate steep vertical bends and they may not utilize culverts or crossing structures that have horizontal bends that limit visibility. The culvert at drainage feature 4 will be lengthened by the project but no vertical or horizontal bends will be constructed in the culvert extension;
 - b. To the maximum extent feasible, rock slope protection will be avoided at culvert and wildlife crossing openings. If rock slope protection is required, modifications (e.g., small pebble, dirt, or grouted movement pathways) will be made such that animals of all sizes can access culverts and wildlife crossings;
 - c. If stream bank reinforcements are required at wildlife crossing and culvert areas, project proponents will design them in the manner most conducive to wildlife movement. If stream bank reinforcements of ungrouted riprap gabions or other material are required, they will be constructed at the shallowest possible slope (2:1 or less), and will be covered with soil and revegetated with native riparian plant species in a manner that will allow for the movement of wildlife of all sizes. Project proponents will ensure that soil placement on top of

³ The Caltrans Project Biologist will be a Caltrans biologist familiar with the federally listed species potentially affected by the project and with the habitats that support these species; he/she will be the primary contact for the CFWO during project implementation.

⁴ For example, dispersal of top predators to control meso-predators that prey on avifauna, such as gnatcatchers (e.g., Crooks and Soule 1999)

stream bank reinforcements will occur in a manner that does not result in erosion holes in the soil surface over time;

- d. Restoration of temporary impact areas at wildlife crossings will be planned in a manner that will encourage wildlife use and movement. Project proponents will ensure that plantings will not obscure culvert or wildlife crossing openings. Native vegetation may be used to funnel wildlife toward the crossings and create a visual barrier between the roadway and habitat in a manner that will encourage wildlife movement;
- e. Culvert openings will be flush with the road slope and ground to allow animals to easily find and access the culverts. Culvert openings that provide for wildlife movement under the roadway will not be blocked with grates, with the exception of openings from culverts to those portions of the roadway median that are not intended for wildlife access or movement;
- f. Where the project will result in new roadside fencing, project proponents will ensure that fencing ties into culvert and wildlife crossing openings such that animals following the fencing can easily find and access culverts and crossings. Any new roadside fencing will be 10 to 12-foot high chain link fence with an 18-inch “outrigger” (three strands of barbed wire) angled away from the road, located within the Caltrans right-of-way, subject to the Biological Monitor’s⁵ recommendations, and will be buried 24 inches into the ground to discourage wildlife from digging under the fence. In areas where new fencing is installed, old fencing that blocks access to culverts and crossings will be removed. Any new fencing constructed by the project at the SR-241/SR-91 interchange will incorporate recommendations on page 194 of USGS 2013;
- g. Project proponents will coordinate with the Orange County Transportation Authority (OCTA) to ensure that the project will not negatively affect the camera study and native plantings planned by OCTA at the Coal Canyon Undercrossing;
- h. Equipment maintenance, lighting, and staging for the project will be in designated areas, away from the Windy Ridge Wildlife Undercrossing and Coal Canyon Undercrossing. Construction in the Windy Ridge Wildlife Undercrossing and Coal Canyon Undercrossing will be limited to daylight hours. These areas will be kept clear of all equipment or structures that could potentially serve as barriers to wildlife passage. Structures required for bridgework at the Windy Ridge Wildlife Undercrossing will be erected so as not to block the main underpass, and scaffolding and false work will be restricted to the side of the underpass to maintain the functionality of the crossing for wildlife movement. Construction access to the SR-91 median at Coal Canyon will be provided within the fenced access area at Coal Canyon

⁵ See CM 14 for a description of the Biological Monitor.

Road, and no project work or access will take place beyond the fencing within the existing dirt wildlife crossing area at Coal Canyon;

- i. Freeway signage with lighting, including changeable message signs, will be located in areas away from the Windy Ridge Wildlife Undercrossing and Coal Canyon Undercrossing;
- j. Construction noise at the Coal Canyon Undercrossing will be limited to no more than 5 dBA hourly Leq above ambient levels beyond 100 feet from the edge of the roadway to avoid noise disturbance to wildlife within the crossing;
- k. A new turnaround has been constructed in the SR-91 median west of Coal Canyon that benefits both wildlife connectivity and human safety by providing a more accessible and rapid turnaround location that is outside of the wildlife undercrossing. This turnaround is not large enough to accommodate construction vehicles and will continue to be accessible to emergency vehicles during project work, maintaining the recent benefits to wildlife movement that the turnaround provides; and
- l. Subject to approval by California Highway Patrol (CHP) and Orange County Fire Authority (OCFA), install a permanent access control gate near the top of the eastbound off-ramp at Coal Canyon, leaving enough room in front of the gate for personnel in authorized vehicles to exit SR-91 and open the gate, but encouraging unauthorized vehicles to use the new median turnaround. Signage will be posted and maintained at the gate to inform the public about adjacent sensitive habitats and species as well as access restrictions (e.g., wildlife crossing, no unauthorized access, no night access). The gate and signage will be installed prior to completion of project construction. If installation of the gate is not approved, Caltrans and TCA will coordinate with the CFWO to identify an alternative measure to enhance connectivity or improve safety for dispersing wildlife to offset temporal impacts resulting from the substantially degraded functioning of Coal Canyon as a wildlife undercrossing during the 2-year construction period. If enhancing connectivity at Coal Canyon itself isn't practicable, then improvements may occur at a different location identified in coordination with the CFWO.

Avoidance and Minimization during Vegetation Clearing/Project Construction

- CM 4. The clearing and grubbing of native upland habitats for the project will occur between September 1 and February 14, to avoid the gnatcatcher breeding season (or sooner than September 1, if a biologist knowledgeable of gnatcatcher biology and ecology approved by the CFWO demonstrates to the satisfaction of the CFWO that all gnatcatcher nesting is complete). The project proponents will submit the biologist's name, address, telephone number, and work schedule on the project to the CFWO at least 15 working days prior to initiating project impacts.

- CM 5. All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will be restricted to designated staging areas that are a minimum of 100 feet from sensitive habitats and drainages.
- CM 6. All lighting used at night for project construction will be selectively placed and directed at the immediate work area and away from adjacent sensitive habitats. Light glare shields will be used to reduce the extent of illumination into sensitive habitats.
- CM 7. 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.
- CM 8. The project site will be kept as clear of debris as possible. All food-related trash items will be enclosed in sealed containers and regularly removed from the site. All spoils and material disposal will be disposed of properly.
- CM 9. If fill must be borrowed from or disposed of offsite, the construction contractor will identify any necessary borrow and disposal sites and provide this information to Caltrans for review. Caltrans will review borrow and disposal site information and if borrow or disposal activities may affect a listed species or critical habitat, Caltrans will reinstate section 7 consultation.
- CM 10. Impacts from fugitive dust will be avoided and minimized through watering and other appropriate measures.
- CM 11. Project personnel will be prohibited from bringing domestic pets to construction sites to avoid disturbance and depredation of wildlife by domestic pets in adjacent habitats.
- CM 12. During project construction all invasive species included on the National Invasive Species Management Plan, the State of California Noxious Weed List, and the California Invasive Plant Council's Invasive Plant Inventory list (Cal-IPC 2006) found growing within the project impact area will be removed. Special care will be taken during transport, use, and disposal of soils containing invasive weed seeds and all weedy vegetation removed during construction will be properly disposed of to prevent spread into areas outside of the construction area.
- CM 13. All native or sensitive habitats outside and adjacent to the construction limits will be designated as Environmentally Sensitive Areas (ESAs) on project maps. ESAs will be temporarily fenced during construction with orange plastic snow fence, orange silt fencing, or in areas of flowing water, with stakes and flagging. No personnel, equipment, or debris will be allowed within the ESAs. Temporary ESA fencing and flagging will be installed in a manner that does not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment. The project proponents will submit to the CFWO, at least 5 days prior to initiating project impacts (except for impacts resulting from clearing to install temporary fencing), the final plans for initial clearing and grubbing of habitat and project construction. These

final plans will include photographs that show the fenced and flagged limits of impact and all areas to be impacted or avoided. Field maps indicating the location of temporary ESA fencing and/or staking will also be provided. If work occurs within gnatcatcher habitat beyond the fenced or demarcated limits of impact, all work will cease until the problem has been remedied to the satisfaction of the CFWO. Temporary ESA fencing and markers will be maintained in good repair until the completion of project work adjacent to each ESA and removed upon completion of project work adjacent to each ESA.

- CM 14. A CFWO-approved biologist (Biological Monitor)⁶ will be on site during all initial vegetation clearing/grubbing and weekly during project construction within 500 feet of gnatcatcher habitat to monitor compliance with all conservation measures. The project proponents will submit the biologist's name, address, telephone number, and work schedule on the project to the CFWO at least 15 working days prior to initiating project impacts. The contract of the Biological Monitor will allow direct communication with the CFWO at any time regarding the proposed project. The Biological Monitor will be provided with a copy of this consultation. The Biological Monitor will be available during pre-construction and construction phases to address protection of sensitive biological resources, monitor ongoing work, and maintain communications with construction personnel to facilitate the appropriate and lawful management of issues relating to biological resources. The Biological Monitor will perform the following duties:
- a. Perform a minimum of three focused preconstruction surveys, on separate days, to determine the presence of gnatcatchers in the upland project impact footprint. Surveys will begin a maximum of 30 days prior to performing vegetation clearing/grubbing, and one survey will be conducted the day immediately prior to the initiation of vegetation clearing. If any gnatcatchers are found in the upland project impact footprint, the Biological Monitor will direct construction personnel to begin vegetation clearing/grubbing in an area away from the gnatcatchers. It will be the responsibility of the Biological Monitor to implement measures (e.g., direct vegetation clearing away from gnatcatchers, flush gnatcatchers out of the active work area) to avoid death and injury of gnatcatchers by vegetation clearing/grubbing. The Biological Monitor will also record the number and location of gnatcatchers disturbed by vegetation clearing/grubbing. Caltrans will notify the CFWO at least 7 days prior to vegetation clearing/grubbing to allow the CFWO to coordinate with the Caltrans Project Biologist on potential bird flushing activities;
 - b. Perform a minimum of three focused surveys, on separate days, to determine the presence of gnatcatcher nest building activities, egg incubation activities, or brood rearing activities within 500 feet of project construction that is initiated during the February 15 to August 31 breeding season for the gnatcatcher. Surveys will begin a maximum of 7 days prior to performing construction

⁶ The Biological Monitor will be familiar with the federally listed species potentially affected by the project (i.e., gnatcatcher) and with the habitats that support this species.

within 500 feet of gnatcatcher habitat during the breeding season, and one survey will be conducted the day immediately prior to the initiation of construction within 500 feet of gnatcatcher habitat during the breeding season. Additional surveys will be done once a week during project construction within 500 feet of gnatcatcher habitat during the breeding season. These additional surveys may be suspended as approved by the CFWO;

- c. If active gnatcatcher nests are identified within 500 feet of noise generating construction activities and noise is in excess of 60 dBA hourly Leq or if noise is in excess of ambient noise levels if ambient noise levels exceed 60 dBA hourly Leq, noise attenuation structures will be installed at the noise source to reduce noise levels to 60 dBA hourly Leq or to ambient noise levels if ambient noise levels exceed 60 dBA hourly Leq at the nest location. Noise monitoring will occur during the breeding season and be reported monthly to the CFWO. If the Biological Monitor suspects that avoidance and minimization measures are ineffective, and project activities may be adversely affecting the gnatcatcher, culpable activities will be suspended within 500 feet of active nests until nesting activity is completed and fledglings are no longer in the area or until effective avoidance and minimization measures can be identified, implemented, and demonstrated to be effective. If the specified noise targets cannot be met or the Biological Monitor observes potential adverse effects to gnatcatchers from project-related noise, activities that are resulting in potential adverse effects will be halted, and the CFWO will be contacted to determine if reinitiation of consultation is necessary;
- d. Oversee installation of and inspect erosion control measures a minimum of once per week to document and bring to the attention of the contractor any breaks in erosion control measures such that they are repaired immediately;
- e. Oversee installation of and inspect ESA fencing a minimum of once per week to document and bring to the attention of the contractor any breaks in the fence such that they are repaired immediately;
- f. Train contractors and construction personnel expected to be in the project impact area on the biological resources associated with the project and document that training is implemented by construction personnel. At a minimum, training will include:
 - i. The purpose for resource protection;
 - ii. A description of the gnatcatcher and its habitats;
 - iii. The CMs that should be implemented during project construction to conserve the gnatcatcher, including strictly limiting activities, vehicles, equipment, and construction materials to the project footprint to avoid adjacent sensitive resource areas;

- iv. Environmentally responsible construction practices;
 - v. the protocol to resolve conflicts that may arise at any time during the construction process; and
 - vi. The general provisions of the Act, the need to adhere to the provisions of the Act, and the penalties associated with violating the Act;
- g. Monitor the project site immediately prior to and during construction to identify the presence of invasive weeds and recommend measures to avoid their inadvertent spread in association with the project. Such measures may include inspection and cleaning of construction equipment and use of eradication strategies;
- h. Periodically monitor the work area to document that work activities do not generate excessive amounts of dust;
- i. Submit monthly email reports (including photographs of impact areas) to the CFWO during clearing of, and construction within, 500 feet of gnatcatcher habitat. The monthly reports will document that authorized impacts were not exceeded and general compliance with all conditions. The reports will also outline the location of construction activities, the type of construction that occurred, and equipment used. These reports will specify numbers and locations of gnatcatchers (if observed), their observed behavior (especially in relation to construction activities), and remedial measures employed to avoid and minimize impacts to these species. Raw field notes should be available upon request by the CFWO; and
- j. Submit a final report to the CFWO within 120 days of the completion of construction for the project that includes: photographs of habitat areas that were to be avoided and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conservation measures was achieved.

