

# **INFORMATION HANDOUT**

**For Contract No. 11-080174**

**At 11-SD-76-R7.3/12.0**

**Identified by**

**Project ID 1112000090**

## **PERMITS**

United States Army Corps of Engineers Section 404 Permit, dated June 9, 2009

United States Fish and Wildlife Service Biological Opinion, dated October 1, 2008

## **WATER QUALITY**

California Regional Water Quality Control Board - Section 401 Water Quality Certification, dated May 12, 2009

## **AGREEMENTS**

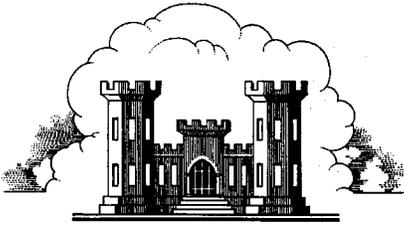
California Department of Fish and Game Streambed Alteration Agreement #1600-2009-00043-R5, dated April 28, 2009

## **MATERIALS INFORMATION**

Water Availability Letter - City of Oceanside Water Utilities Department, dated June 6, 2014

Water Availability Letter - Rainbow Municipal Water District, dated March 27, 2014

List of Authorized Materials Used in the City of Oceanside Water System



LOS ANGELES DISTRICT  
U.S. ARMY CORPS OF ENGINEERS

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JUN 09 2009

REGULATORY DIVISION  
LOS ANGELES OFFICE

## DEPARTMENT OF THE ARMY PERMIT

**Permittee:** Mark Phelan, California Department of Transportation, District 11

**Permit Number:** SPL-2005-02063-PHT

**Issuing Office:** Los Angeles District

Note: The term "you" and its derivatives, as used in this permit, means the Permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

**Project Description:** To discharge approximately 4,244 cubic yards of soil and 673 cubic yards of rock into waters of the U.S., resulting in 1.83 acres of permanent impacts and 4.32 acres of temporary impacts to waters of the U.S., in association with the State Route 76 Melrose to South Mission Highway Improvement Project, as depicted on the attached plans and drawings.

Specifically, you are authorized to:

1. At post mile 7.9 in an unnamed stream, extend an existing 4-foot-high by 8-foot-wide single concrete box culvert to the north by approximately 60 feet, as depicted on plan D-4;
2. At post mile 8.7 in an unnamed stream, replace an existing 4-foot-diameter by 74-foot-long corrugated metal pipe (CMP) with a 4-foot-diameter by 194-foot-long reinforced concrete pipe (RCP), as depicted on plan D-8;
3. At post mile 8.8 in an unnamed stream, replace an existing 3-foot diameter by 74-foot-long CMP with a 10-foot-high by 14-foot-wide by 180-foot-long single concrete box culvert, as depicted on plan D-9;
4. At post mile 8.9 in an unnamed stream, replace an existing 4-foot-diameter by 394-foot-long RCP with a new RCP of the same dimensions, as depicted on plan D-9;
5. At post mile 9.4 in Vista Creek, extend an existing 7-foot-diameter by 205-foot-long steel culvert with concrete-lined invert to the south by 105 feet, as depicted on plan D-12;
6. At post mile 9.6 in the San Luis Rey River, construct 16 piers to accommodate the construction of a new 60-foot-wide by 1,725-foot-long bridge, as depicted on plans D-14-D-16;

7. At post mile 10.0 in an unnamed stream, modify an existing 2-foot-diameter by 171-foot-long CMP/RCP to intercept runoff from a new brow ditch, as depicted on plan D-16;
8. At post mile 11.1 in an unnamed stream, add a 12-foot-high by 24-foot-wide by 115-foot-long span to the south end of an existing 6-foot-square concrete box culvert, as depicted on plan D-22;
9. At post mile 11.4 in an unnamed stream, replace an existing 3-foot-wide by 8-foot-high by 87-foot-long CMP (double pipes) with a 10-foot-high by 14-foot-wide by 180-foot-long concrete box culvert with a soft bottom, as depicted on plan D-24;
10. At post mile 12.1 in Bonsall Creek, replace an existing 23-foot-wide by 98-foot-long double cell reinforced concrete box with a 23-foot-wide by 236-foot-long double cell reinforced concrete box, as depicted on plan D-27;
11. At post mile 12.4 in Ostrich Farm Creek, replace an existing 46-foot-wide by 9-foot-high by 60-foot-long reinforced concrete box with a 46-foot-wide by 19-foot-high by 125-foot-long bridge, as depicted on plan D-30;
12. At post mile 12.5 in an unnamed stream, extend two existing 2.5-foot-wide RCPs by approximately 46 feet, as depicted on plan D-31;
13. At post mile 12.9 in an unnamed stream, extend an existing 46-foot-wide by 5.6-foot-high by 70-foot-long 4-celled reinforced concrete box culvert by 46 feet, as depicted on plan D-34;
14. Construct headwalls and rock slope protection associated with the above drainage systems, as depicted on the corresponding plans referenced above;
15. Construct slope stabilization along the San Luis Rey River, as depicted on plans D-24 and D-25; and
16. Place temporary water diversions during construction, consisting of sandbags or clean gravel bags, and temporary velocity dissipation devices at drainage outlet points.

**Project Location:** The proposed activities are located along State Route 76 and are roughly bounded by Melrose Drive in the City of Oceanside and South Mission Road in the unincorporated community of Bonsall. Specifically, the proposed activities would occur in the San Luis Rey River and various tributaries of the San Luis Rey River between post miles 7.3 and 13.1 of SR-76 in northern San Diego County, California. Please refer to the attached Regional Location Map.

## **Permit Conditions:**

### **General Conditions:**

1. The time limit for completing the authorized activity ends five years from the date of permit issuance. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to

maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification from this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished with the terms and conditions of your permit.

**Special Conditions:**

1. Prior to initiating construction in waters of the U.S., and to mitigate for impacts to 1.35 acres of wetland and 0.48 acre of non-wetland waters of the U.S., the Permittee shall provide documentation verifying purchase of 1.35 credits for the restoration of wetland habitat and 0.48 credit for the restoration of riparian habitat from the Pilgrim Creek Corps-approved mitigation. The Permittee shall not initiate work in waters of the U.S. prior to receiving written confirmation (by letter or e-mail) from the Corps as to compliance with this special condition. The Permittee retains responsibility for providing the compensatory mitigation until the number and resource type of credits described above have been secured from a sponsor and the district engineer has received documentation that confirms that the sponsor has accepted the responsibility for providing the required compensatory mitigation. This documentation may consist of a letter or form signed by the sponsor, with the permit number and a statement indicating the number and resource type of credits that have been secured from the sponsor.

2. The Permittee shall restore all temporarily impacted waters of the U.S. to pre-project contours and conditions upon project completion to provide optimal habitat for fish and other aquatic wildlife. The Permittee shall submit a revegetation plan for such temporary impacts for review and approval prior to work in waters of the U.S. No work in waters of the U.S. is authorized until the Permittee receives, in writing (by letter or e-mail), Corps approval of the revegetation plan.

3. The Permittee shall clearly mark the limits of the workspace with flagging or similar means to ensure mechanized equipment does not enter preserved waters of the U.S. and riparian wetland/habitat areas. Adverse impacts to waters of the U.S. beyond the Corps-approved construction footprint are not authorized. Such impacts could result in permit suspension and

revocation, administrative, civil or criminal penalties, and/or substantial, additional, compensatory mitigation requirements.

4. Prior to initiating construction in waters of the U.S., the Permittee shall submit to the Corps a complete set of final detailed grading/construction plans showing all work and structures in waters of the U.S. All plan sheets shall be signed, dated, and submitted on paper no larger than 11x 17 inches. No work in waters of the U.S. is authorized until the Permittee receives, in writing (by letter or e-mail), Corps approval of the final detailed grading/construction plans. The Permittee shall ensure that the project is built in accordance with the Corps-approved plans.

5. This Corps permit does not authorize you to take any threatened or endangered species, in particular the arroyo toad (*Bufo californicus*), southwestern willow flycatcher (*Empidonax traillii extimus*), coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), and the San Diego ambrosia (*Ambrosia pumipia*), or adversely modify designated critical habitat for the southwestern willow flycatcher, coastal California gnatcatcher, and least Bell's vireo. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g. ESA Section 10 permit, or a Biological Opinion (BO) under ESA Section 7, with "incidental take" provisions with which you must comply). The FWS BO SDG-08B0136-08F0900 contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the referenced BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. The FWS is the appropriate authority to determine compliance with the terms and conditions of its BO and with the ESA.

6. This Corps permit does not authorize you to take any threatened or endangered species, in particular the southern California steelhead (*Oncorhynchus mykiss*). In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g. ESA Section 10 permit, or a Biological Opinion (BO) under ESA Section 7, with "incidental take" provisions with which you must comply). Pursuant to the NMFS correspondence dated May 29, 2008, including the required avoidance and minimization measures, the Corps has determined and the NMFS has concurred that your activity is not likely to adversely affect the above species. Your authorization under this Corps permit is conditional upon your compliance with all of the required avoidance and minimization measures, which are incorporated by reference in this permit. Failure to comply with the required avoidance and minimization measures would constitute non-compliance with your Corps permit. The NMFS is the appropriate authority to determine compliance with the terms and conditions of its BO and with the ESA.

7. The Permittee shall employ standard Best Management Practices to ensure toxic materials, silt, debris, or excessive erosion do not enter the affected waterways during project construction.

8. Within 45 calendar days of completion of authorized work in waters of the U.S., the Permittee shall submit to the Corps a post-project implementation memo indicating the date authorized impacts to waters of the U.S. ceased.

**Further Information:**

1. Congressional Authorities. You have been authorized to undertake the activity described above pursuant to:

- ( ) Section 10 of the River and Harbor Act of 1899 (33 U.S.C. 403).
- (x) Section 404 of the Clean Water Act (33 U.S.C. 1344).
- ( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

- a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.
- b. This permit does not grant any property rights or exclusive privileges.
- c. This permit does not authorize any injury to the property or rights of others.
- d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
- c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
- d. Design or construction deficiencies associated with the permitted work.
- e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

- a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measure ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give you favorable consideration to a request for an extension of this time limit.



LOS ANGELES DISTRICT  
U.S. ARMY CORPS OF ENGINEERS

**NOTIFICATION OF COMMENCEMENT OF WORK  
FOR  
DEPARTMENT OF THE ARMY PERMIT**

**Permit Number:** SPL-2005-02063  
**Name of Permittee:** Mark Phelan, California Department of Transportation, District 11  
**Date of Issuance:**

**Date work in waters of the U.S. will commence:** June 8, 2009  
**Estimated construction period (in weeks):** 3.5 years  
**Name & phone of contractor (if any):** \_\_\_\_\_

Please note that your permitted activity is subject to a compliance inspection by an Army Corps of Engineers representative. If you fail to comply with this permit you may be subject to permit suspension, modification, or revocation.

I hereby certify that I, and the contractor (if applicable), have read and agree to comply with the terms and conditions of the above referenced permit.

  
Signature of Permittee

June 8, 2009  
Date

At least ten (10) days prior to the commencement of the activity authorized by this permit, sign this certification and return it using any ONE of the following three (3) methods:

(1) E-MAIL a statement including all the above information to:  
Phuong.H.Trinh@usace.army.mil

OR

(2) FAX this certification, after signing, to: (213) 452-4196

OR

(3) MAIL to the following address:

U.S. Army Corps of Engineers  
Regulatory Division  
ATTN: CESPL-RG-SPL-2005-02063  
LOS ANGELES DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 532711  
LOS ANGELES, CALIFORNIA 90053-2325

LOS ANGELES DISTRICT  
U.S. ARMY CORPS OF ENGINEERS

**NOTIFICATION OF COMPLETION OF WORK AND  
CERTIFICATION OF COMPLIANCE WITH  
DEPARTMENT OF THE ARMY PERMIT**

**Permit Number:** SPL-2005-02063  
**Name of Permittee:** Mark Phelan, California Department of Transportation, District 11  
**Date of Issuance:**

**Date work in waters of the U.S. completed:** \_\_\_\_\_  
**Construction period (in weeks):** \_\_\_\_\_  
**Name & phone of contractor (if any):** \_\_\_\_\_

Please note that your permitted activity is subject to a compliance inspection by an Army Corps of Engineers representative. If you fail to comply with this permit you may be subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of said permit.

\_\_\_\_\_  
Signature of Permittee  
\_\_\_\_\_  
Date

Upon completion of the activity authorized by this permit, sign this certification and return it using any ONE of the following three (3) methods:

- (1) E-MAIL a statement including all the above information to:  
Phuong.H.Trinh@usace.army.mil  
OR
- (2) FAX this certification, after signing, to: (213) 452-4196  
OR
- (3) MAIL to the following address:  
U.S. Army Corps of Engineers  
Regulatory Division  
ATTN: CESPL-RG-SPL-2005-02063  
LOS ANGELES DISTRICT, CORPS OF ENGINEERS  
P.O. BOX 532711  
LOS ANGELES, CALIFORNIA 90053-2325



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

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



In Reply Refer To:  
FWS-SDG-08B0136-08F0900

OCT 01 2008

Rush Abrams  
California Department of Transportation  
District 11  
4050 Taylor Street  
San Diego, California 92110

Subject: Formal Section 7 Consultation on the State Route 76 Melrose Drive to South Mission Highway Improvement Project, San Diego County, California

Dear Ms. Abrams:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed State Route 76 (SR-76) Melrose Drive to South Mission Highway Improvement Project. In accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*), the consultation concerns the possible effects of the project on the following federally-listed as threatened or endangered species: arroyo toad (*Bufo californicus*), southwestern willow flycatcher (*Empidonax traillii extimus*; flycatcher) and its designated critical habitat, coastal California gnatcatcher (*Poliophtila californica californica*; gnatcatcher) and its designated critical habitat, least Bell's vireo (*Vireo bellii pusillus*; vireo) and its designated critical habitat, San Diego ambrosia (*Ambrosia pumila*; ambrosia), and Stephens' kangaroo rat (*Dipodomys stephensi*; kangaroo rat).

The California Department of Transportation (Caltrans) request for initiation of formal consultation was dated May 21, 2008, and received in our office on May 22, 2008. On October 1, 2008, we received comments from Caltrans on the draft Biological Opinion.

By analyzing the project description, the distribution of species, and the potential effects to listed species, the Service has determined that, provided the description of the proposed action and conservation measures are implemented, the proposed project may affect, but is not likely to adversely affect the kangaroo rat. Therefore, this species will not be addressed further in this opinion. Should project plans change or if this species is detected within the project footprint, reinitiation of consultation would be necessary to evaluate potential effects to this species.

This biological opinion is based on the information from the following sources: 1) the *Final Biological Assessment for the SR-76 Melrose to South Mission Highway Improvement Project*,



prepared by Caltrans (2008); 2) the *Draft Environmental Impact Report/Environmental Impact Statement for the State Route 76 Melrose to South Mission Highway Improvement Project*, prepared by Caltrans (2007); and 3) letters, memorandums, electronic mail messages, and maps. A complete decision record of this consultation is on file at the Carlsbad Fish and Wildlife Office.

The proposed project occurs partially within the plan boundaries of each of the following Natural Community Conservation Planning (NCCP)/Habitat Conservation Plan (HCP) areas: 1) the Multiple Habitat Conservation Program (MHCP), dated March 2003 (AMEC and CBI 2003); 2) the City of Oceanside's draft Subarea Plan, dated 2006 (AMEC and CBI 2005); and, 3) the County of San Diego's North County Multiple Species Conservation Plan (NCMSCP; in preparation). Based on our review of the project description and proposed conservation measures, the proposed activities of the State Route 76 Melrose Drive to South Mission Highway Improvement Project are consistent with the applicable NCCP/HCP plans.

In the enclosed biological opinion, we have determined that the proposed activities of the State Route 76 Melrose to Mission project are not likely to jeopardize the continued existence of arroyo toad, gnatcatcher, flycatcher, vireo, or ambrosia, nor destroy or adversely modify gnatcatcher, flycatcher, or vireo critical habitat.

If you have any questions or concerns about this biological opinion, please contact Kurt Roblek or Janet Stuckrath of my staff at (760) 431-9440.

Sincerely,



*for* Karen Goebel  
Assistant Field Supervisor

# **BIOLOGICAL OPINION**

## **STATE ROUTE 76 MELROSE DRIVE TO SOUTH MISSION HIGHWAY IMPROVEMENT PROJECT**

**FWS-SDG-08B0136-08F0900**



**U.S. Fish and Wildlife Service  
Department of the Interior**

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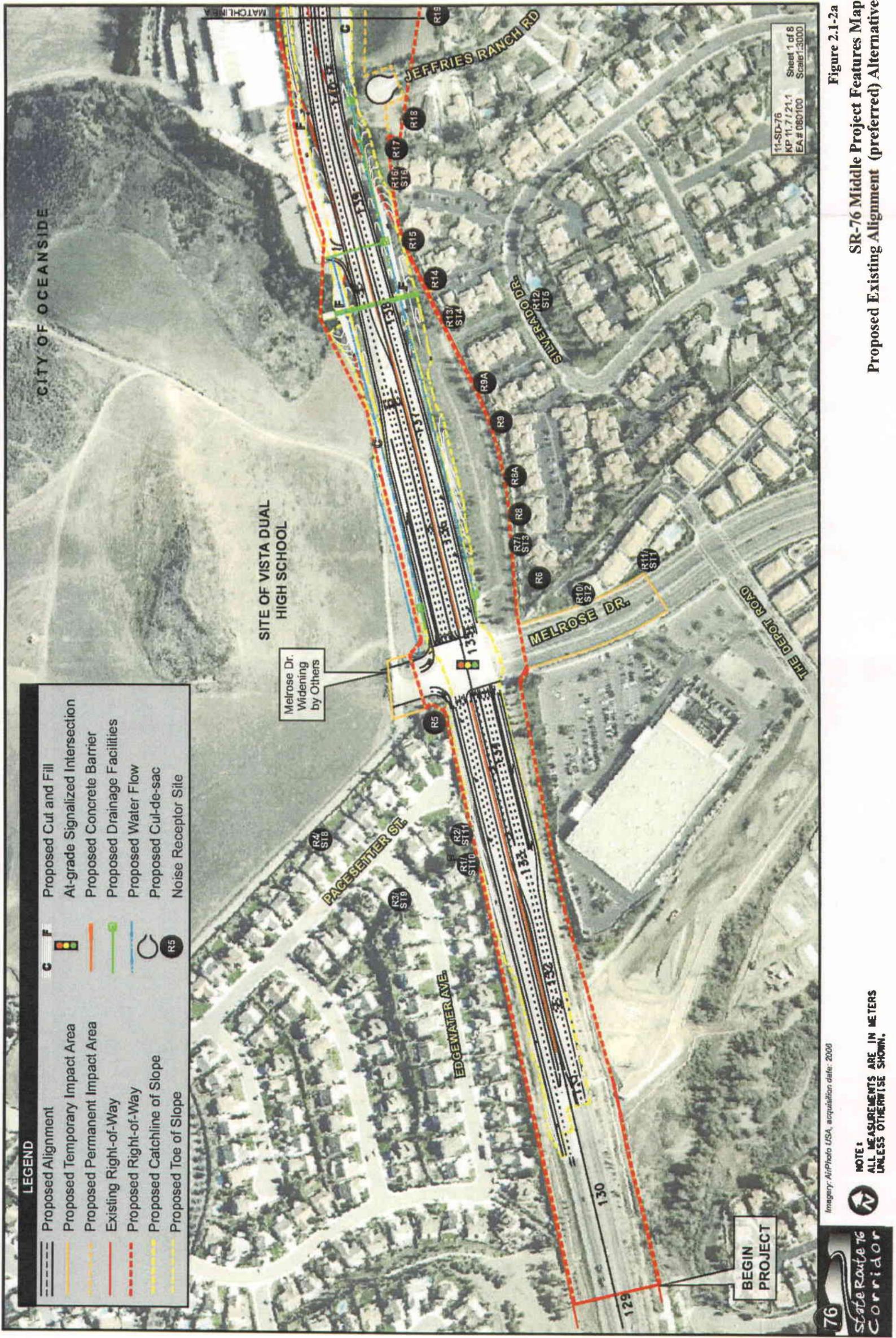