Measures to Offset Impacts to Gnatcatcher and its Habitat

- CM 15. Areas of temporary impact, as quantified in Tables 1 and 3 above, will be revegetated and restored with native species as specified in Tables 4 and 5. These areas will be returned to original grade, as feasible. Prior to initiating project impacts, a restoration plan will be developed for the temporary impact areas. The plan will be submitted to the CFWO for review and approval at least 15 working days prior to initiating project impacts. This plan will include a detailed description of restoration methods, slope stabilization, and erosion control, criteria for restoration to be considered successful, and monitoring protocol(s). Following the completion of construction activities within each area of impact, 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. Temporary impact areas will be planted as soon as possible, with

consideration of seasonal timing, following re-grading after completion of construction to prevent encroachment by nonnative plants.

- CM 16. Some permanent impact cut and fill slopes for the project will be revegetated with native species as specified in Table 4. Duff and rare plants may be salvaged from the project impact footprint to aid in revegetating slopes with native habitats. The revegetated areas will have temporary irrigation and will be planted with native container plants and seeds. At least 3 years of plant establishment/ maintenance on these slopes will be conducted to control nonnative plants. These areas will be planted as soon as possible, with consideration of seasonal timing, following the completion of construction to prevent encroachment by nonnative plants.
- CM 17. If maintenance of a coastal sage scrub restoration area is necessary between February 15 and August 31, a CFWO-approved biologist⁷ will survey for gnatcatchers within the restoration area, access paths to it, and other areas susceptible to disturbances by site maintenance. Surveys will consist of three visits separated by 2 weeks starting March 1 of each maintenance/monitoring year. Work will be allowed to continue on the site during the survey period. However, if gnatcatchers are found during any of the visits, the applicant will notify and coordinate with the CFWO to identify measures to avoid and/or minimize effects to the gnatcatcher (e.g., nests and an appropriate buffer will be flagged by the biologist and avoided by the maintenance work).
- CM 18. Permanent and temporary impacts to the gnatcatcher and its habitat⁸ (as summarized in Tables 1, 2, and 3 above) will be offset as specified in Tables 4 and 5 above.
- CM 19. Portions of the Saddle Club property used to offset project-related impacts will be conserved and managed in perpetuity. Each of the sub-measures below will be implemented prior to initiating project-related impacts:
- a. A CFWO-approved conservation easement will be recorded over conserved land in favor of a CFWO-approved entity (e.g., a non-profit environmental organization or government agency). The conservation easement will prohibit all activities that significantly disturb wildlife or detrimentally impact habitat for the gnatcatcher. Potential recreation uses that do not impact habitat or result in significant disturbance to gnatcatchers (e.g., hiking along existing trails) may be proposed in a CFWO-approved habitat management plan for the property provided that the management plan includes sufficient measures and funding to ensure that these activities are appropriately monitored and managed;
 - b. A CFWO-approved habitat management plan will be prepared that addresses potential threats to the conserved habitat, such as unauthorized human access,

⁷ The biologist for this measure will be a trained ornithologist with at least 40 hours of observing gnatcatchers in the field and documented experience locating and monitoring nests of the target species.

⁸ Permanent and temporary impacts to 3.81 acres and 26.63 acres of habitat, respectively, have already been offset in accordance with the requirements of Biological Opinion 1-6-94-F-17.

monitoring and management of any authorized recreational activities, control of non-native invasive plant species, and habitat degradation from fire;

- c. A CFWO-approved land manager will be identified to implement the habitat management plan; and
- d. A CFWO-approved non-wasting endowment or endowments will be established with sufficient funds to implement the habitat management plan and to monitor and enforce the conservation easement. The funding for the endowment(s) will be determined through a Property Analysis Record (PAR) or equivalent analysis.

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 be the 8.7 mile project site (Figures 1-13). The action area also includes the surrounding habitat within about 500 feet, which may be exposed to project-related effects such as increased light and dust levels and human activity during project construction and operation of the facilities. In addition, the action area includes the 15-acre Strawberry Farms restoration site (Figure 14) and the Saddle Club mitigation property (Figure 15). Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area.

STATUS OF THE SPECIES/CRITICAL HABITAT

Information on the status of the species can be found in the 5-year review for the gnatcatcher (Service 2010a). Please refer to this document for detailed information on the life history requirements of the species, threats to the species, and conservation needs of the species.

Updated information on species’ numbers and distribution, critical habitat, threats and conservation needs is summarized below to provide context to this biological opinion and is generally taken from the 5-year review for the gnatcatcher (Service 2010a).

The gnatcatcher occurs in coastal sage scrub and associated habitats from southern Ventura County to Baja California, Mexico. In 1993, the Service estimated that about 2,562 gnatcatcher pairs remained in the United States, with the highest densities occurring in Orange and San Diego counties (Service 1993). In a recent study using more rigorous sampling techniques, Winchell and Doherty (2008) estimated there were 1,324 (95 percent confidence interval: 976–1,673) gnatcatcher pairs over an 111,006-acre area on public and quasi-public lands in Orange and San Diego counties. Their sampling frame covered only a portion of the U.S. range, focusing on the coast, and was limited to 1 year. Although it is not valid to extrapolate beyond the sampling frame, especially in light of known differences in population densities across the range of the gnatcatcher (Atwood 1992), it is likely there are more gnatcatchers in the U.S. portion of the range than was suggested by earlier estimates; Winchell and Doherty (2008) estimated nearly as many gnatcatchers in the portion of the

U.S. range sampled in their study as was originally estimated for the entire U.S. range. We are not aware of any recent estimates of gnatcatcher populations in Baja California.

Although declines in numbers and distribution of the gnatcatcher have resulted from numerous factors, the current significant threats of the gnatcatcher include habitat fragmentation and degradation, which can lead to type conversion (Service 2010a). Several stressors, including livestock grazing, anthropogenic atmospheric pollutants, and wildland fire, can lead to type conversion of gnatcatcher habitat. As regional Habitat Conservation Plans (HCPs) permitted under section 10(a)(1)(B) of the Act and under the State of California's Natural Community Conservation Planning (NCCP) Act are implemented over time, an increasing amount of habitat will receive beneficial management that will address these threats. Although implementation of NCCP/HCPs is in the process of reducing the threats identified above, habitat type conversion is an increasing threat that is only beginning to be addressed through the implementation of the NCCP/HCP habitat management process. Therefore, the gnatcatcher continues to meet the definition of threatened, and no change in listing status was made following our 5-year review (Service 2010a).

Critical habitat for the gnatcatcher was designated on December 19, 2007 (Service 2007). There are 11 designated critical habitat units for the gnatcatcher that include 197,303 acres of Federal, State, local, and private land in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego counties. Designated critical habitat includes habitat throughout the species' range in a variety of climatic zones and vegetation types to preserve the genetic and behavioral diversity that currently exists within the species. The individual units contain essential habitat for the gnatcatcher and help to identify special management considerations for the species. The project is located within and adjacent to Unit 9 of designated gnatcatcher critical habitat, and offsetting conservation is located in Unit 6 (Saddle Club mitigation property) and adjacent to Unit 7 (Strawberry Farms restoration site) of designated gnatcatcher critical habitat.

Unit 9 (East Los Angeles County-Matrix NCCP Subregion of Orange County) includes 17,552 acres and contains core populations of gnatcatchers within the Montebello Hills, Puente-Chino Hills, and West Coyote Hills areas. The unit also provides the primary connectivity between significant coastal California gnatcatcher populations and sage scrub habitat within the Orange County Central-Coastal NCCP (Unit 6), the Western Riverside County MSHCP (Unit 10) and the Bonelli Regional Park population within East Los Angeles (Unit 12). This unit may require special management considerations or protection to minimize impacts associated with habitat type conversion and degradation occurring in conjunction with urban and agricultural development.

Unit 6 (Orange County Southern Subregion HCP plan area) includes 6,515 acres and contains core populations in Chiquita Ridge, Prima Deshecha Canada, and Talega Canyon, and linkages in Cristianitos Canyon, Arroyo Trabuco, and Saddle Creek/Live Oak Canyon. The area provides for connectivity and genetic interchange among core populations and contains large blocks of high-quality habitat capable of supporting persistent populations of gnatcatchers. The unit also provides the primary linkage for significant populations in North San Diego MHCP (Unit 3) and the Fallbrook Naval Weapons Station to those further north in Orange County (Unit 7). This unit may require special management considerations or protection to minimize impacts associated with habitat type conversion and degradation occurring in conjunction with urban and agricultural development.

Unit 7 (Central-Coastal NCCP Subregions of Orange County) includes 4,309 acres and contains core populations of gnatcatchers and sage scrub within NCCP/HCP Existing Use Areas, the designated reserve of the El Toro Reuse Area, lands owned by the Boy Scouts of America, and the most southern portion of Chino Hills State Park in Orange County. These areas contain high quality habitat and dense populations of gnatcatchers and serve to link populations located in southern Orange County (Unit 6) with those in northern Orange and Riverside counties. This unit may require special management considerations or protection to minimize impacts associated with habitat type conversion and degradation occurring in conjunction with urban and agricultural development. Specific information for each of the remaining critical habitat units can be found within the final rule designating critical habitat for the gnatcatcher (Service 2007).

Physical and biological features (PBFs)⁹ 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. These include: (1) sage scrub habitats 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, and riparian areas, in proximity to sage scrub habitats that provide space for dispersal, foraging, and nesting.

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.

Project Site Characteristics and Surrounding Land Uses

The Biological Study Area (BSA)¹⁰ for the project totals approximately 287.54 acres and includes the footprint of the proposed project along SR-241 from south of the Windy Ridge Wildlife Undercrossing north to the junction with SR-91, and east along SR-91 to just east of Green River Road, a distance of approximately 8.7 total linear miles. The Santa Ana River is located north of SR-91 in the project area. Elevations in the BSA range from 370 to 1,570 feet above mean sea level, and topography includes moderately rolling hills within the Santa Ana Mountains along SR-241, and

⁹ The designations of critical habitat for species addressed by this consultation use the term “primary constituent element” (PCE) to refer to the physical and biological features within critical habitat that are essential to the conservation of the species. The new critical habitat regulations (81 FR 7214) replace this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting this effects analysis, which is the same regardless of whether the original designation identified PCE, PBF, or essential features. In this consultation, we use the term PBF to mean PCE.

¹⁰ The BSA includes the area of potential direct impact and was extended beyond the area of potential direct impact as needed to identify sensitive biological resources adjacent to the project limits. The BSA is coincident or within Caltrans right-of-way adjacent to proposed improvements along SR-241 and SR-91, except where it includes the slope south of SR-91, approximately 3,600 feet west of Coal Canyon Undercrossing, which would be directly impacted. Along southbound SR-241 and westbound SR-91, the BSA is along edge of pavement, because no improvements are planned in these areas.

steep hillsides, canyons, and tributary washes south of SR-91 that provide connectivity for wildlife movement between the Santa Ana Mountains to the south and the Santa Ana River and Chino Hills to the north. Vegetation communities within the BSA include coastal sage scrub, chaparral, coast live oak woodland, ruderal vegetation, nonnative grassland, and developed areas. Much of the gnatcatcher habitat south of SR-91 in the project area burned during the Canyon 2 Fire in October of 2017.

Relationship to Regional Preserves

The project is located in the planning area for the Orange County Central and Coastal Subregions Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP). The NCCP/HCP constitutes a subregional plan under the State of California's Natural Community Conservation Planning Act of 1991. The California Department of Fish and Wildlife's NCCP program (CDFW 2007) is a cooperative effort between public and private entities to protect habitats and species. The program's primary objective is to conserve local and regional biological diversity while accommodating compatible land use. The NCCP program attempts to prevent/resolve issues related to species' listings by concentrating on the long-term stability of wildlife and plant communities, and including key interests in the process.

The NCCP/HCP also serves as a multiple species habitat conservation plan (HCP) pursuant to Section 10(a)(2)(A) of the Act. The planning area for the NCCP/HCP covers 208,713 acres in the central portion of Orange County from the coastline inland to the boundary with Riverside County and establishes a 37,378-acre Reserve System that is supported by additional habitat areas including Special Linkage Areas comprising 1,906 acres and Existing Use Areas comprising 3,796 acres.

The NCCP/HCP acknowledged that the TCA would implement the ETC project, which was addressed in the Service's 1994 biological opinion. The ETC project as described in the Service's 1994 biological opinion included a direct connector between SR-241 and the tolled lanes in the median of SR-91, but did not extend as far to the east along SR-91 as the proposed project. While the proposed project will not result in direct impacts to the NCCP/HCP Reserve System, a small portion of an Existing Use Area intersects the eastern end of the project area along SR-91 and the Coal Canyon Undercrossing (Figures 9 and 10). The project will result in temporary impacts to 0.03 acre of coastal sage scrub within the Existing Use Area. Within the project area, SR-241 passes between two parts of the Reserve System at the Windy Ridge Wildlife Undercrossing (Figure 1). While the undercrossing is designed to functionally link these two parts of the Reserve System, it is not a Special Linkage Area under the NCCP/HCP. Considering that the proposed project will not impact the Reserve System or Special Linkage Areas and will result in only minor, temporary impacts to an Existing Use Area, it does not conflict with the NCCP/HCP.

Status of the Gnatcatcher and its Designated Critical Habitat within the Action Area

Gnatcatchers were detected in the BSA during protocol surveys conducted in 2011 (LSA Associates, Inc. 2011). A pair of gnatcatchers hatched 6 young from two nests within restored habitat in the median at the junction of SR-241 and SR-91, and a male gnatcatcher was observed along the west side of SR-241, approximately 2,000 feet south of the connector on-ramps to SR-91.

In 2017, biologists with LSA Associates, Inc. again observed an active gnatcatcher nest in the median at the junction of SR-241 and SR-91 (Homrighausen 2017, pers. comm.). Surveys conducted for the Santa Ana River Mainstem Project in November and December of 2017, following the Canyon Fire, documented four pairs of gnatcatchers in the remnant sage scrub at the Coal Canyon Undercrossing. One pair was seen foraging south of SR-91 and east of the undercrossing in a small amount of remnant coastal sage scrub (Kietzer 2017, pers. comm.). Two pairs were observed foraging in the strip of habitat north of SR-91 and south of the abandoned off ramp east of the crossing, and one pair was observed in habitat a short distance northwest of SR-91 and the crossing (Ackley 2017, pers. comm.).

In summary, in 2017 a total of ten gnatcatchers (five pairs) were observed within the action area for the project. Two individual gnatcatchers (one pair) were observed within the permanent and temporary impact areas for the project in the median at the junction of SR-241 and SR-91. Eight more gnatcatchers (four pairs) were observed at Coal Canyon outside of the temporary and permanent impact area for the project, but within 500 feet, where they may be subject to disturbance from construction noise and lighting.

A total of about 41.66 acres for Graded Slope Design Option, and 40.57 acres for the Soil Nail Wall Design Option, of the project site is within Unit 9 of designated gnatcatcher critical habitat. For the Graded Slope Design Option, 18.17 acres of impact within critical habitat include PBFs of critical habitat, and the remaining 23.49 acres do not. For the Soil Nail Wall Design Option, 17.06 acres of impact within critical habitat include PBFs of critical habitat, and 23.49 acres do not. The Strawberry Farms restoration site is located within Unit 7 of designated gnatcatcher critical habitat. The Saddle Club mitigation site is located within Unit 6 of designated gnatcatcher critical habitat.

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.

Construction of the project will impact the gnatcatcher and its habitat (Tables 1, 2, and 3). This analysis also considers project effects on habitat surrounding the direct impact area, within about 500 feet, which may be exposed to increased noise, light, and dust levels and human activity during project construction.

The Graded Slope Design Option for the project will permanently and temporarily impact 13.70 acres and 33.47 acres of gnatcatcher habitat, respectively, and the Soil Nail Wall Design Option will permanently and temporarily impact 6.06 and 32.55 acres of gnatcatcher habitat, respectively, throughout the 8.7-mile-long project area, (Table 1). Of this total, 3.81 acres and 26.63 acres of permanent and temporary impacts, respectively, to coastal sage scrub were addressed previously in the 1994 Biological Opinion. The remaining impacts, including 9.89 acres and 6.84 acres of permanent and temporary impacts, respectively, for the Graded Slope Design Option, and 2.25 and 5.92 acres of permanent and temporary impacts, respectively, for the Soil Nail Wall

Design Option, are located outside of the area addressed in the 1994 Biological Opinion. These new permanent impacts consist of 9.85 acres of coastal sage scrub and 0.04 acre of native plant restoration for the Graded Slope Design Option, and 2.21 acres of coastal sage scrub and 0.04 acre of native plant restoration for the Soil Nail Wall Design Option. New temporary impacts consist of 4.65 acres of coastal sage scrub and 2.19 acres of native plant restoration for the Graded Slope Design Option, and 3.61 acres of coastal sage scrub and 2.31 acres of native plant restoration for the Soil Nail Wall Design Option.

A single gnatcatcher territory is located entirely within the direct impact area for the proposed project in the median at the junction of SR-241 and SR-91 (Figures 4-6; Caltrans 2016; Homrighausen 2017, pers. comm.). The project will completely remove the habitat occupied this pair of gnatcatchers. The clearing and grubbing of native upland habitats will be conducted between September 16 and February 14 to avoid the gnatcatcher breeding season. A CFWO-approved gnatcatcher biologist will be present to ensure that gnatcatchers are not directly killed or injured during vegetation removal activities. Although habitat removal will be conducted outside the gnatcatcher breeding season, gnatcatchers are non-migratory territorial birds, and removal of all of a gnatcatcher pair's breeding territory displace the pair from the project footprint and force them to attempt to establish a new territory. Habitat in the project area has recently been affected by the Canyon 2 Fire, and gnatcatchers may have established territories within the remaining suitable habitat adjacent to the project area. Therefore, it is likely that the gnatcatchers affected by habitat loss within their primary use areas will be forced to compete with resident gnatcatchers when attempting to establish a new territory. Because these displaced birds likely will be less able to find suitable habitat to forage and shelter in, we anticipate they will be more vulnerable to predation and otherwise may die or be injured.

Four gnatcatcher territories are located outside of the direct impact area for the project but within 500 feet of project activities at Coal Canyon and may be exposed to increased light, noise, and dust levels and human activity during project construction (Figure 9; Ackley 2017, pers. comm.), for up to two breeding seasons.

Some project work will be conducted at night and will use construction lighting that will impact the adjacent gnatcatcher habitat. Light that alters natural light patterns in ecosystems can lead to increased predation, disorientation, and disruption of inter-specific interactions (Longcore and Rich 2004). We anticipate that construction lighting could disturb nesting gnatcatchers within 500 feet of project construction. The project has incorporated measures to avoid and minimize impacts to gnatcatchers from light. Night lighting for construction will be of the lowest illumination necessary for human safety, directed at the immediate work area, and away from adjacent sensitive habitats. Light glare shields will be used to reduce the extent of illumination into sensitive habitats. In addition, construction in the Windy Ridge Wildlife Undercrossing and Coal Canyon Undercrossing will be limited to daylight hours. With implementation of these measures we anticipate that the effects of construction lighting on gnatcatchers will be minimized to the point where such effects are insignificant. For the purposes of section 7 consultation, an insignificant effect is one that is sufficiently small that a person would not be able to meaningfully measure, detect, or evaluate it.

Ambient noise levels in the action area have been measured between 47 and 77 dBA Leq, with ambient noise measured about half a mile from Coal Canyon and about 500 feet north of SR-91 at 61.3 dBA Leq (LSA Associates Inc. 2017). At Coal Canyon, construction will take place primarily within the median, where ambient noise levels will be much higher. Project construction is

anticipated to generate noise levels between 70 and 90 dBA Leq at 50 feet (LSA Associates Inc. 2017). Noise and vibrations associated with the use of heavy equipment during project construction 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). We anticipate that construction noise could disturb nesting gnatcatchers within 500 feet of project construction. To avoid and minimize impacts from noise, surveys and noise monitoring will be conducted to ensure that construction noise will not exceed ambient levels, or 60 dBA Leq hourly, whichever is higher, at active nest locations. With implementation of these measures we anticipate that the effects of construction noise on gnatcatchers will be minimized to the point where such effects are insignificant. Once construction is complete, project operations are anticipated to result in a minimal increase in existing noise levels of 1dBA or less (LSA Associates Inc. 2017). This minimal increase in operational noise is anticipated to have an insignificant effect on survival and reproduction of gnatcatchers in the action area.

Implementation of the project has the potential to increase fugitive dust in the adjacent habitat. Increased dust has the potential to temporarily degrade gnatcatcher habitat. To minimize the potential for impacts, the Biological Monitor will periodically monitor the work area to document that work activities do not generate excessive amounts of dust, and impacts from fugitive dust will be avoided and minimized through watering and other appropriate measures. With implementation of these measures we anticipate that the effects of construction dust on gnatcatchers will be minimized to the point where such effects are insignificant.

To avoid and minimize impacts from increased human activity and encroachment during construction, the project limits will be fenced, and construction personnel will be trained in the importance of strictly limiting activities, vehicles, equipment, and construction materials to the project footprint to avoid adjacent sensitive resource areas. These measures are anticipated to minimize the impact of construction disturbance from human activity on gnatcatcher behavior in adjacent habitat to the point where such effects are insignificant.

Gnatcatchers may also be disturbed by the Biological Monitor broadcasting recorded calls during surveys. Surveys are intended to ensure that take limits are not exceeded and to determine the location of gnatcatchers in the project impact footprint such that measures can be implemented (e.g., direct vegetation clearing away from gnatcatchers, flush gnatcatchers out of the active work area) to avoid death and injury of gnatcatchers from vegetation clearing/grubbing and construction work. Survey activities may result in minor disturbance to gnatcatchers from the recorded calls and increased human presence, but we do not anticipate significant impacts to gnatcatcher survival or reproduction from project-related surveys.

Implementation of the project could result in an increase in the cover and number of invasive nonnative plant species in habitats adjacent to the project area. Nonnative species often out-compete and exclude native species, potentially altering the structure of the vegetation, degrading or eliminating coastal sage scrub habitat used by the gnatcatcher, and providing food and cover for undesirable nonnative animals (Bossard *et al.* 2000). The project has incorporated measures to prevent the spread of nonnative species. The Biological Monitor will monitor the project site immediately prior to and during construction to identify the presence of invasive weeds and recommend measures to avoid their inadvertent spread in association with the project. Implementation of these measures is anticipated to minimize the impact of invasive species

introduction resulting from project implementation on gnatcatcher habitat to the point where such effects are insignificant.

In summary, the Graded Slope Design Option will directly impact 47.17 acres (13.70 acres permanent and 33.47 acres temporary), and the Soil Nail Wall Design Option will directly impact 38.61 acres (6.06 acres permanent and 32.55 acres temporary) of habitat that is suitable for gnatcatcher breeding, foraging, and movement; and a single pair of gnatcatchers was documented within this direct impact area. Of this area, for the Graded Slope Design Option, only 16.73 acres (9.89 acres permanent and 6.84 acres temporary), and for the Soil Nail Wall Design Option, only 8.17 acres (2.25 acres permanent and 5.92 acres temporary) of gnatcatcher habitat comprise impacts that were not analyzed and offset as described in the 1994 Biological Opinion. A reduction in the number of gnatcatchers (up to 1 pair) supported in the action area is likely due to the direct loss of habitat, and displacement that could lead to increased predation, death, and injury. The gnatcatcher pair to be impacted represents less than 0.05 percent of the rangewide estimate of gnatcatcher pairs (roughly 2,562 pairs). During construction we expect gnatcatchers will continue to occupy the general project area, and construction disturbance in the project area will be temporary. With temporary impact restoration of 33.47 acres for the Graded Slope Design Option, and 32.55 acres for the Soil Nail Wall Design Option (as detailed in Tables 4 and 5), the permanent impacts to a relatively small amount (13.70 acres or 6.06 acres) of coastal sage scrub and native plant restoration habitat is not anticipated to increase the local risk of gnatcatcher extirpation. Thus, the project is not expected to result in an appreciable reduction in the numbers, reproduction, or distribution of the species rangewide.

Critical Habitat

The Graded Slope Design Option for the project will affect a total of 41.66 acres of gnatcatcher critical habitat, including permanent impacts to 6.03 acres containing PBFs and an additional 14.88 acres lacking PBFs. Temporary impacts will occur to 12.14 acres of gnatcatcher critical habitat with PBFs and 8.61 acres of critical habitat lacking PBFs.

The Soil Nail Wall Design Option for the project will affect a total of 40.57 acres of gnatcatcher critical habitat, including permanent impacts to 4.68 acres with PBFs and an additional 14.88 acres lacking PBFs. Temporary impacts will occur to 12.38 acres of gnatcatcher critical habitat with PBFs and 8.61 acres of critical habitat lacking PBFs.

Both design options would affect a small percentage (about 0.2 percent) of the 17,552 acres of designated critical habitat within Unit 9, and an even smaller percentage of all critical habitat designated for this species. Permanent impacts would impact about 0.1 percent of designated critical habitat within Unit 9. Of the critical habitat in the project area, most (about 90 percent) consists of vegetation communities other than coastal sage scrub, which provide fewer resources to support gnatcatchers. The loss of this amount of critical habitat and associated PBFs (sage scrub and non-sage scrub vegetation that provide space and resources for nesting, foraging, and dispersal) will not substantially impact the function of Unit 9 to support core gnatcatcher populations and provide connectivity between populations in Orange, Riverside, and Los Angeles counties.

Proposed conservation to offset impacts of the Graded Slope Design Option for the project will include the restoration/enhancement of 13.3 acres of gnatcatcher critical habitat within Unit 7 and the

conservation of 10.57 acres within Unit 6, as detailed in Table 4. Proposed conservation to offset impacts of the Soil Nail Wall Design Option for the project will include the restoration/enhancement of 9.89 acres of gnatcatcher critical habitat within Unit 7 and the conservation of 5.73 acres within Unit 6, as detailed in Table 5. Further, Caltrans has agreed to restore temporary impact areas, and some cut and fill slopes within the project's permanent impact area with native species, including some coastal sage scrub, as detailed in Tables 4 and 5. This will include extensive areas that are currently vegetated with nonnative species (as detailed in Table 3). The proposed restoration will help maintain the functions of Unit 9 to support core gnatcatcher populations and provide connectivity between populations in Orange, Riverside, and Los Angeles counties.

Effect on Recovery

There is no recovery plan for the gnatcatcher, but the project is consistent with the general recovery goals of maintaining core populations of gnatcatchers and maintaining connectivity between these populations. As described above, the permanent loss of 13.70 acres (Graded Slope Design Option) or 6.06 acres (Soil Nail Wall Design Option) of gnatcatcher occupied habitat and loss of 1 gnatcatcher pair is a relatively small impact relative to the thousands of acres of habitat and gnatcatcher territories (roughly 2,562 pairs) rangewide. Furthermore, the presence of substantial areas of occupied habitat adjacent to the impact area and restoration of temporary impact areas and cut/fill slopes initiated immediately following project construction will help maintain and support local gnatcatcher populations in the project area.

The project proponents will offset the impacts to gnatcatcher habitat through restoration at the Strawberry Farms restoration site and conservation at the Saddle Club mitigation site, as summarized in Tables 4 and 5. The conservation properties are located in Orange County, within designated critical habitat, and are occupied by gnatcatchers. Thus, over the long-term, the project is expected to contribute to the conservation and recovery of the species by maintaining gnatcatcher breeding habitat and connectivity between core gnatcatcher populations in Orange County.

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 are unaware of any future non-Federal actions that are reasonably certain to occur within the action area and may affect gnatcatchers.