Figure 2.1-2a  
 SR-76 Middle Project Features Map  
 Proposed Existing Alignment (preferred) Alternative

Figure 3. SR-76 Middle Project Features Maps

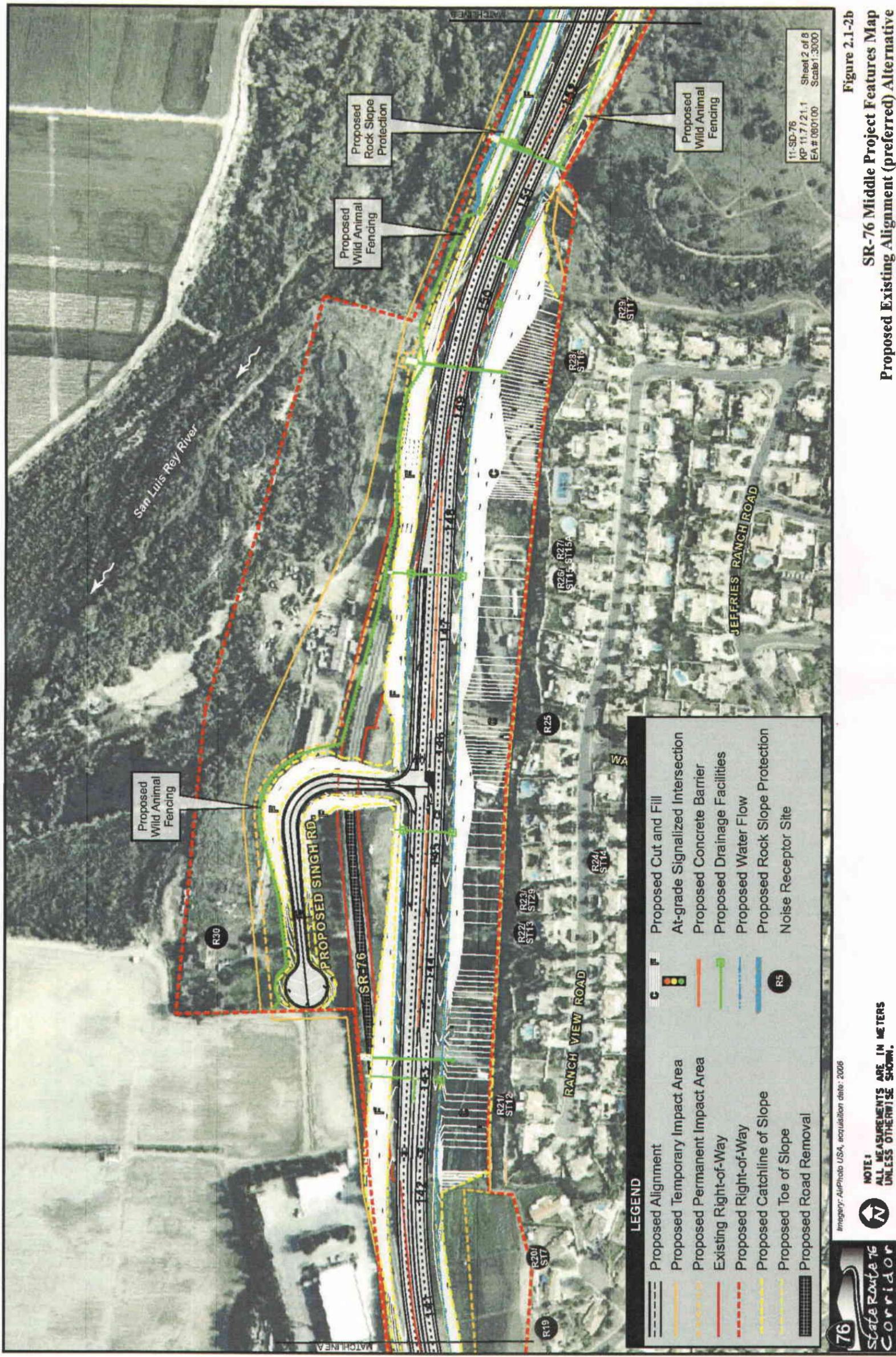


Figure 2.1-2b  
 SR-76 Middle Project Features Map  
 Proposed Existing Alignment (preferred) Alternative

Figure 4. SR-76 Middle Project Features Map

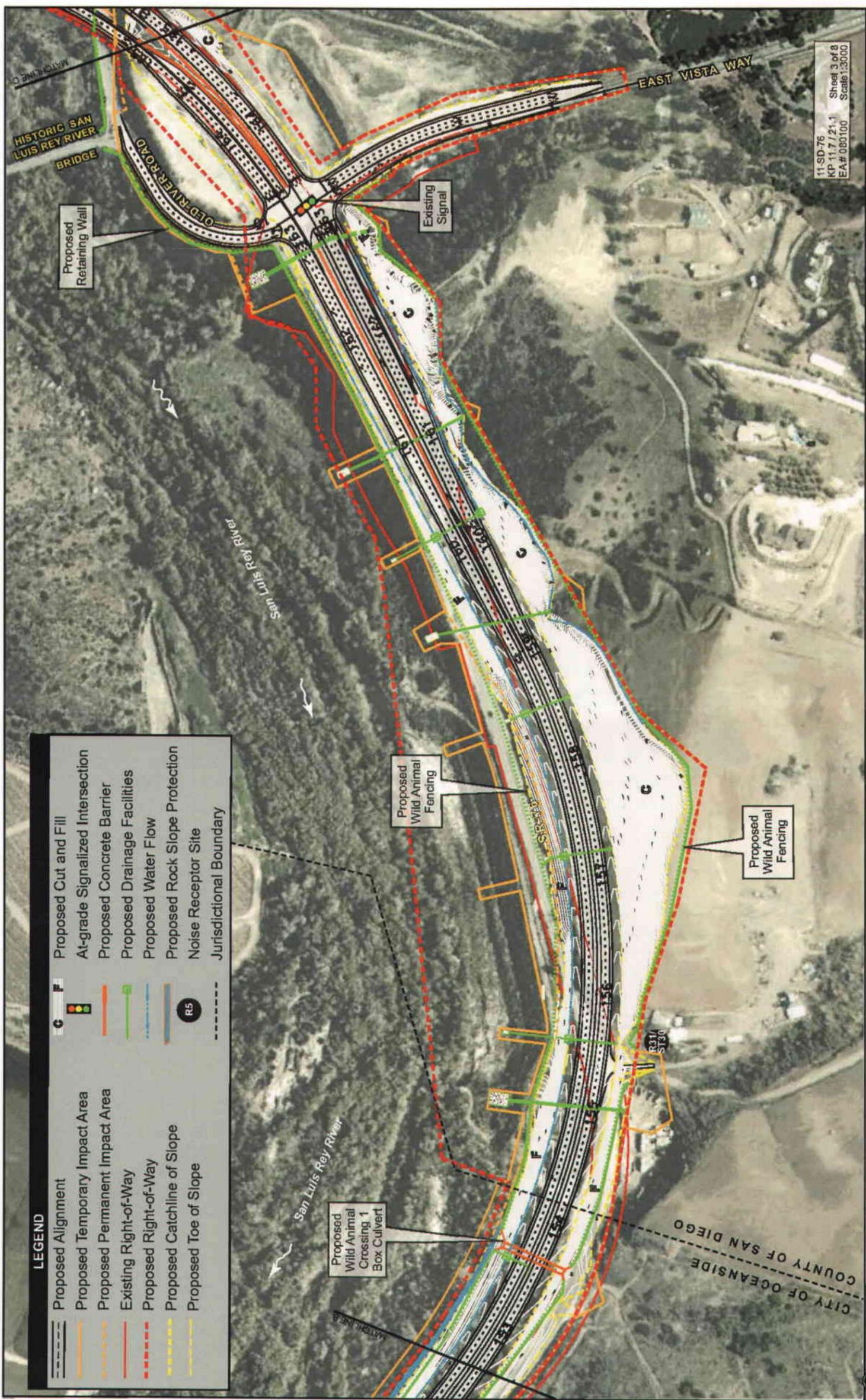


Figure 2.1-2c  
 SR-76 Middle Project Features Map  
 Proposed Existing Alignment (preferred) Alternative