CONCLUSION

After reviewing the current status of the gnatcatcher; the environmental baseline for the action area; effects of the proposed action; and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of the gnatcatcher or adversely modify its designated critical habitat. We reached this conclusion by considering the following:

Coastal California Gnatcatcher

1. Adverse effects to the gnatcatcher will be reduced by implementation of the avoidance and minimization measures identified in the “Project Description” of this biological opinion;
2. The project will displace up to 1 pair of gnatcatchers supported in the action area due to the direct loss of a portion of their habitat; this pair represents less than 0.05 percent of the roughly 2,562 pairs rangewide;
3. The project will permanently impact 13.70 acres (Graded Slope Design Option) or 6.06 acres (Soil Nail Wall Design Option) of gnatcatcher occupied habitat out of thousands of acres of gnatcatcher habitat rangewide;
4. The project will temporarily impact 33.47 acres (Graded Slope Design Option) or 32.55 acres (Soil Nail Wall Design Option) of gnatcatcher occupied habitat; this habitat will be restored as detailed in Tables 4 and 5 and will again be suitable habitat for gnatcatcher breeding and foraging within 5 years;
5. The project will permanently impact 20.91 acres (Graded Slope Design Option) or 19.58 acres (Soil Nail Wall Design Option) of gnatcatcher designated critical habitat out of the 17,552 acres of designated critical habitat within Unit 9, which represents about 0.1 percent of the Unit and an even smaller percentage of designated gnatcatcher critical habitat;
6. With the conservation benefits that will be implemented as detailed in the Conservation Measures and Tables 4 and 5, the small amount of impacts proposed to designated critical habitat for the gnatcatcher will not appreciably diminish the function of the critical habitat for the gnatcatcher; and
7. Impacts to occupied gnatcatcher habitat will be offset as detailed in Tables 4 and 5.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit 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 or collect, or attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Harass is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior 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 proposed action is not considered to be prohibited taking under the Act 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 for the exemption in section 7(o)(2) to apply. Caltrans has the continuing duty to regulate the activity that is covered by this incidental take statement. If Caltrans fails to (1) adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) retain oversight to ensure compliance with these terms and conditions, 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 CFWO as specified in the incidental take statement [50 CFR § 402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

Coastal California Gnatcatcher

We anticipate that up to one gnatcatcher pair will be taken as a result of construction of the proposed project.

Incidental take is expected to be in the form of harm as defined in 50 CFR § 17.3, due to the direct loss of a portion of the scrub habitat occupied by up to two individuals.

The take exemption will be exceeded if:

1. More than one pair of gnatcatchers is documented in or within the project footprint; or
2. More than 13.70 acres of gnatcatcher-occupied habitat are permanently altered and 33.47 acres of gnatcatcher-occupied habitat are temporarily removed for the Graded Slope Design Option, or 6.06 acres of gnatcatcher-occupied habitat are permanently altered and 32.55 acres of gnatcatcher-occupied habitat are temporarily removed for the Soil Nail Wall Design Option, or if such removal is not consistent with Table 1.

EFFECT OF TAKE

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

REASONABLE AND PRUDENT MEASURES

The Applicant will implement significant 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 will monitor and report on compliance with the established take exemptions 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 the following terms and conditions which implement the reasonable and prudent measures described above.

Coastal California Gnatcatcher

- 1.1 Prior to initiating project work, three preconstruction surveys will be conducted within all suitable gnatcatcher habitat within the project footprint, within 30 days prior to initiation of vegetation removal activities, to verify that no more than 1 pair of gnatcatchers will be harmed as a result of the project.
- 1.2 Prior to initiating project work, Caltrans will provide to the CFWO a map showing the distribution of gnatcatchers relative to the project footprint and an estimate of the number of gnatcatcher territories that will be impacted by the project, or confirm in writing that maps, distribution information, and the number of territories that will be impacted by the project remain correct.
- 1.3 Prior to project construction, the project proponent will submit to the CFWO Geographic Information System (GIS) shapefiles in UTM, Zone 11N (meters), NAD 83 coordinate system that show the following: anticipated permanent impacts, temporary impacts, habitat restoration sites, and habitat conservation sites. Please note that these polygons may overlap. For example, one location could be temporarily impacted and subsequently restored and conserved. Include the following metadata for each shapefile: summary/description of the data, attribute definitions, coordinate system/projection information or any other pertinent information. If there are any changes to the boundaries anticipated impacts, restoration, or conservation sites, such changes must be addressed consistent with the Reinitiation Notice below. In addition, updated GIS shapefiles will be submitted to the CFWO.
- 1.4 Caltrans will notify the CFWO 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 proposed 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 this office in Carlsbad, California, at 2177 Salk Avenue, Suite 250 Carlsbad, California 92008, 760-431-9440. 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. The remains of intact specimens shall be placed with educational or research institutions holding the appropriate State and Federal permits. 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 authorized 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. We recommend that all upland temporary impact areas and cut and fill slopes for the project be restored with coastal sage scrub species.

REINITIATION NOTICE

This concludes formal consultation regarding the SR-241/SR-91 Express Lane Connector 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; and (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 regarding this biological opinion, please contact Sally Brown of this office at 760-431-9440, extension 278.

Sincerely,

Scott A. Sobiech
Acting Field Supervisor

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APPENDIX

Section 7 Consultation SR-241/SR-91 Express Lane Connector Project Orange and Riverside Counties, California FWS-OR-14B0086-17F1420

The following information supports the Service's concurrence with Caltrans' not likely to adversely affect determination for the federally endangered vireo, flycatcher, and milk-vetch; federally threatened sucker and brodiaea; and designated critical habitat for the sucker, and milk-vetch, in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), for the SR-241/SR-91 Express Lane Connector Project, Orange County, California.

Vireo and Flycatcher

Vireo and flycatcher were not observed during surveys conducted in the BSA for the project, and no suitable nesting habitat is present within the BSA (Caltrans 2016). Vireo and flycatcher have been observed in riparian habitat in the Santa Ana River, directly north of the BSA. The project will result in the loss of a small amount (about 1 acre) of suitable foraging habitat (chaparral within and adjacent to a riparian drainage) for the vireo and flycatcher (LSA Associates Inc. 2017). Vegetation clearing within suitable foraging habitat for these species will occur outside of the vireo and flycatcher breeding season when these migratory species are not expected to be present in the project area.

Project construction may also indirectly impact vireos and flycatchers in the adjacent habitat within 500 feet in the Santa Ana River (e.g., effects associated with light, noise, invasive species, human encroachment, and construction dust, erosion, sedimentation, and contaminant run-off). Light that alters natural light patterns in ecosystems can lead to increased predation, disorientation, and disruption of inter-specific interactions (Longcore and Rich 2004). Noise and vibrations associated with the use of heavy equipment during project construction have the potential to disrupt vireo and flycatcher 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). Nonnative species often out-compete and exclude native species, potentially altering the structure of the vegetation, degrading or eliminating habitat used by the vireo and flycatcher, and providing food and cover for undesirable nonnative animals (Bossard *et al.* 2000). Construction dust, erosion, sedimentation, and contaminant run-off can degrade adjacent habitat.

The project has incorporated measures to avoid and minimize impacts to vireos and flycatchers from noise, light, invasive species, human encroachment, and construction dust, erosion, sedimentation, and contaminant run-off. Night lighting for construction will be of the lowest illumination necessary for human safety, directed at the immediate work area, and away from adjacent sensitive habitats. Light glare shields will be used to reduce the extent of illumination into sensitive habitats.

Construction along SR-91 in the vicinity of the Santa Ana River will occur primarily in the median of the existing facility where noise levels are high (Caltrans 2016). Once construction is complete, project operations are anticipated to result in a minimal increase in existing noise levels of 1 dBA or less (LSA Associates Inc. 2017). This minimal increase in operational noise is anticipated to have an insignificant effect on survival and reproduction of vireo and flycatcher that may be present in nearby habitat. The Biological Monitor will monitor the project site immediately prior to and during

construction to identify the presence of invasive weeds and recommend measures to avoid their inadvertent spread in association with the project. To avoid and minimize impacts from increased human activity and encroachment during construction, the project limits will be fenced, and construction personnel will be trained in the importance of strictly limiting activities, vehicles, equipment, and construction materials to the project footprint to avoid adjacent sensitive resource areas. The Biological Monitor will periodically monitor the work area to document that work activities do not generate excessive amounts of dust, and impacts from fugitive dust will be avoided and minimized through watering and other appropriate measures. To avoid and minimize impacts from erosion, sedimentation, and contaminant run-off, the project will install appropriate erosion control measures, and all equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will be restricted to designated staging areas that are a minimum of 100 feet from sensitive habitats and drainages. These measures are anticipated to minimize these potential impacts on vireo and flycatcher behavior in adjacent habitat to the point where such effects are insignificant.

Milk-Vetch and Critical Habitat

Milk-vetch was not observed during surveys conducted in the BSA for the project but has been observed in Coal Canyon directly south of the BSA (Caltrans 2016). Project construction may indirectly impact milk-vetch in the adjacent habitat within 500 feet (e.g., effects associated with light, invasive species, human encroachment, and construction dust, erosion, sedimentation, and contaminant run-off). Construction and operational lighting installed for the project could increase light spill into the adjacent habitat. Light can affect a broad range of plant physiological responses, including seed germination, seedling development, induction of flowering, and rapid, membrane-based activities (Hopkins 1995). Nonnative species often out-compete and exclude native species, potentially altering the structure of the vegetation, degrading or eliminating habitat used by the vireo and flycatcher, and providing food and cover for undesirable nonnative animals (Bossard *et al.* 2000). Construction dust, erosion, sedimentation, and contaminant run-off can degrade adjacent habitat.

The project has incorporated measures to avoid and minimize impacts to milk-vetch from light, invasive species, human encroachment, and construction dust, erosion, sedimentation, and contaminant run-off. Permanent project lighting and night lighting for construction will be of the lowest illumination necessary for human safety, directed at the roadway and immediate work area, and away from adjacent sensitive habitats. Light glare shields will be used to reduce the extent of illumination into sensitive habitats. The Biological Monitor will monitor the project site immediately prior to and during construction to identify the presence of invasive weeds and recommend measures to avoid their inadvertent spread in association with the project. To avoid and minimize impacts from increased human activity and encroachment during construction, the project limits will be fenced and construction personnel will be trained in the importance of strictly limiting activities, vehicles, equipment, and construction materials to the project footprint to avoid adjacent sensitive resource areas. The Biological Monitor will periodically monitor the work area to document that work activities do not generate excessive amounts of dust, and impacts from fugitive dust will be avoided and minimized through watering and other appropriate measures. To avoid and minimize impacts from erosion, sedimentation, and contaminant run-off, the project will install appropriate erosion control measures, and all equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will be restricted to designated staging areas that are a minimum of 100 feet from sensitive habitats and drainages. These measures are anticipated to minimize these potential impacts on milk-vetch in adjacent habitat to the point where such effects are insignificant.

Critical habitat for milk-vetch was designated on November 14, 2006 (Service 2006). There are six designated critical habitat units for milk-vetch that include 3,300 acres of Federal, State, local, and private land in Ventura, Los Angeles, and Orange counties. Designated critical habitat includes habitat throughout the species' range to preserve the genetic diversity that currently exists within the species. The individual units contain physical and biological features that are essential to the conservation of the species and help to identify special management considerations for the species. The project is located adjacent to Unit 6 of designated milk-vetch critical habitat.

Unit 6 (Coal Canyon Unit) includes 832 acres and contains milk-vetch plants in several locations that are part of a large population complex on Chino Hills State Park, the California Department of Fish and Wildlife Coal Canyon Ecological Reserve, and adjacent private lands. This unit may require special management considerations or protection to minimize impacts associated with maintenance of fire roads and the growth of shrubs and nonnative plants, which could crowd out milk-vetch.

PBFs for milk-vetch critical habitat are those habitat components that are essential to sustain the life history functions of the species. These include: (1) Calcium carbonate soils derived from marine sediment; (2) Low proportion (<10%) of shrub cover directly around the plant; and (3) Chaparral and coastal sage scrub communities characterized by periodic disturbances that stimulate seed germination (e.g., fire, flooding, erosion) and reduce vegetative cover.

Designated critical habitat for milk-vetch is in the project's BSA but outside of the disturbance limits for the project. The project has incorporated measures to avoid and minimize impacts to milk-vetch critical habitat. To avoid and minimize impacts from increased human activity and encroachment during construction, the project limits will be fenced and construction personnel will be trained in the importance of strictly limiting activities, vehicles, equipment, and construction materials to the project footprint to avoid adjacent sensitive resource areas.

Sucker and Critical Habitat

Sucker is not present in the BSA for the project, and no suitable habitat is present within the BSA (Caltrans 2016). Suckers have been observed in the Santa Ana River, directly north of the BSA. Project construction may indirectly impact suckers in the adjacent habitat in the Santa Ana River (e.g., effects associated with erosion, sedimentation, and contaminant run-off). The project has incorporated measures to avoid and minimize impacts to suckers from erosion, sedimentation, and contaminant run-off. The project will install appropriate erosion control measures, and all equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will be restricted to designated staging areas that are a minimum of 100 feet from sensitive habitats and drainages. These measures are anticipated to minimize these potential impacts on sucker behavior in adjacent habitat to the point where such effects are insignificant.

Critical habitat for sucker was designated on December 14, 2010 (Service 2010b). There are three designated critical habitat units for sucker that include 9,331 acres of Federal, State, local, and private land in San Bernardino, Riverside, Orange and Los Angeles counties. Designated critical habitat includes habitat throughout the species' range to preserve the genetic diversity that currently exists within the species. The individual units contain physical and biological features that are essential to the conservation of the species and help to identify special management considerations for the species. The project is located adjacent to Unit 1, Subunit 1C of designated sucker critical habitat.

Unit 1 (Santa Ana River) includes 5,535 acres, and of this Subunit 1C (Lower Santa Ana River) comprises 767 acres and contains habitat suitable for the sucker along approximately 10.7 miles of the Santa Ana River mainstem from below the Prado Dam in Riverside and Orange counties. This subunit may require special management considerations or protection to minimize impacts associated with water diversion, dams, water quality impacts from non-point source and point source pollution, and altered hydrology.

PBFs for sucker critical habitat are those habitat components that are essential to sustain the life history functions of the species. These include: (1) A functioning hydrological system within the historical geographic range of Santa Ana sucker that experiences peaks and ebbs in the water volume (either naturally or regulated) that encompasses areas that provide or contain sources of water and coarse sediment necessary to maintain all life stages of the species, including adults, juveniles, larvae, and eggs, in the riverine environment; (2) Stream channel substrate consisting of a mosaic of loose sand, gravel, cobble, and boulder substrates in a series of riffles, runs, pools, and shallow sandy stream margins necessary to maintain various life stages of the species, including adults, juveniles, larvae, and eggs, in the riverine environment; (3) Water depths greater than 1.2 inches and bottom water velocities greater than 0.01 feet per second; (4) Clear or only occasionally turbid water; (5) Water temperatures less than 86 degrees Fahrenheit; (6) Instream habitat that includes food sources (such as zooplankton, phytoplankton, and aquatic invertebrates), and associated vegetation such as aquatic emergent vegetation and adjacent riparian vegetation to provide: (a) Shading to reduce water temperature when ambient temperatures are high, (b) shelter during periods of high water velocity, and (c) protective cover from predators; and (7) Areas within perennial stream courses that may be periodically dewatered, but that serve as connective corridors between occupied or seasonally occupied habitat and through which the species may move when the habitat is wetted.

Designated critical habitat for the sucker is present outside of the disturbance limits for the project along the Santa Ana River north of the project. The project has incorporated measures to avoid and minimize impacts to sucker critical habitat (e.g., effects associated with erosion, sedimentation, and contaminant run-off). To avoid and minimize impacts from erosion, sedimentation, and contaminant run-off, the project will install appropriate erosion control measures, and all equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will be restricted to designated staging areas that are a minimum of 100 feet from sensitive habitats and drainages.

Brodiaea

Brodiaea was not observed during surveys conducted in the BSA for the project in April to June of 2011, August of 2013, and May of 2014 (Caltrans 2016). The recently added 3.6 acre slope grading area outside of the BSA for the project was surveyed for special status plants in 2001 and 2003 with negative results (BonTerra 2005). The project has incorporated measures to avoid and minimize impacts to *brodiaea*. Preconstruction surveys will be conducted for thread-leaved *brodiaea* within 1 year prior to the commencement of vegetation clearing and construction activities for the project, in habitat suitable for the species within the project impact area, during the March to June blooming period. If *brodiaea* is observed within the project impact area, Caltrans will reinitiate consultation with the CFWO to address unanticipated impacts to this species.

Conservation Measures

The following CMs will be incorporated into the project to avoid and minimize impacts to the vireo, flycatcher, milk-vetch, sucker, brodiaea, and designated critical habitat for the sucker and milk-vetch. For ease of reference, the numbering below is a continuation of the numbering of the CMs in the associated biological opinion.

- CM 20. The clearing and grubbing of native chaparral habitat that is suitable for vireo and flycatcher foraging for the project will occur between September 16 and March 14, to avoid the vireo and flycatcher breeding season (or sooner than September 16, if a biologist knowledgeable of vireo and flycatcher biology and ecology approved by the CFWO demonstrates to the satisfaction of the CFWO that all vireo and flycatcher nesting is complete). Caltrans will submit the biologist's name, address, telephone number, and work schedule on the project to the CFWO at least 15 working days prior to initiating project impacts.
- CM 21. Preconstruction surveys will be conducted for thread-leaved brodiaea within 1 year prior to the commencement of vegetation clearing and construction activities for the project, in habitat suitable for the species within the project impact area, during the March to June blooming period. If brodiaea is observed within the project impact area, Caltrans will reinitiate consultation with the CFWO to address unanticipated impacts to this species.
- CM 22. Measures included in the biological opinion to avoid and minimize project impacts to gnatcatcher and its designated critical habitat (i.e., CMs 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, and 16) will also avoid and minimize project impacts to the vireo, flycatcher, milk-vetch, sucker, brodiaea, and designated critical habitat for the sucker, and milk-vetch.

With incorporation of these proposed CMs, potential impacts to vireo, flycatcher, milk-vetch, sucker, brodiaea, and designated critical habitat for the sucker and milk-vetch will be minimized to the point where such effects are insignificant. For the purposes of section 7 consultation, an insignificant effect is one that is sufficiently small that a person would not be able to meaningfully measure, detect, or evaluate it. Based on the site and species information and Caltrans' commitment to implement avoidance and minimization measures during the project, we concur with the Caltrans' determination that the project is not likely to adversely affect these listed species and critical habitats.