76  
 State Route 76  
 Corridor

Imagery: AirPhoto USA, acquisition date: 2006

**NOTE:**  
 ALL MEASUREMENTS ARE IN METERS  
 UNLESS OTHERWISE SHOWN.

Figure 5. SR-76 Middle Project Features Map

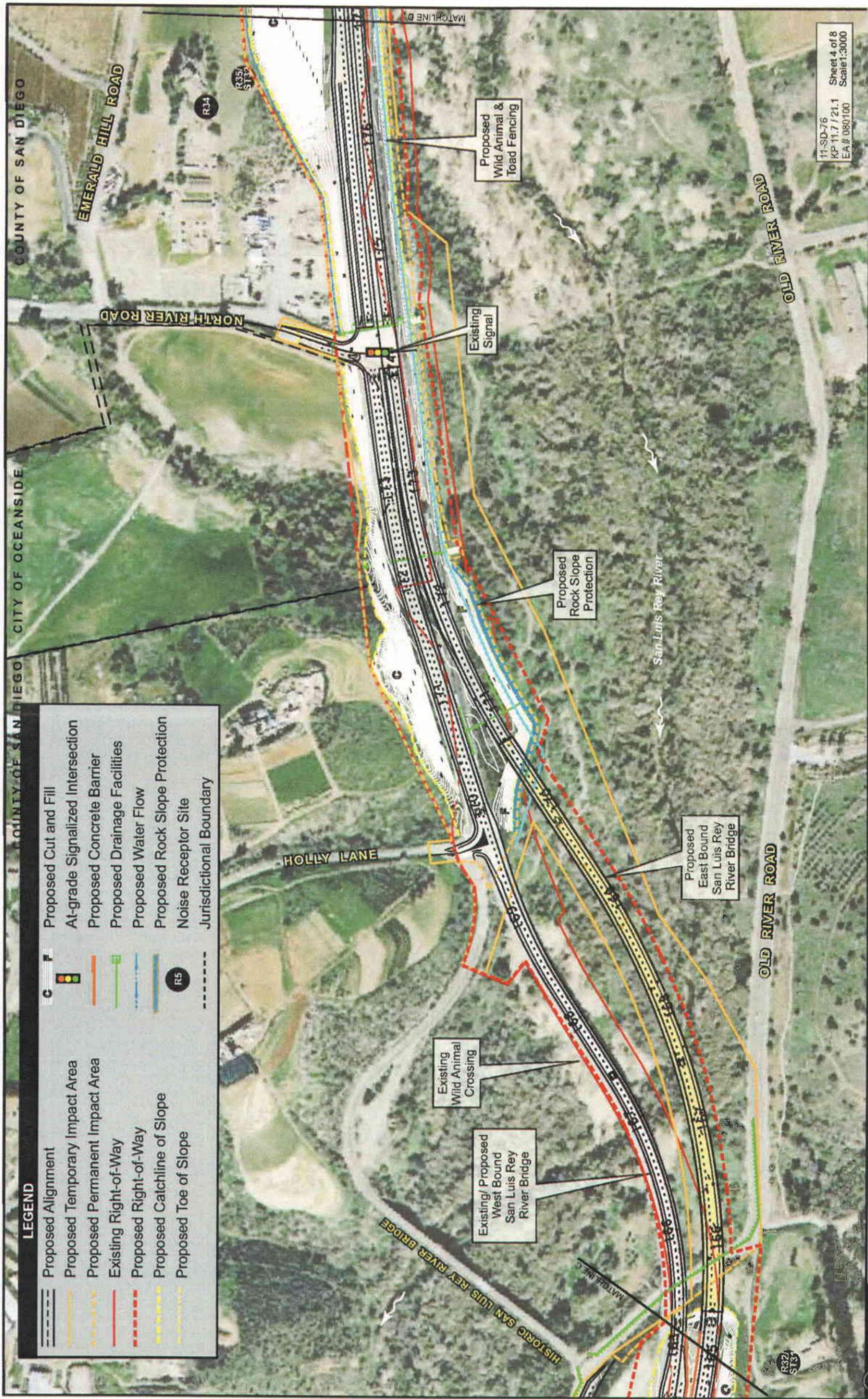


Figure 2.1-2d  
 SR-76 Middle Project Features Map  
 Proposed Existing Alignment (preferred) Alternative

Figure 6. SR-76 Middle Project Features Map



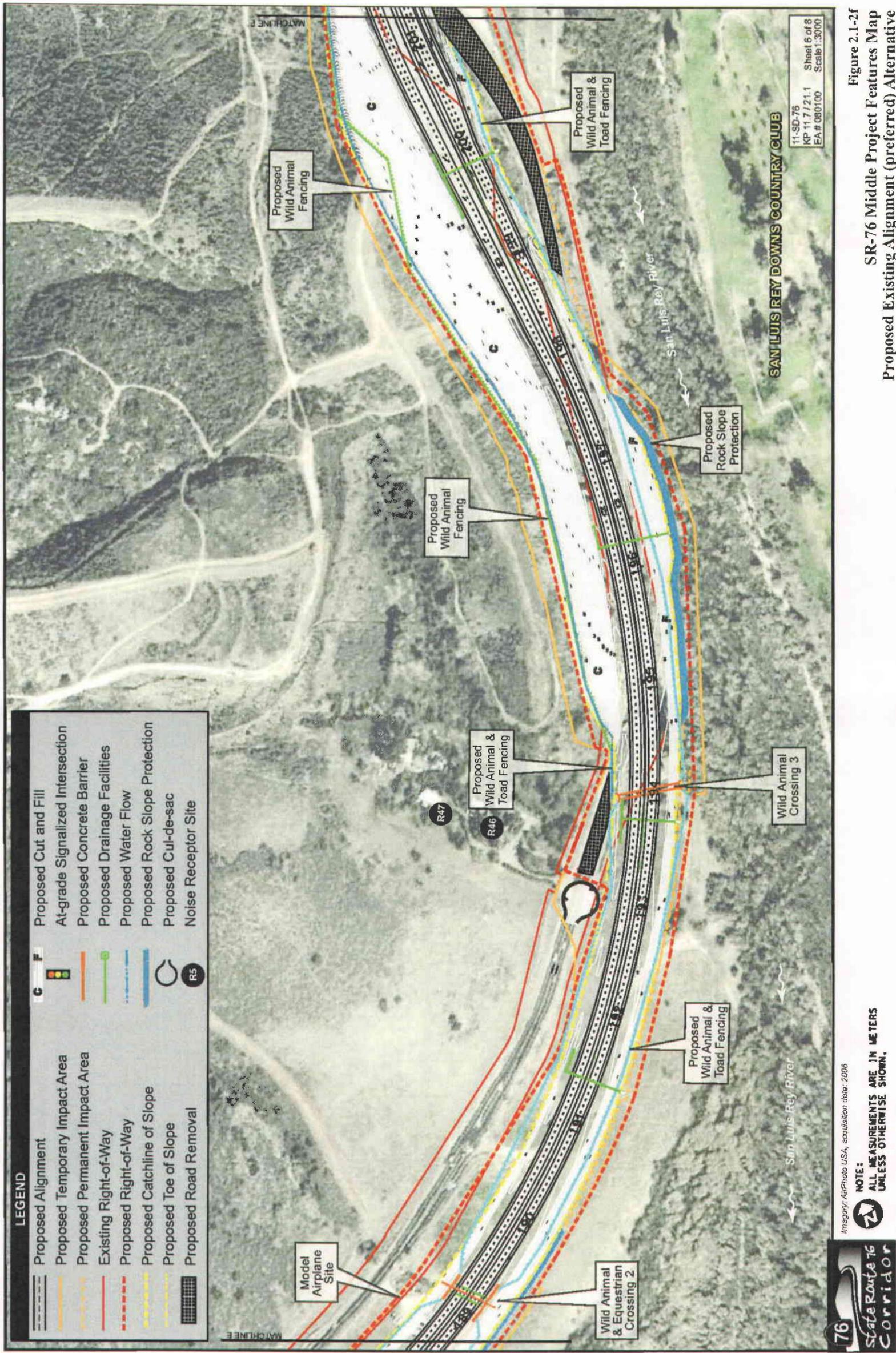


Figure 2.1-2f  
 SR-76 Middle Project Features Map  
 Proposed Existing Alignment (preferred) Alternative

Figure 8. SR-76 Middle Project Features Map

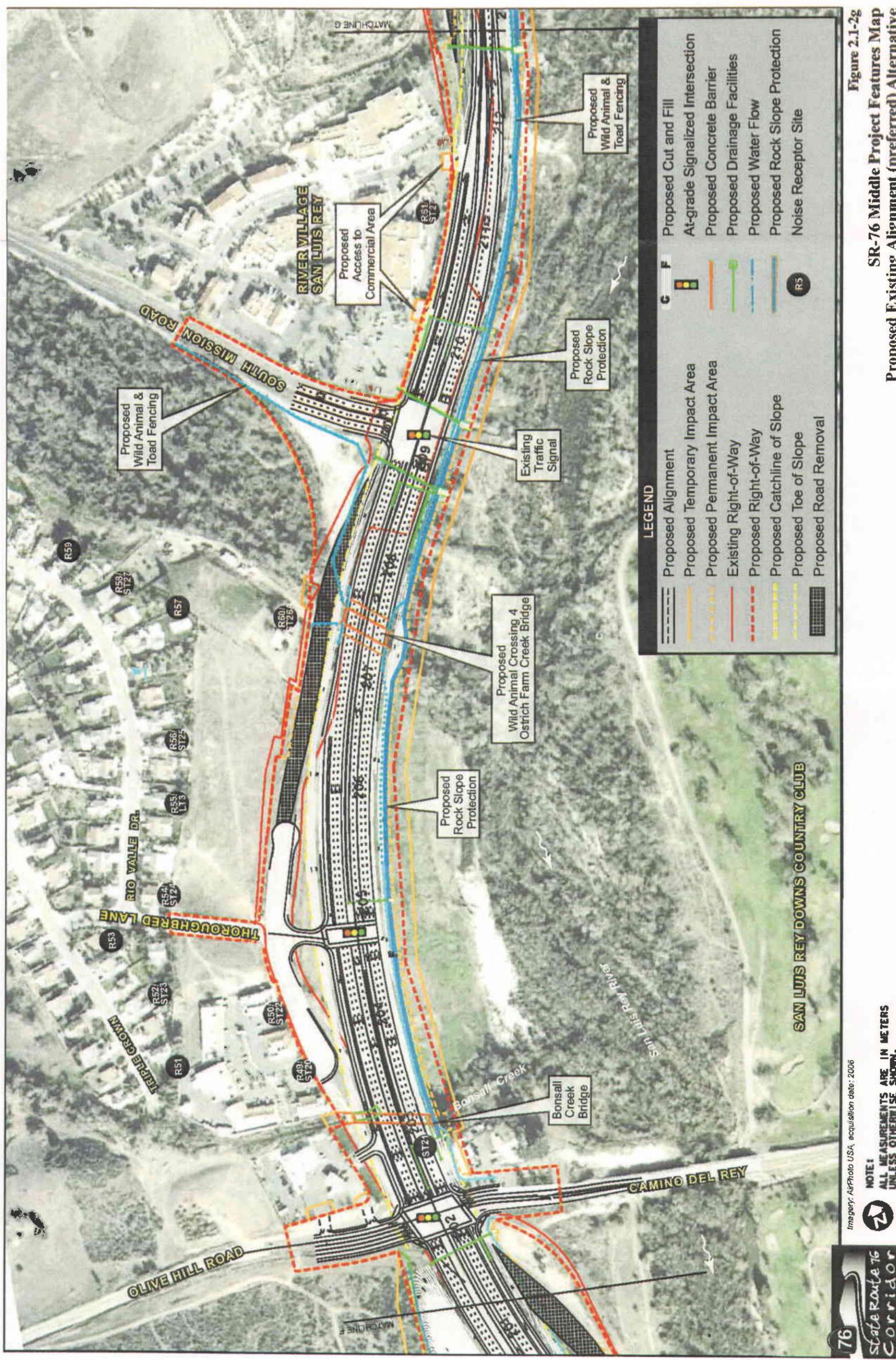


Figure 9. SR-76 Middle Project Features Map

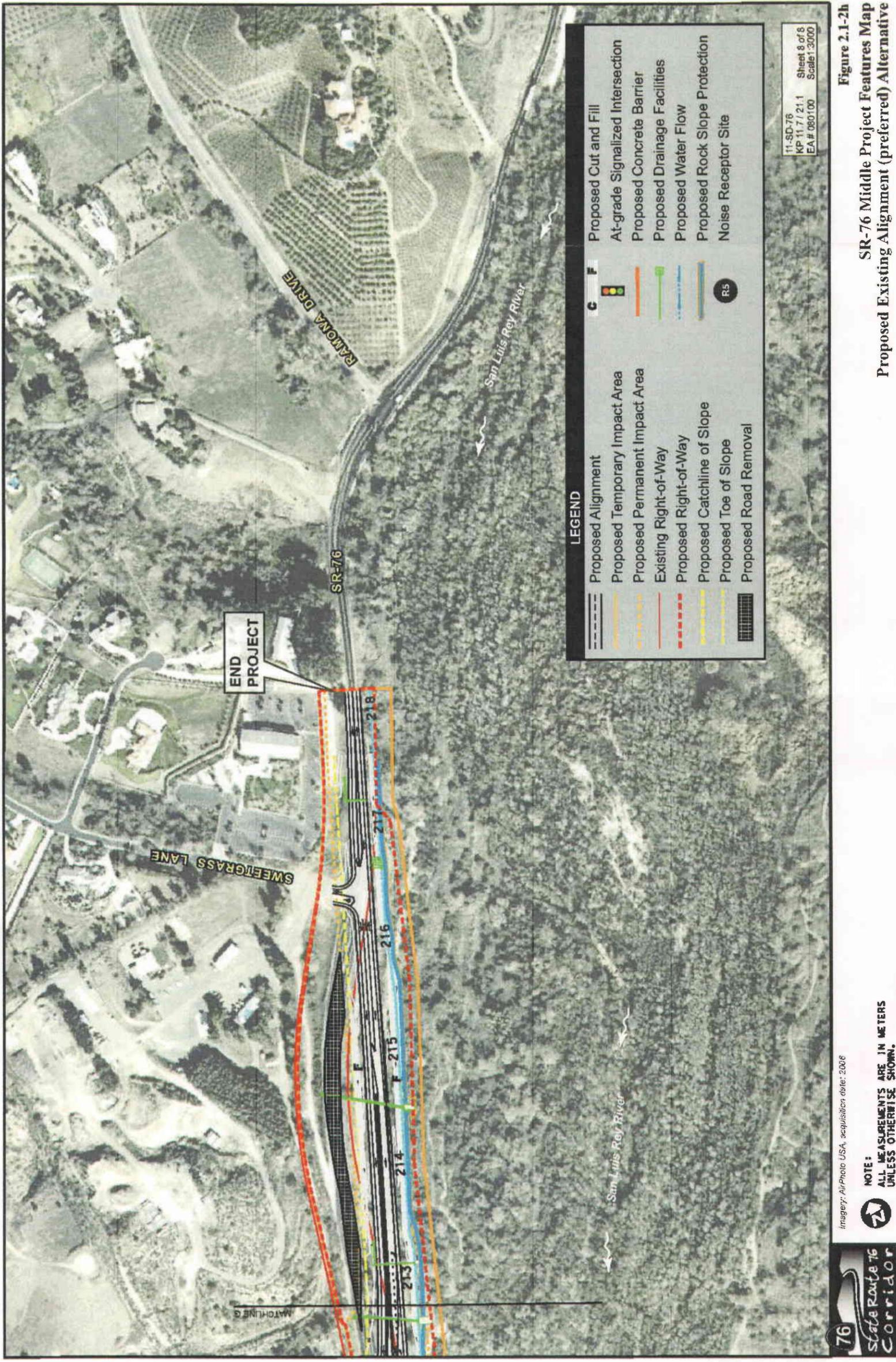
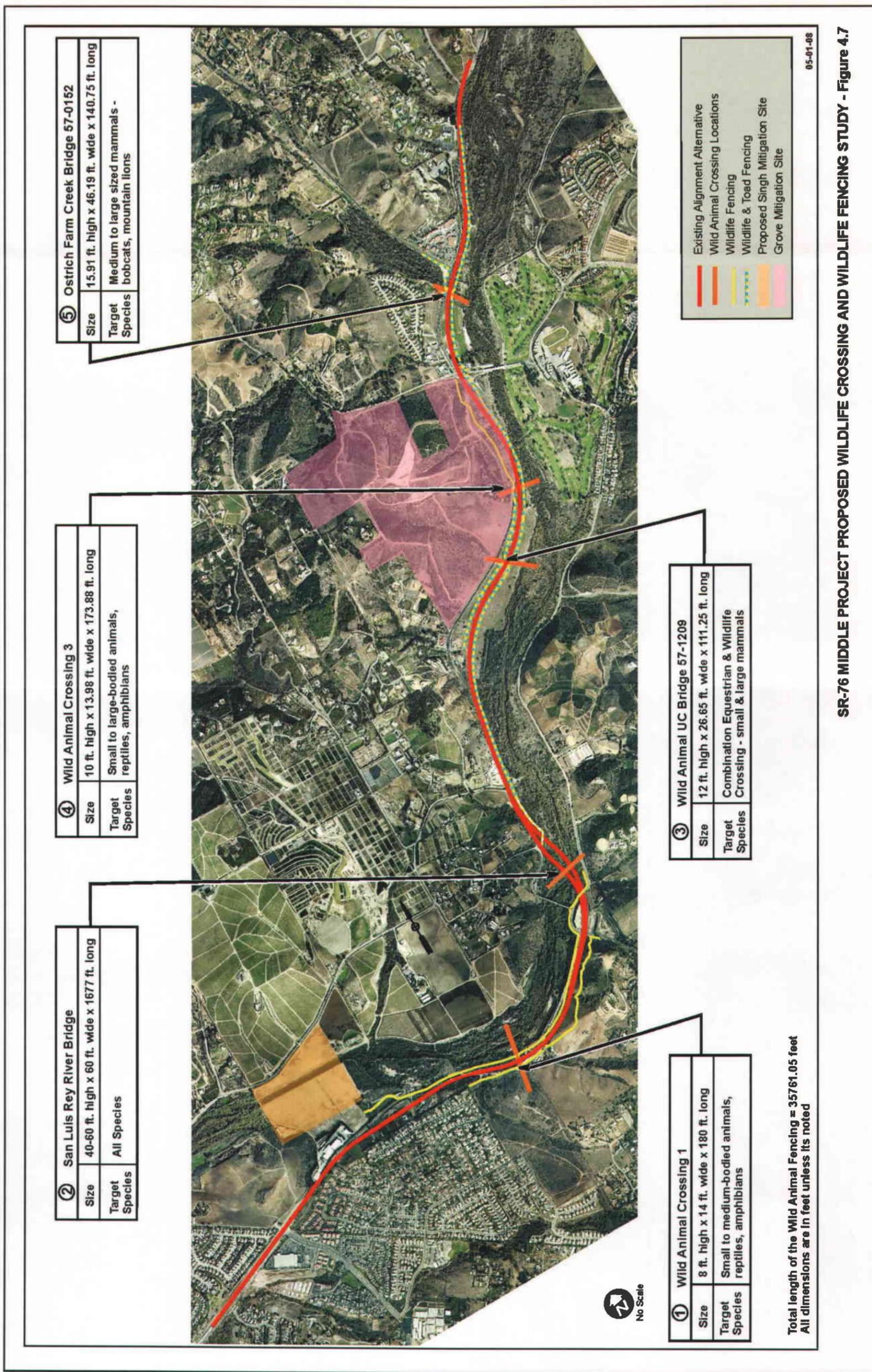


Figure 2.1-2h  
SR-76 Middle Project Features Map  
Proposed Existing Alignment (preferred) Alternative

Figure 10. SR-76 Middle Project Features Map



SR-76 MIDDLE PROJECT PROPOSED WILDLIFE CROSSING AND WILDLIFE FENCING STUDY - Figure 4.7

Figure 11. Proposed Wildlife Crossing and Wildlife Fencing Study

# **BIOLOGICAL OPINION**

## **STATE ROUTE 76 MELROSE DRIVE TO SOUTH MISSION HIGHWAY IMPROVEMENT PROJECT**

**FWS-SDG-08B0136-08F0900**



**U.S. Fish and Wildlife Service  
Department of the Interior**

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## 1. CONSULTATION HISTORY

A variety of meetings and correspondence occurred during project negotiation. The following chronology reflects a summary of significant events. A complete record of this consultation is on file at the Carlsbad Fish and Wildlife Office.