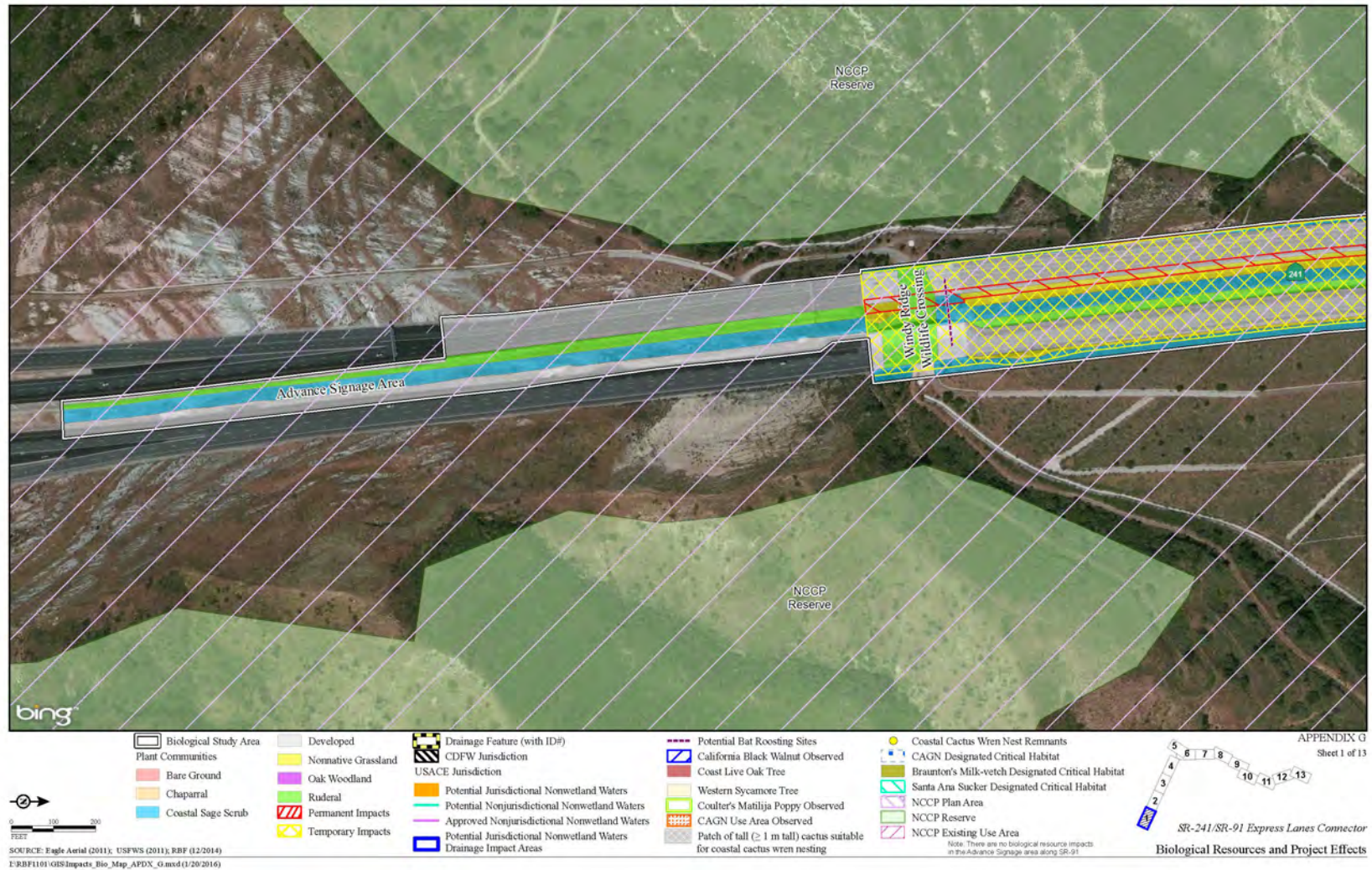


Figure 1. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

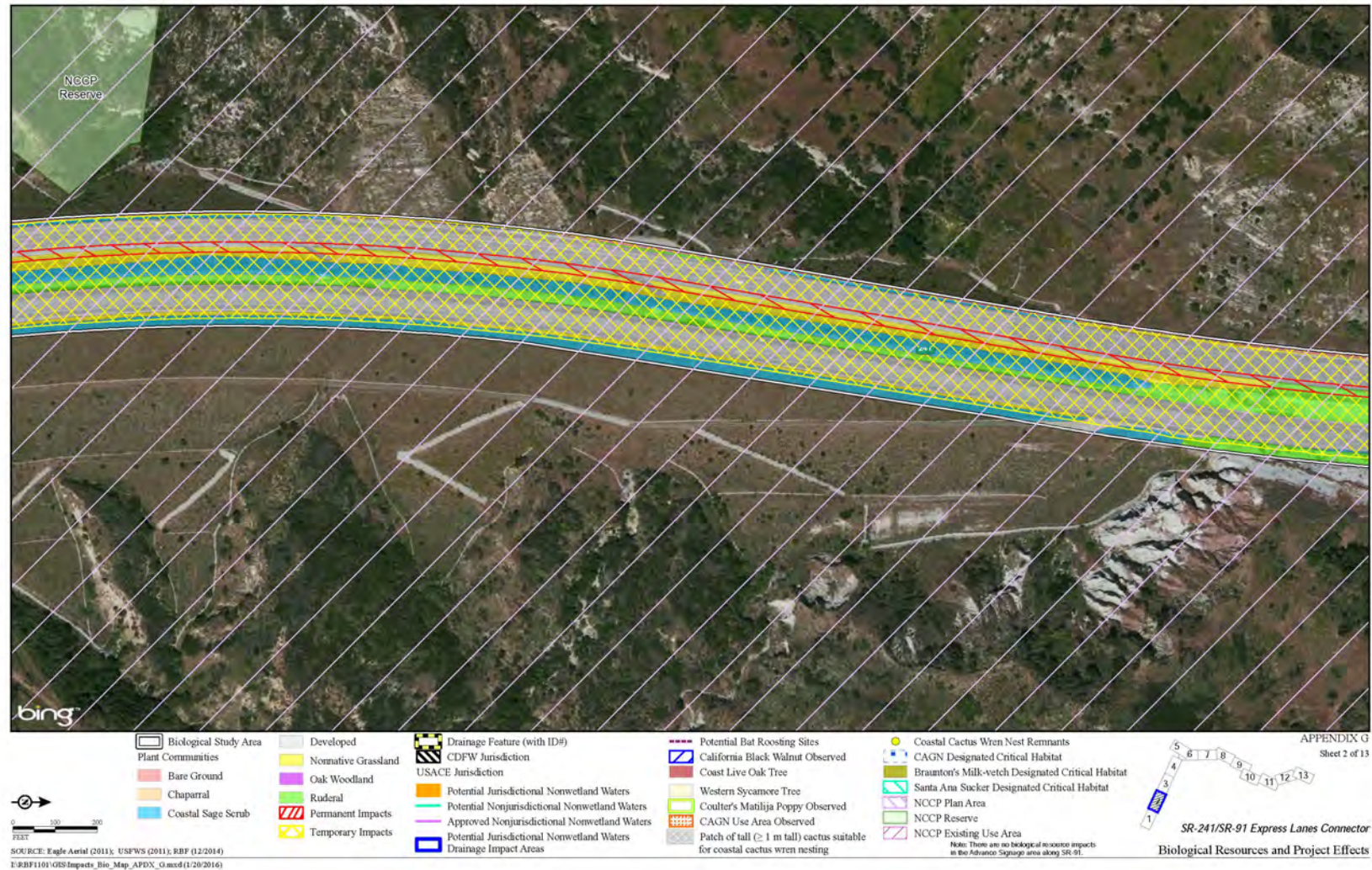


Figure 2. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

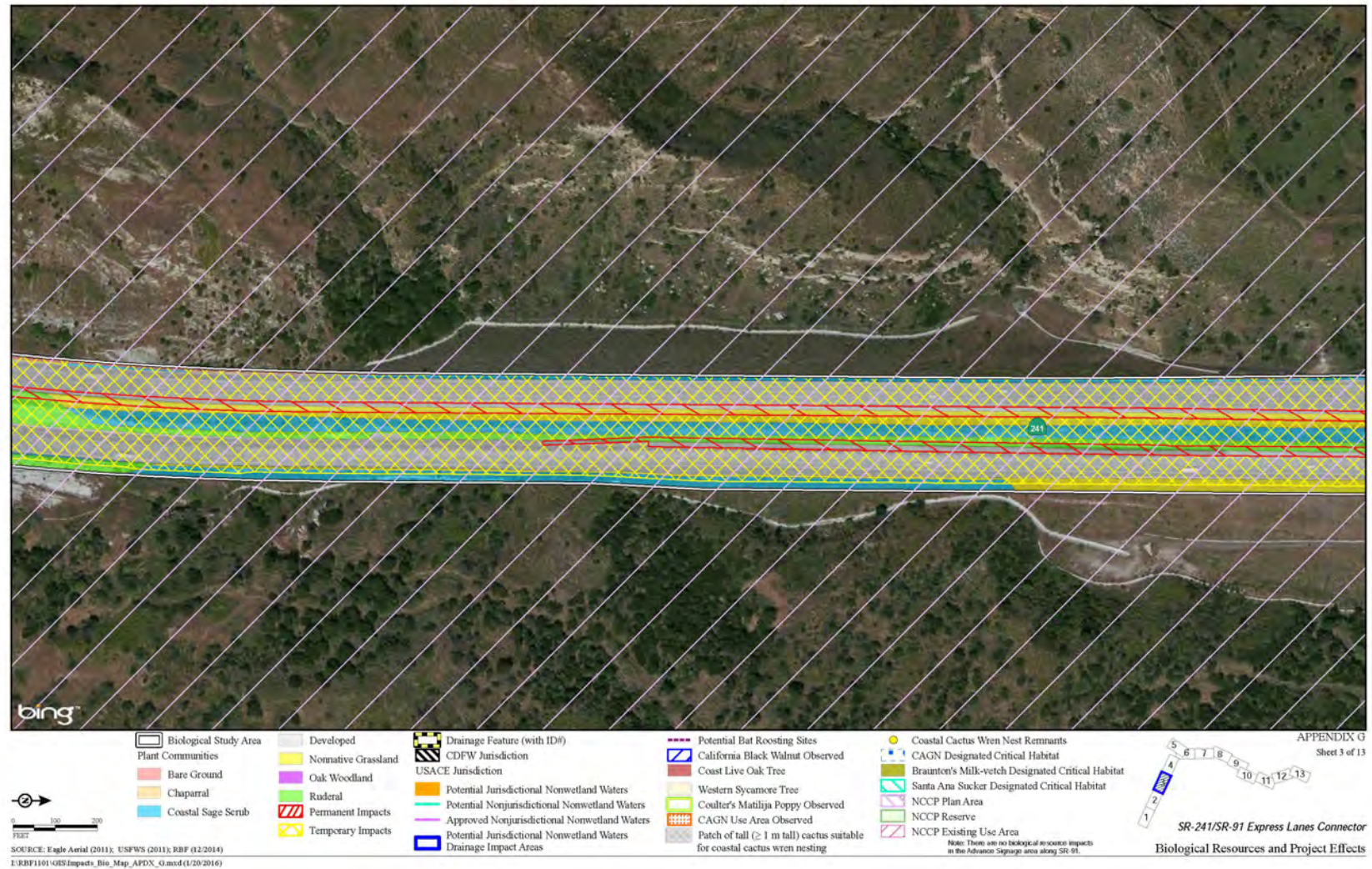


Figure 3. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

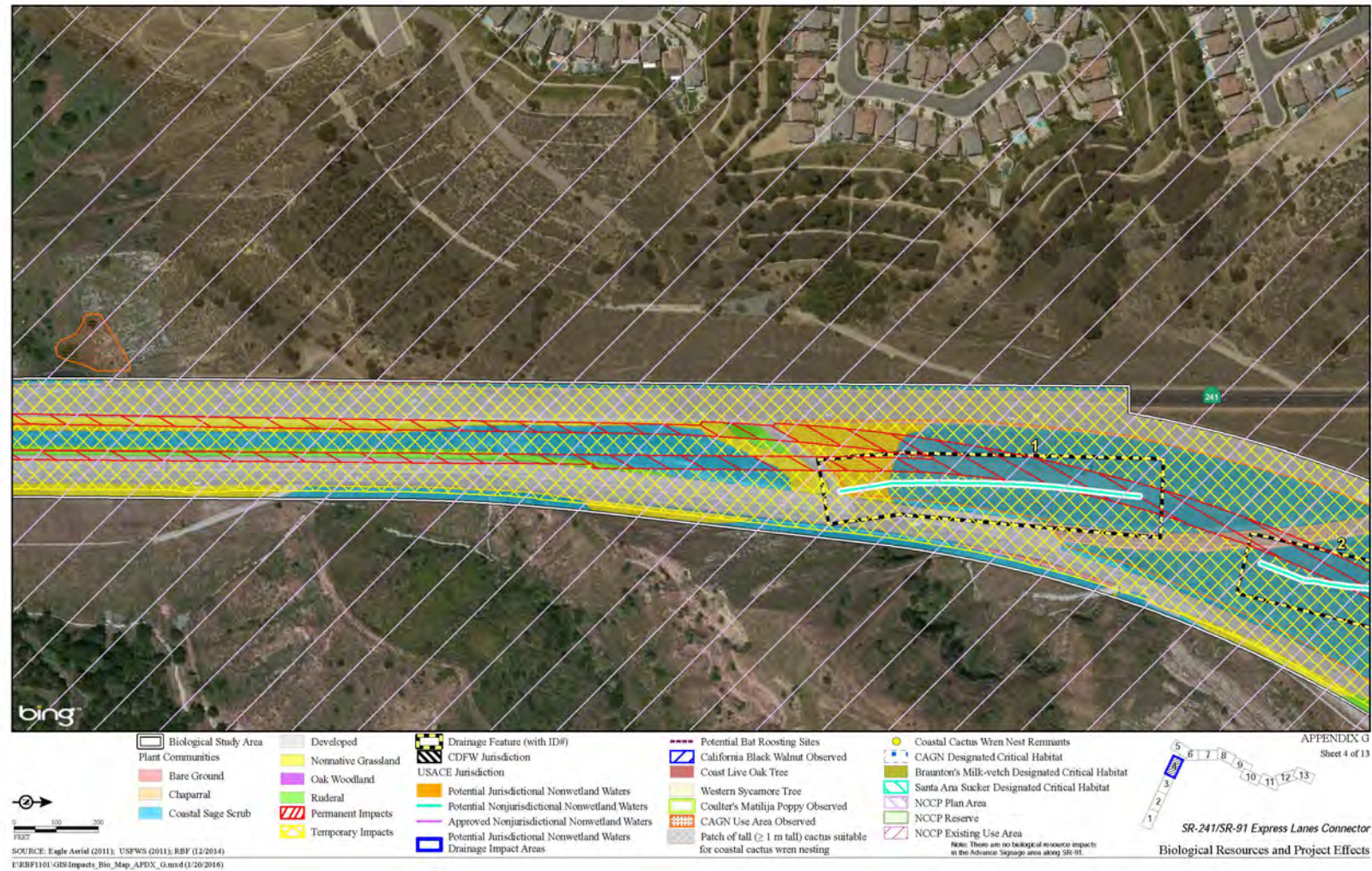


Figure 4. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

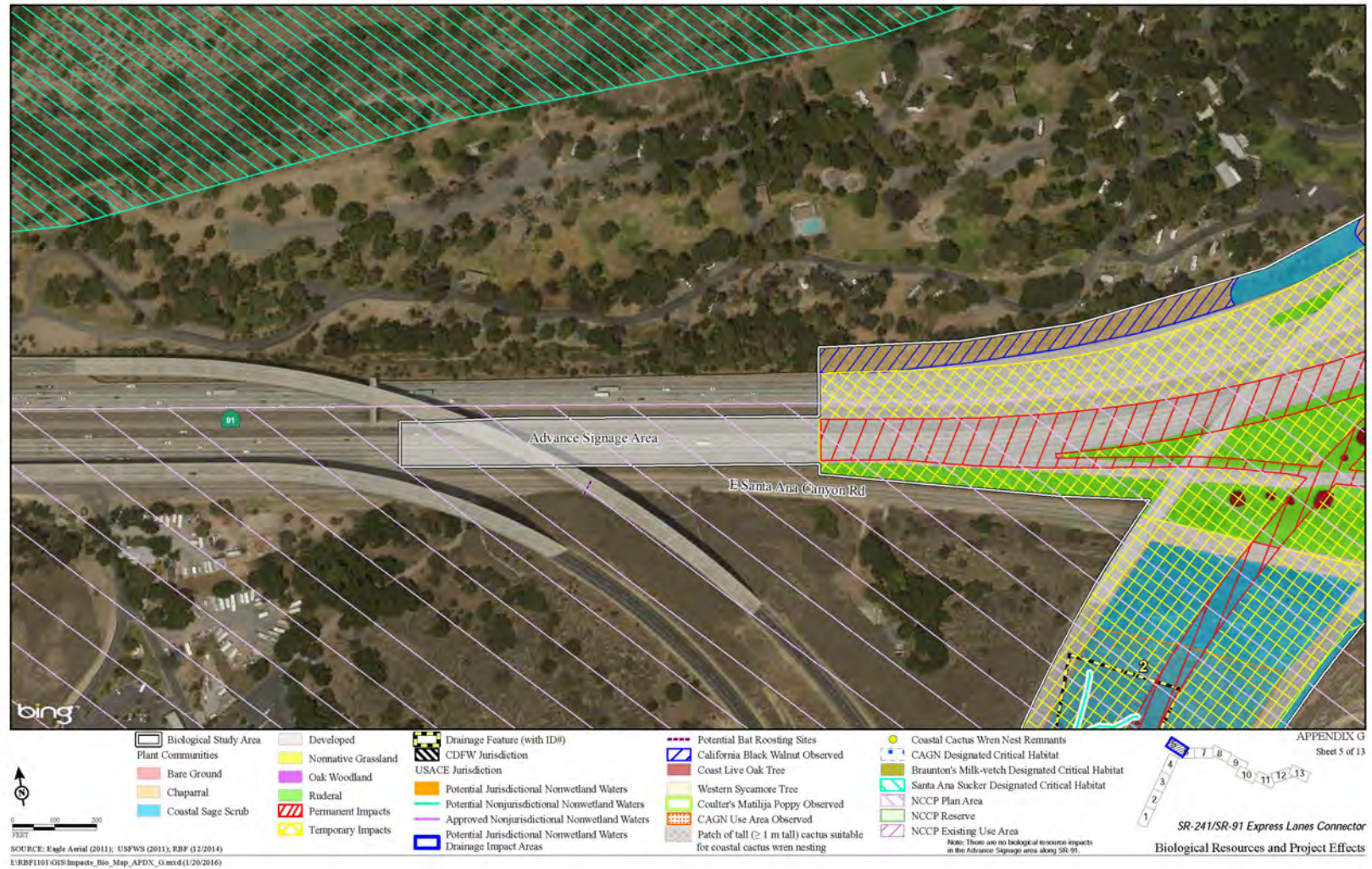


Figure 5. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

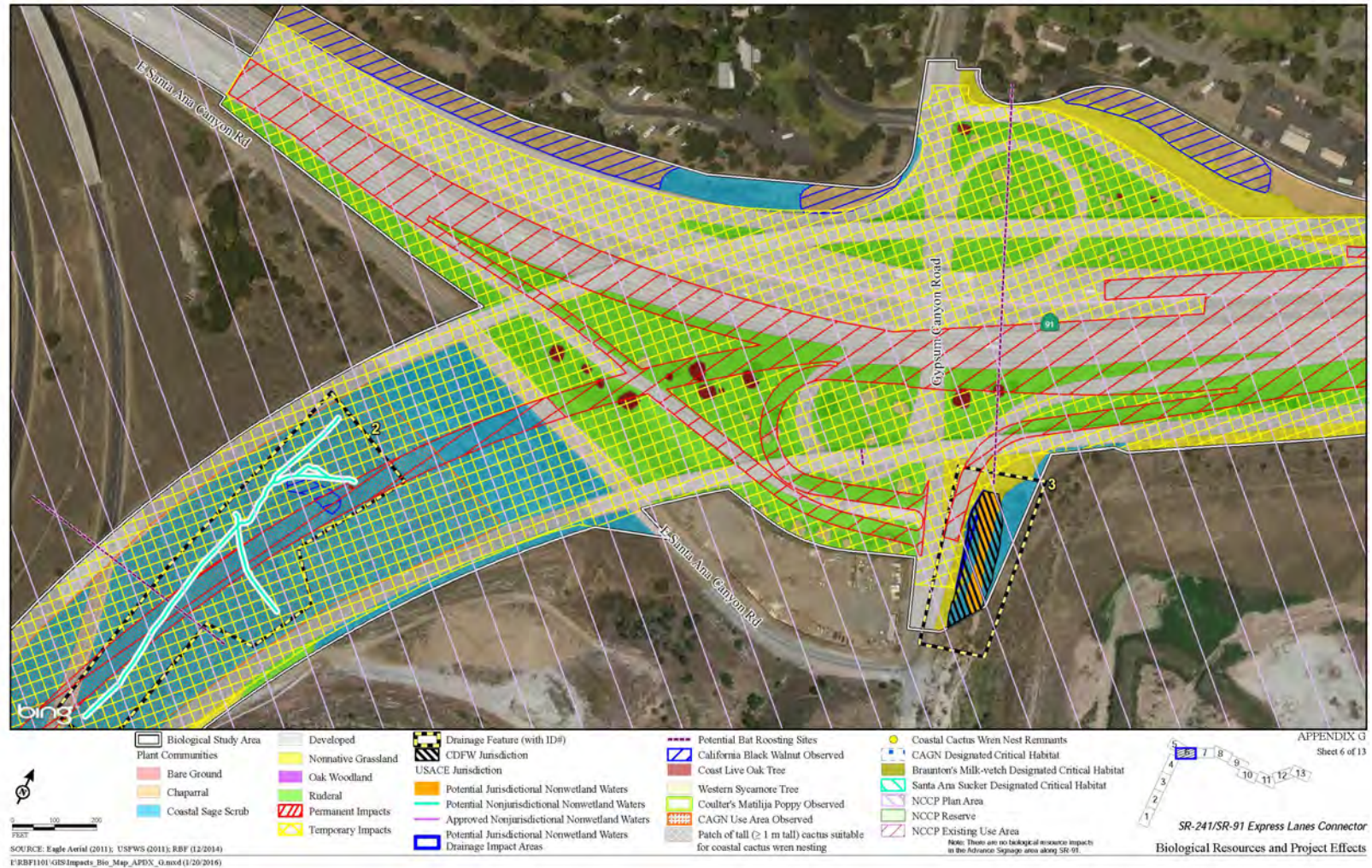


Figure 6. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

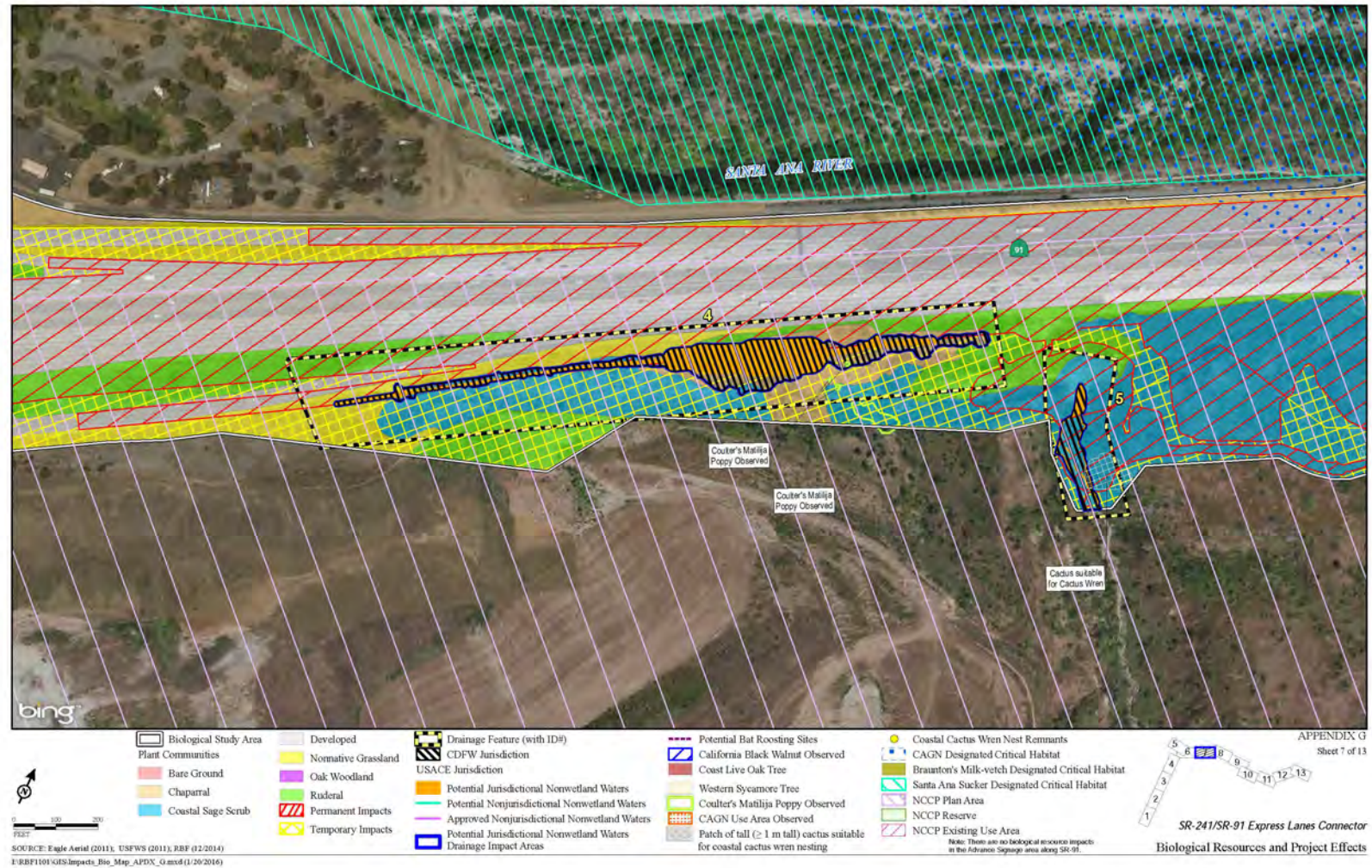