- Sept 2005-Dec 2006 Bi-monthly coordination meetings between Caltrans, Army Corps of Engineers, Environmental Protection Agency, Regional Water Quality Control Board, California Department of Fish and Game and Federal Highway Administration to assist in implementing the NEPA/404 MOU Integration Process. The proposed project's Purpose and Need, Selection Criteria, and Range of Alternatives were developed and refined during these meetings in order to minimize impacts to biological resources.
- August 4, 2006 Service provided Caltrans with concurrence that the SR-76 Widening Projects' proposed mitigation parcels are biologically appropriate to offset adverse affects to the arroyo toad, gnatcatcher, vireo, flycatcher, ambrosia and their habitats.
- September 13, 2006 Service provided Caltrans with a list of species and their critical habitats expected to be present in or near the proposed action area.
- January 3, 2007 Service provided Caltrans concurrence on the SR-76 Melrose to Mission Highway Improvement Project range of alternatives carried forth and into the National Environmental Policy Act (NEPA) review.
- September 21, 2007 Service provided Caltrans with concurrence on the geotechnical borings for the SR-76 Melrose to Mission Highway Improvement Project on September 21, 2007.
- December 3, 2007 Service provided comments to Caltrans on the Draft Environmental Impact Report/Environmental Impact Statement for the SR-76 Melrose to Mission Highway Improvement Project.
- December 20, 2007 Service consulted informally on four geotechnical boring locations along the San Luis Rey River.
- January 18, 2008 Service provided Caltrans with concurrence on additional geotechnical borings for the proposed San Luis Rey River Bridge crossing as part of the SR-76 Melrose to Mission Highway Improvement Project.
- September 2008 Service and Caltrans finalized the project description and conservation measures.

## **2. DESCRIPTION OF THE PROPOSED ACTION**

Caltrans proposes to widen 5.8 miles of the existing two-lane SR-76 in northwest San Diego County (Figure 1). The project area is located in the San Luis Rey River valley between Melrose Drive and South Mission Avenue (Figure 2). The western 1.5 miles are located in the Oceanside city limits, while the remaining 4.3 miles to the east are located in unincorporated San Diego County. The new highway would directly impact a total of approximately 255 acres of the San Luis Rey River Valley and result in four travel lanes (two 12-ft lanes in either direction), with right-of-way (ROW) and grading to ultimately accommodate a six lanes facility, if it is ever needed (Figures 3-10). Eight-foot wide outside shoulders would be constructed to provide for roadside safety as well as for bicycles and pedestrians while not precluding emergency parking. The westbound and eastbound lanes would be separated by approximately 22 feet, of which 10-feet in each direction would be paved inside shoulder and the remaining 2 feet of width will be a 32" high barrier. There would be a ROW area requirement of 163 acres including both existing and new Right of way.

Local intersections would be provided at Melrose Drive, Singh Road, East Vista Way/Old River Road, North River Road, Via Montellano, Olive Hill Road/Camino Del Rey, and South Mission. The connection between the proposed SR-76 Melrose to South Mission project and the SR-76 South Mission to Interstate 15 project is currently under study with options to have the connection accommodate alignment either north or south of the river.

### **2.1 Design Features and Elements**

The Existing Alignment (preferred alternative) includes the following design features and elements.

- SR-76 roadway transition from the existing highway to the Existing Alignment Alternative would begin approximately 0.5 mile west of the SR-76/Melrose Drive intersection and extend approximately 0.6 mile east of the SR-76/South Mission Road intersection.
- Earthwork quantities are estimated to be approximately 1,110,000-cubic Meters of cut and approximately the same of fill. Fill slopes will generally be located on the non-river side of the San Luis Rey River floodplain between the river and the proposed SR-76. In an effort to minimize environmental impacts, 1:1 1/2 slopes or flatter would be used instead in the cut areas and 1:2 slopes in the fill versus the standard of 1:4 slopes standards.
- Final cut-and-fill slopes would be graded to provide natural looking topography, where feasible.
- Permanent low sodium lights will be installed at all intersections.
- Turn lanes will be provided at the following intersections: Melrose Drive, Singh, East Vista Way, Via Montellano, Olive Hill Road, South Mission Road, and North River Road.



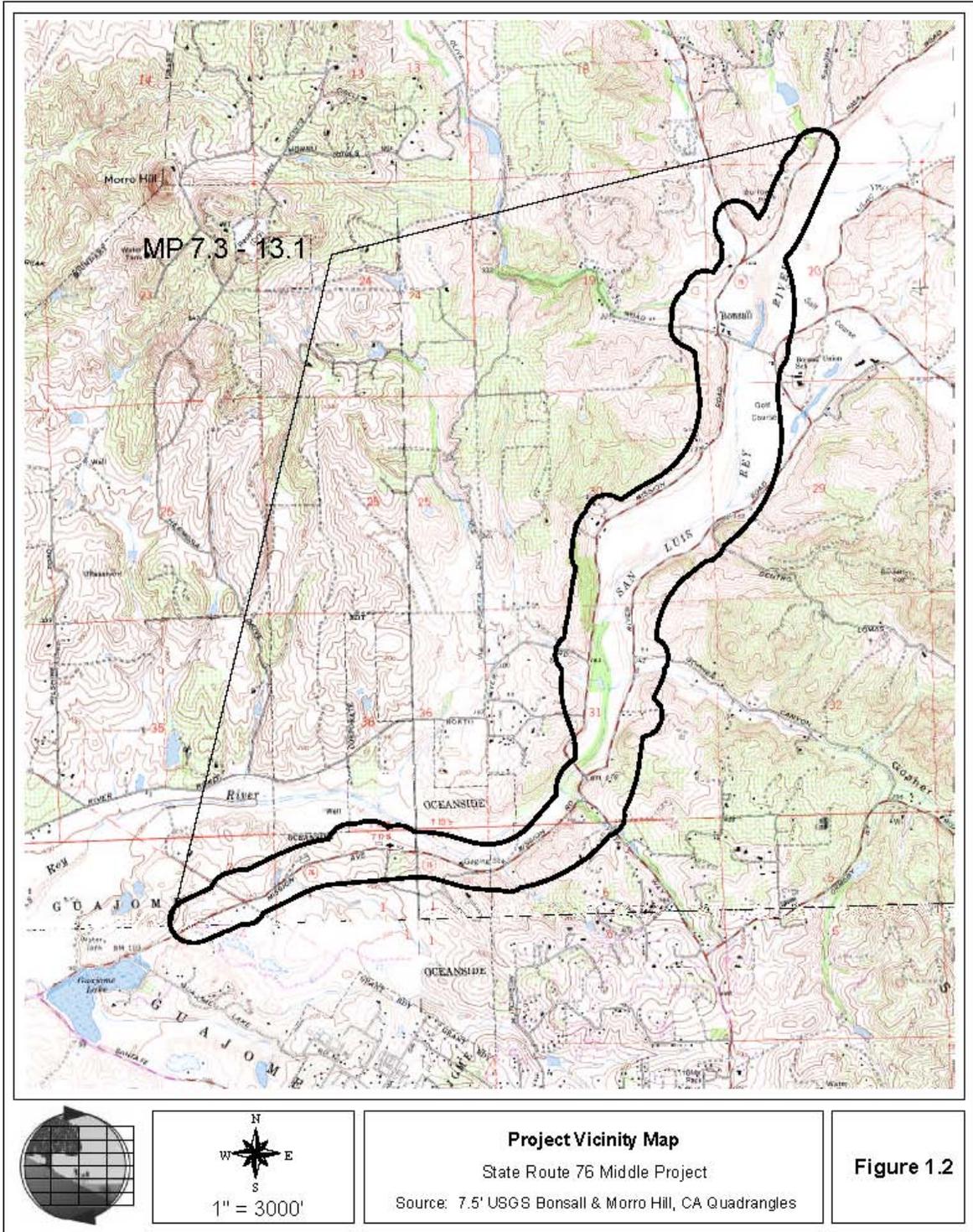


Figure 2. Vicinity Map

- Holly Lane will be converted to a right in right out, due to the complex motorist movement necessary to access SR-76 and the close proximity of North River Road. Vehicle access to the other direction will be provided via North River Road. A pedestrian path will be provided between the cul-de-sac and the highway.
- Jeffries Ranch Road will be converted to a cul-de-sac. Vehicle access to the highway will be provided via the connection from Old Ranch Road, Appaloosa Way, and Spur Avenue to Melrose Drive.
- Several short stretches of the existing SR-76 will be decommissioned as part of the proposed project; immediately west of the proposed Singh Road, between Jeffries Ranch and East Vista Way, immediately west of the Camino Del Rey intersection, and immediately south of Sweetgrass Lane (Figures 3-10).

## **2.2 Bridges – Wildlife Crossings**

- Wildlife directional fencing and arroyo toad exclusionary fencing will generally be constructed between the San Luis Rey River and SR-76. Arroyo toad fencing will start at the existing San Luis Rey River Bridge and continue upstream to the end of the project (Figure 11).
- The existing San Luis Rey River Bridge, which is 1,328 ft long and 43.5 ft wide, will be maintained for westbound traffic. One new bridge located to the east of the existing bridge, will be built for eastbound traffic. The bridges will be separated by a gap that varies between 49 and 82 ft. During construction of the new bridge, eastbound and westbound traffic will use the existing bridge.
- The new eastbound bridge at the San Luis Rey River will be 1,677 ft long and ranges in width from approximately 50-60 feet and will have two 12-ft through lanes, one 12-ft channelization lane, one 10-ft outside shoulder, and one 10-ft inside shoulder. The support columns would be circular and parallel to the river flow. It is expected that two columns will be needed at each support location.
- Wildlife crossings from the San Luis Rey River to the Groves property would be constructed to provide additional wildlife movement opportunities. These crossings would be located at two drainages, one on the east and the other along the western edge of the property along SR-76. The westernmost crossing would be a bridge structure providing wildlife crossing 12 ft high x 25 ft wide x 111 ft long. The eastern crossing would be a reinforced concrete box (RCB) culvert 14 ft wide x 10 ft high x 174 ft long.

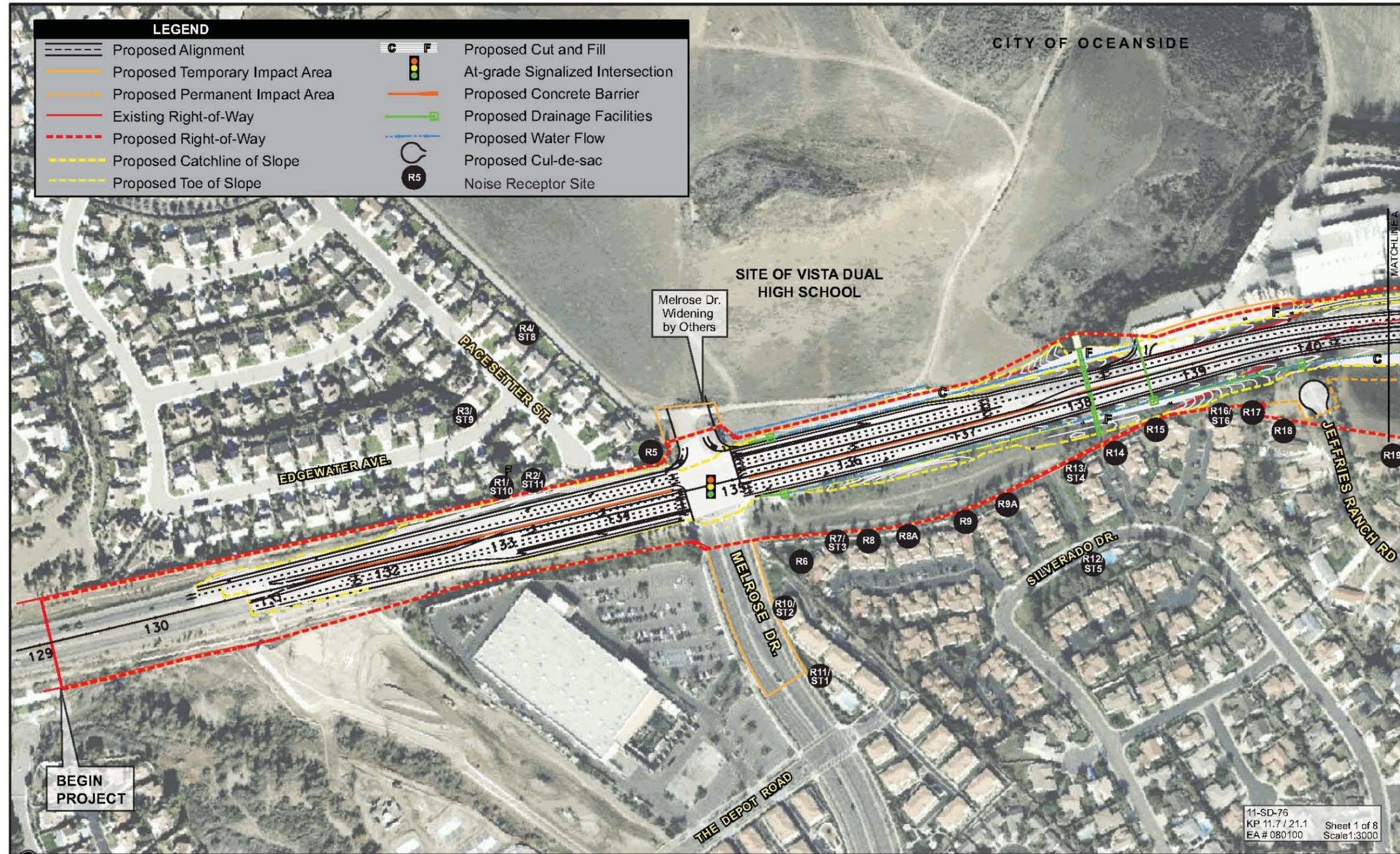


Figure 2.1-2a  
SR-76 Middle Project Features Map  
Proposed Existing Alignment (preferred) Alternative

Figure 3. SR-76 Middle Project Features Maps

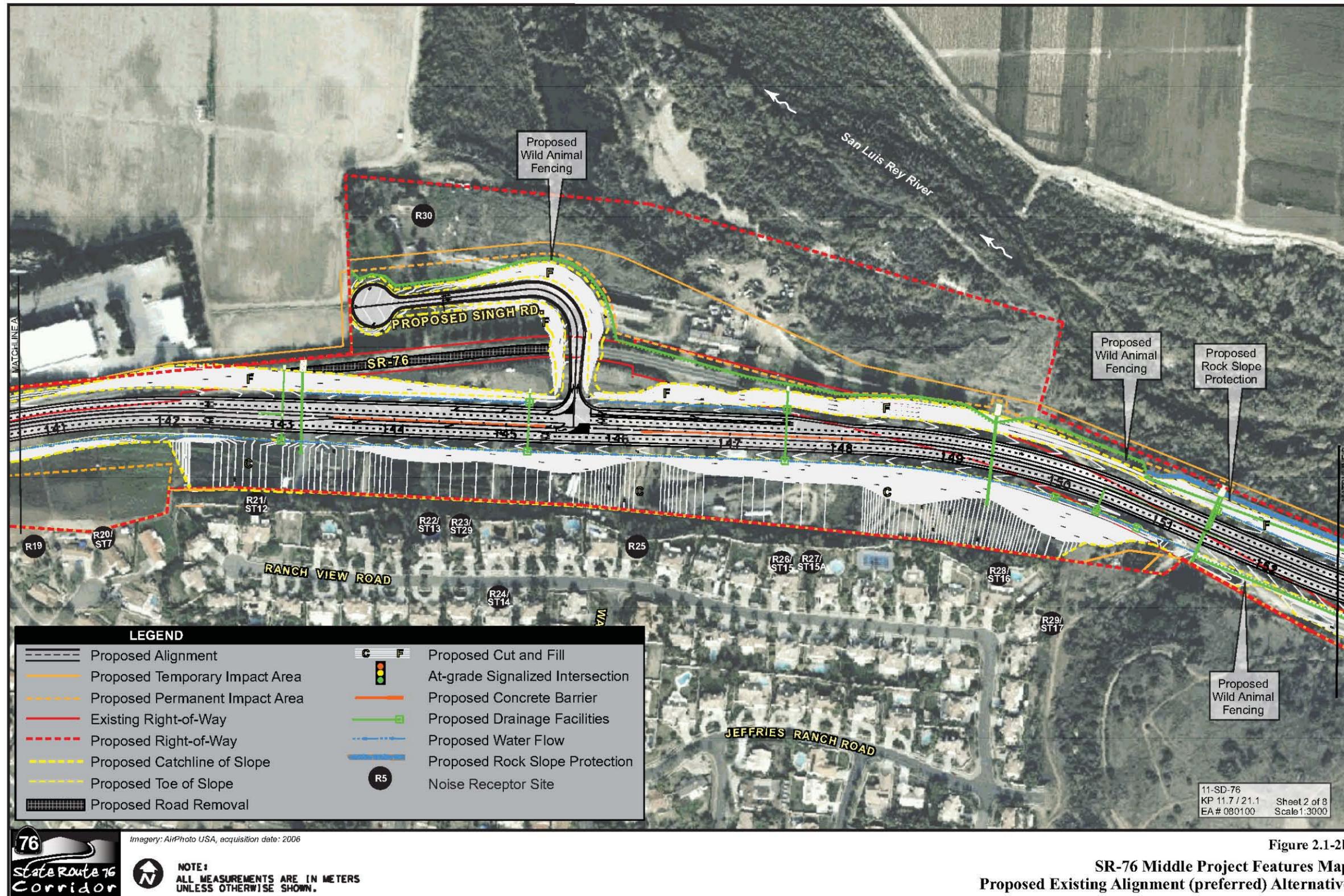


Figure 2.1-2b  
 SR-76 Middle Project Features Map  
 Proposed Existing Alignment (preferred) Alternative