Figure 7. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

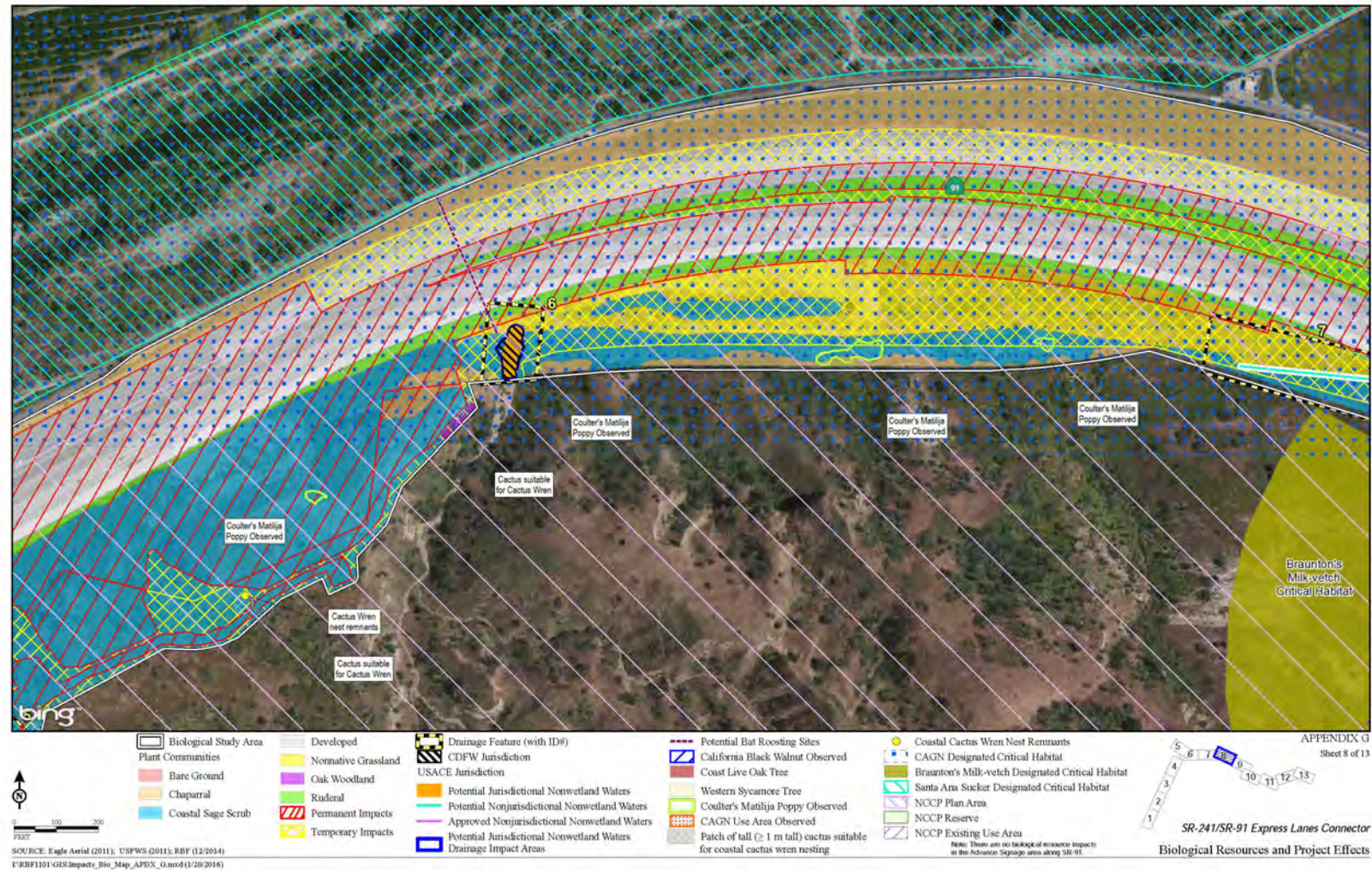


Figure 8. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

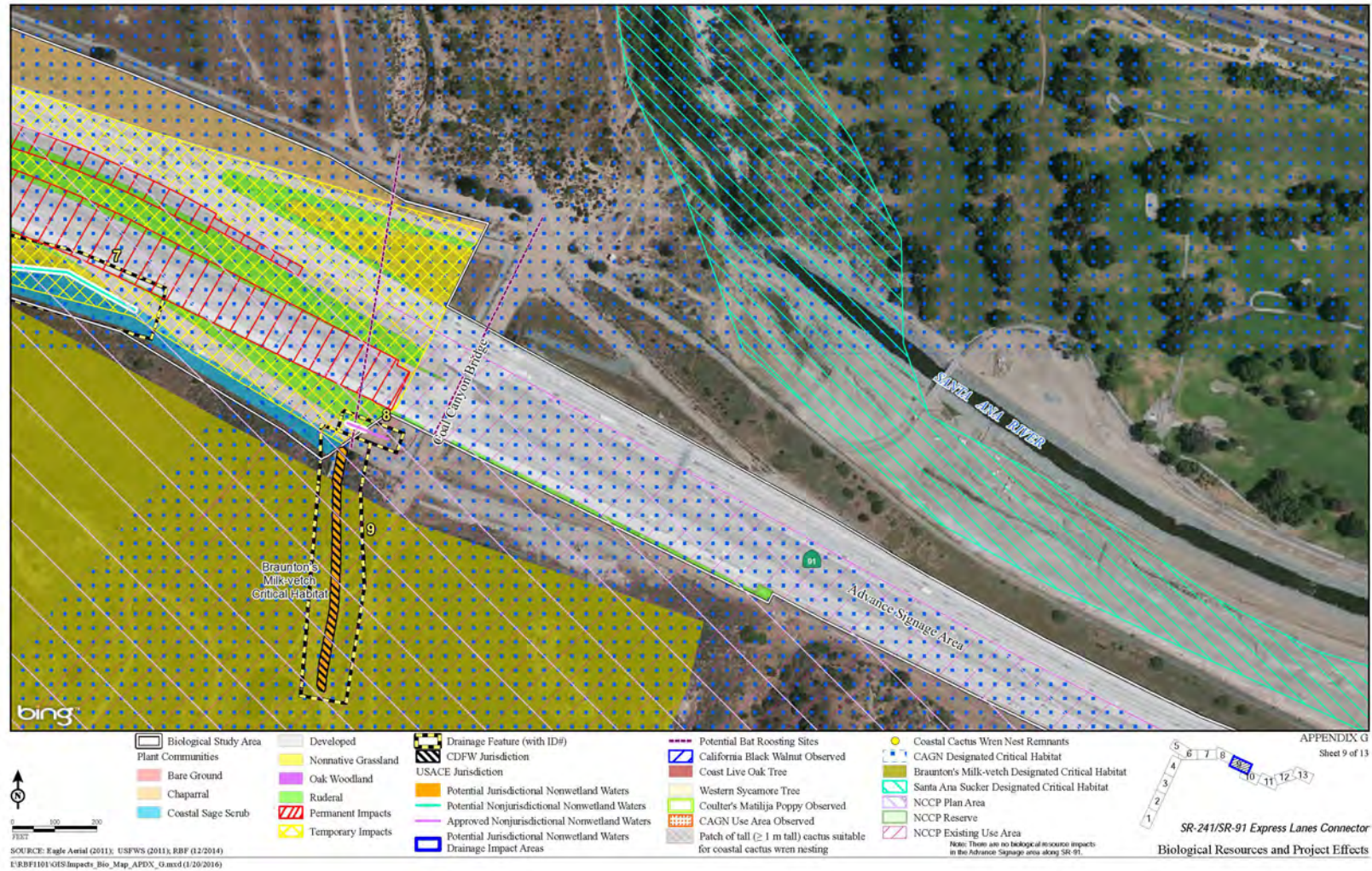


Figure 9. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

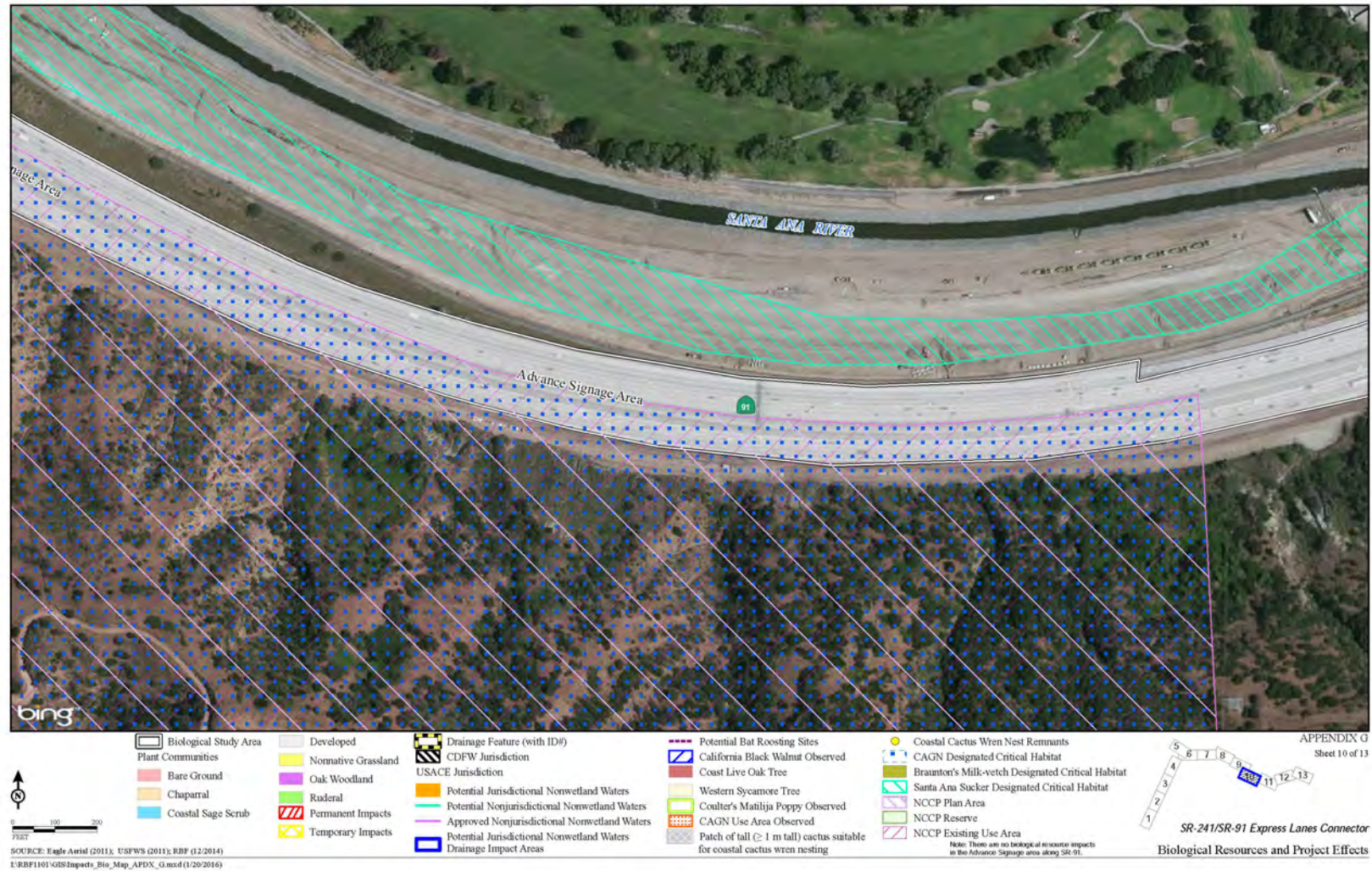


Figure 10. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

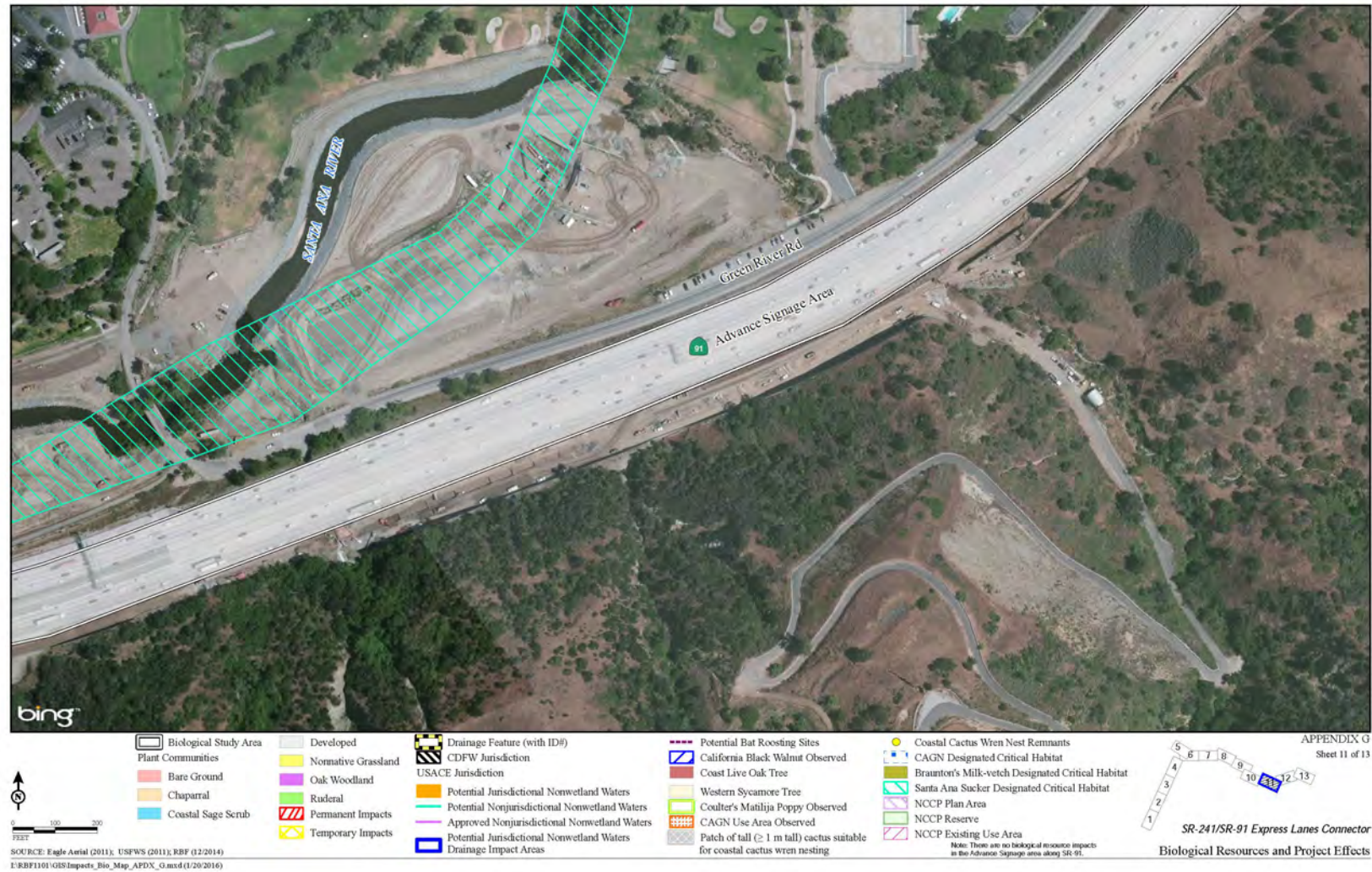


Figure 11. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)



Figure 12. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)



Figure 13. SR-241/SR-91 Express Lanes Connector (Source: Caltrans. 2016. SR-241/SR-91 Express Lanes Connector Project Biological Assessment, Orange and Riverside Counties, California.)

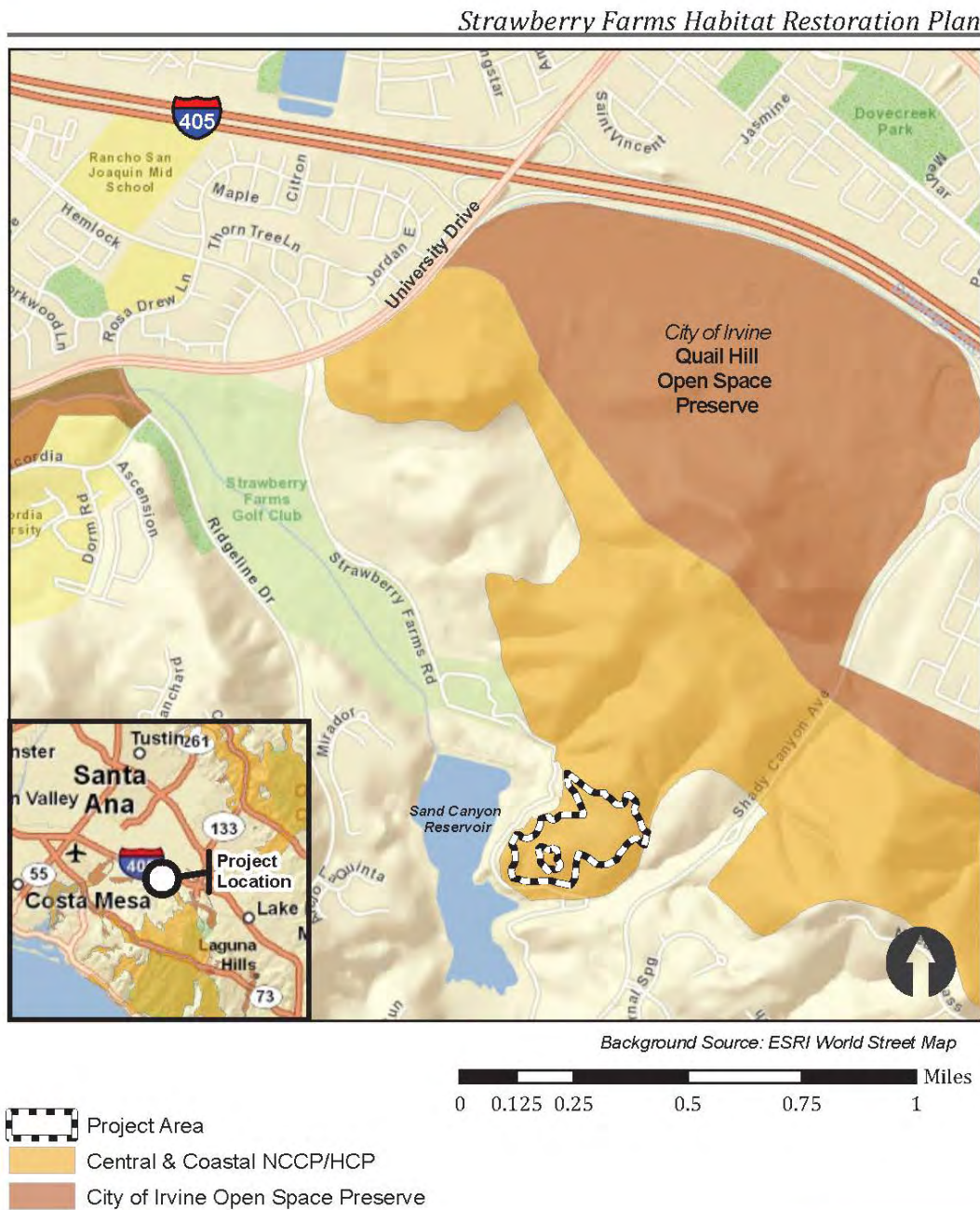


Figure 1-1. Regional Location.

NEWFIELDS

Figure 14. Strawberry Farms Restoration (Source: NewFields. 2011. Habitat Restoration Plan for the Strawberry Farms 15-Acre Parcel. 65 pp + Appendices.)

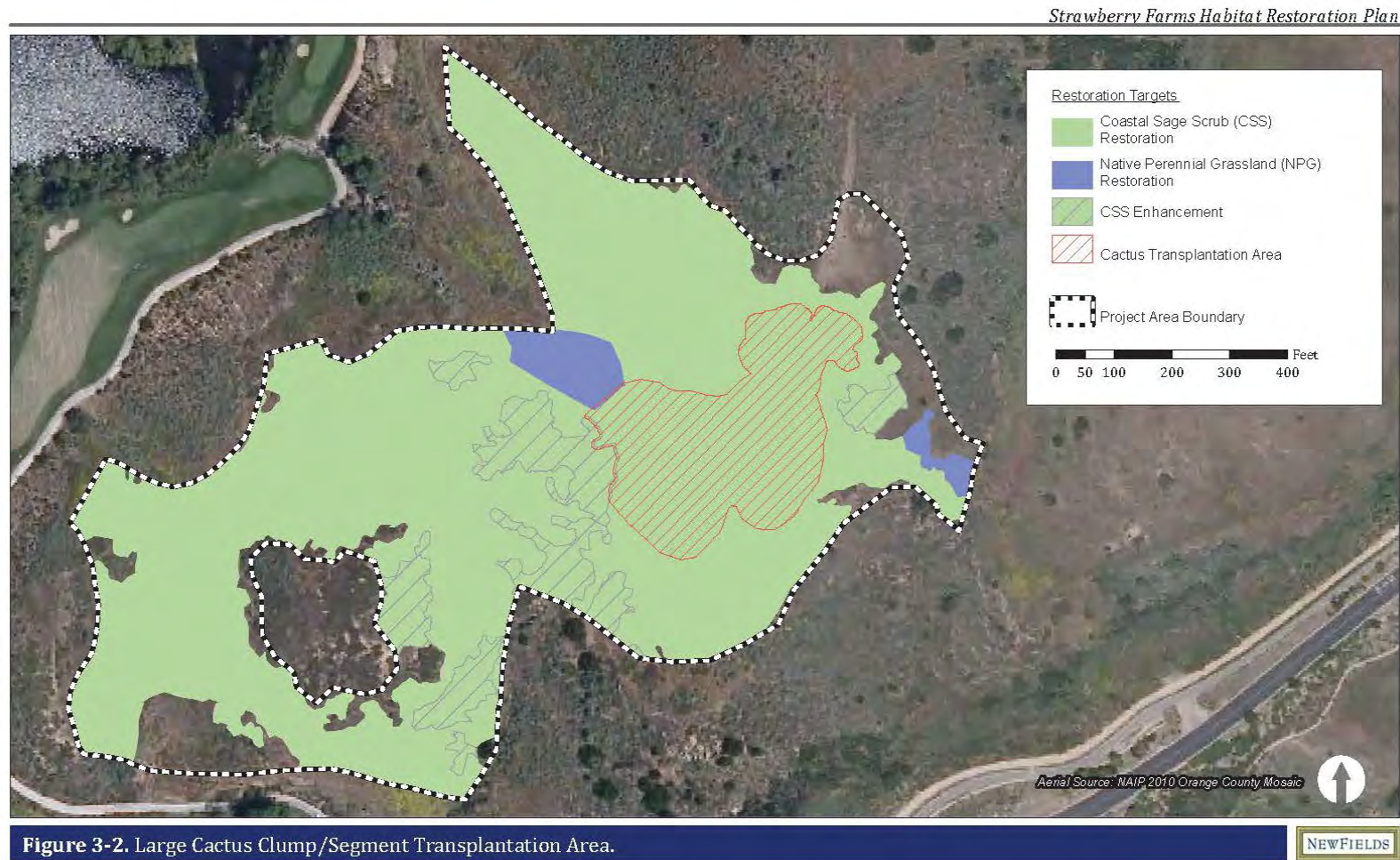


Figure 15. Strawberry Farms Restoration (Source: NewFields. 2011. Habitat Restoration Plan for the Strawberry Farms 15-Acre Parcel. 65 pp + Appendices.)



Figure 16. Saddle Club Mitigation Site (Source: Williams 2019, pers. comm.)

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