Figure 4. SR-76 Middle Project Features Map

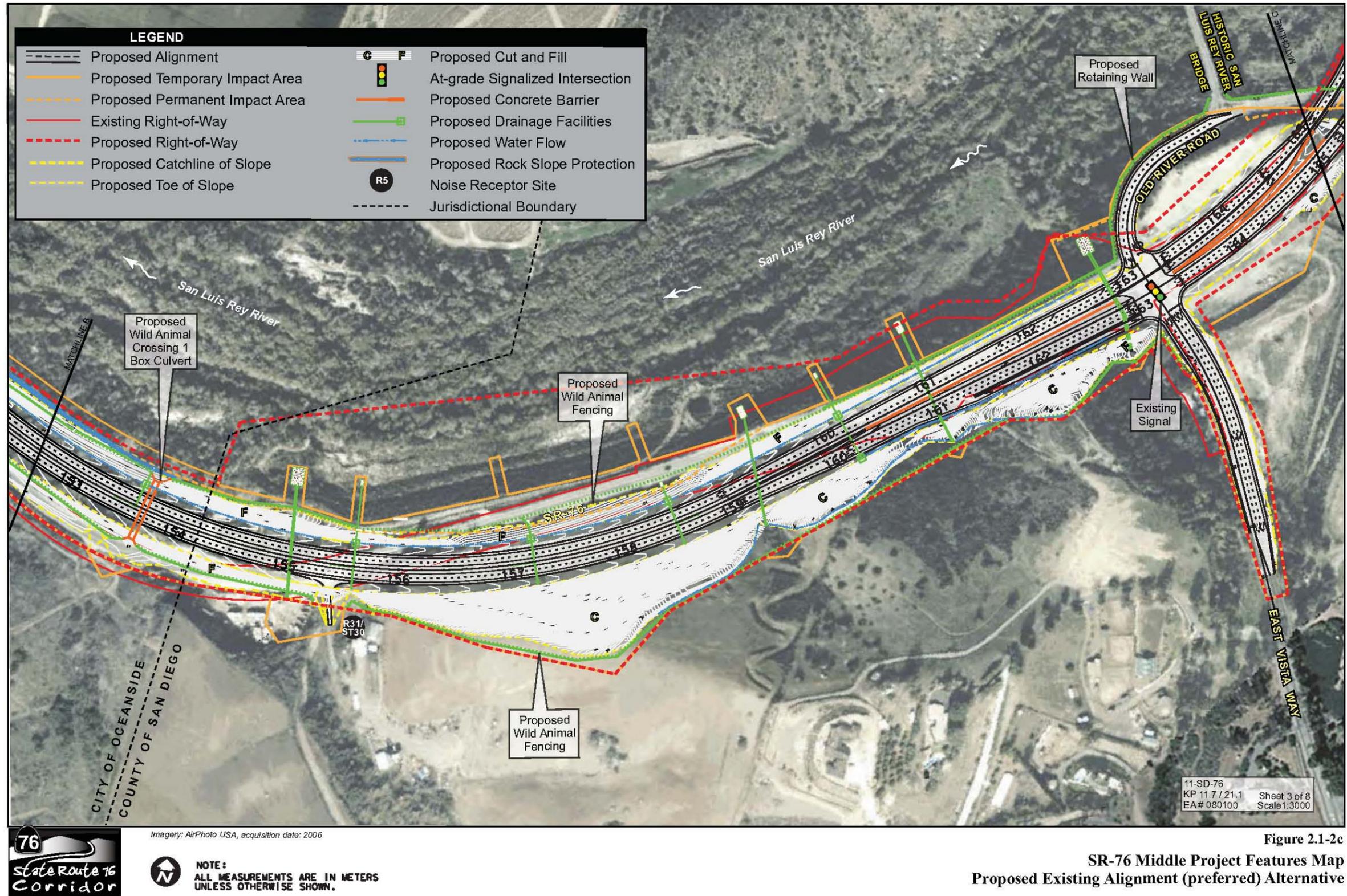


Figure 2.1-2c  
 SR-76 Middle Project Features Map  
 Proposed Existing Alignment (preferred) Alternative

Figure 5. SR-76 Middle Project Features Map

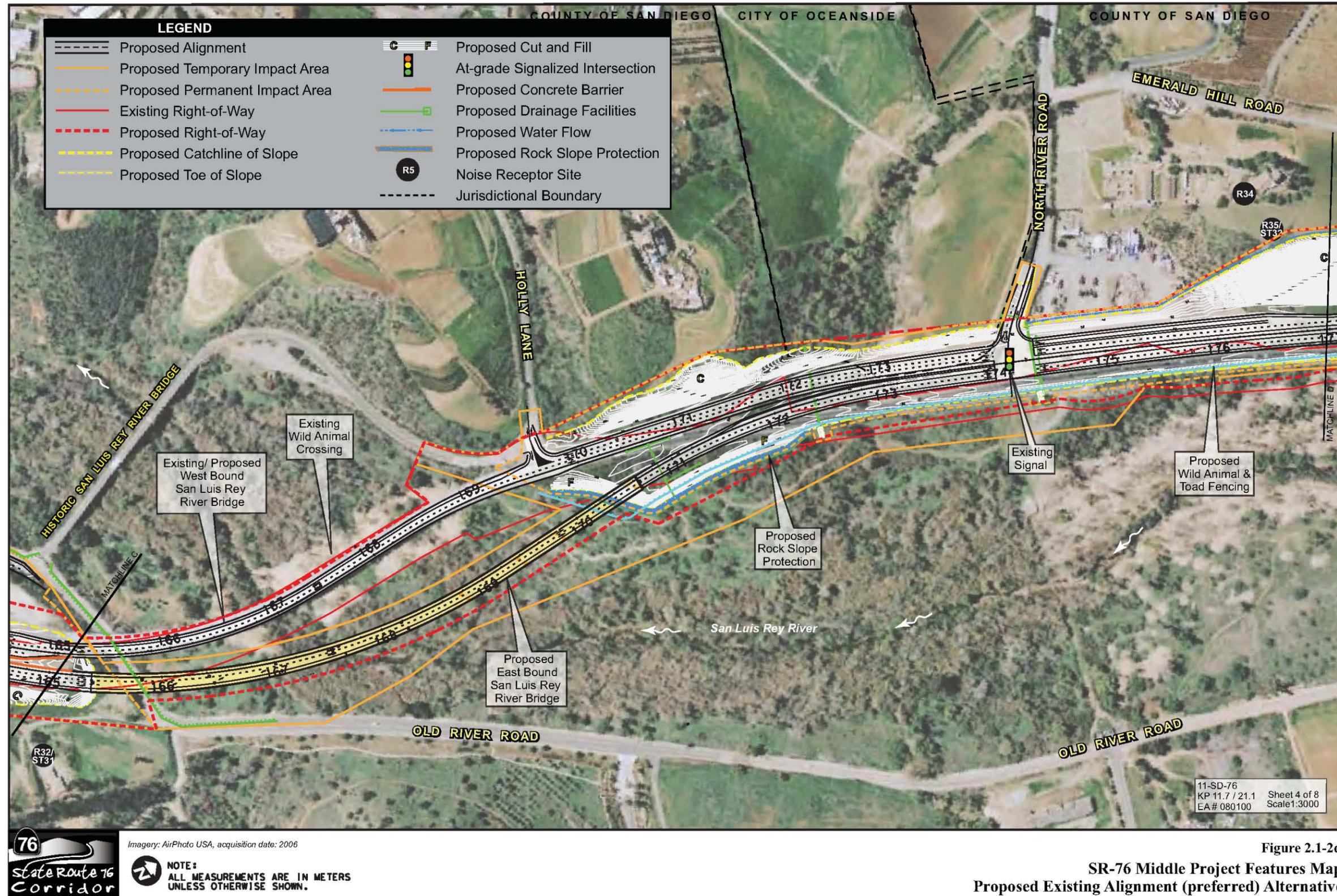


Figure 2.1-2d  
SR-76 Middle Project Features Map  
Proposed Existing Alignment (preferred) Alternative

Figure 6. SR-76 Middle Project Features Map

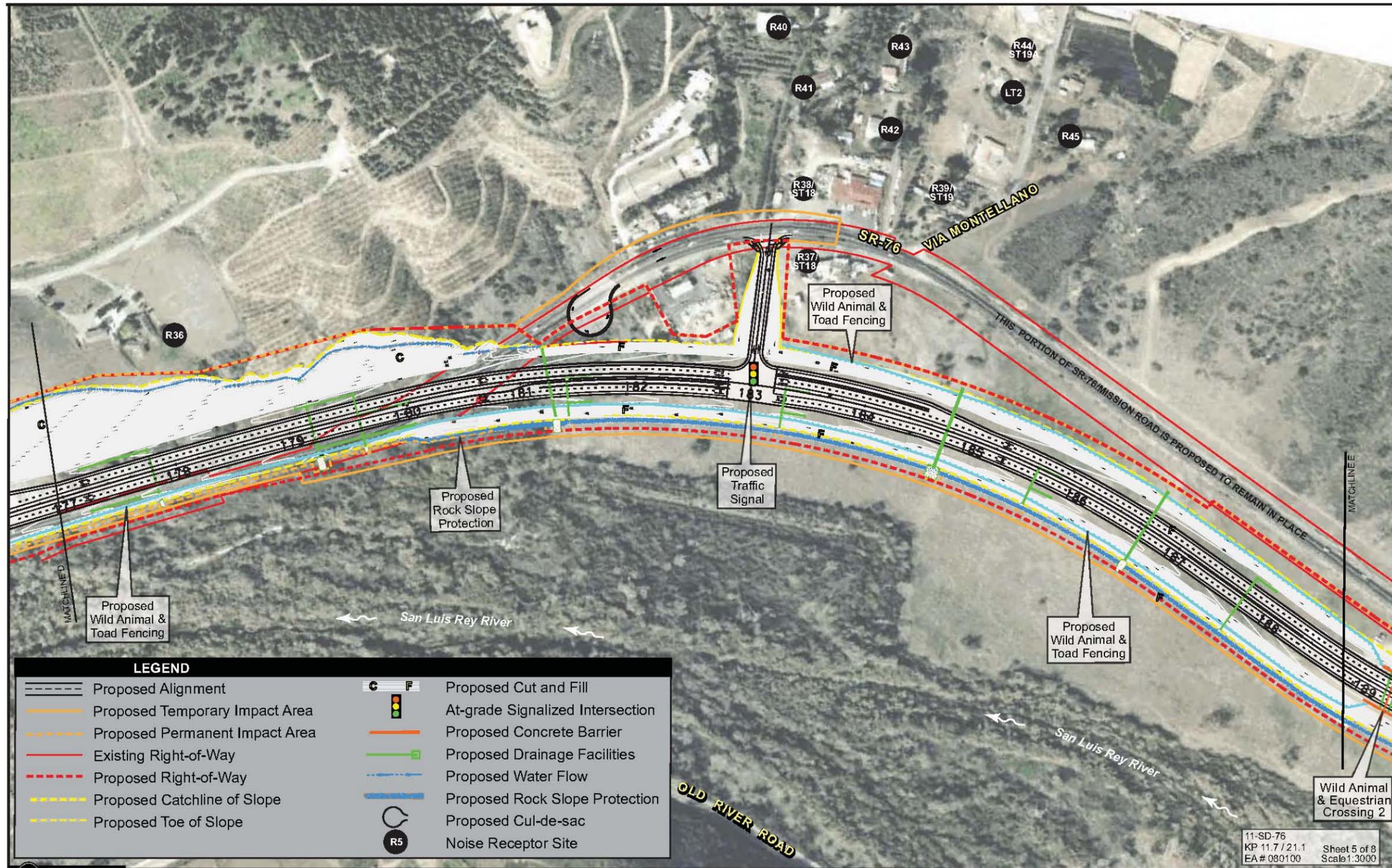


Figure 2.1-2e  
 SR-76 Middle Project Features Map  
 Proposed Existing Alignment (preferred) Alternative

Figure 7. SR-76 Middle Project Features Map

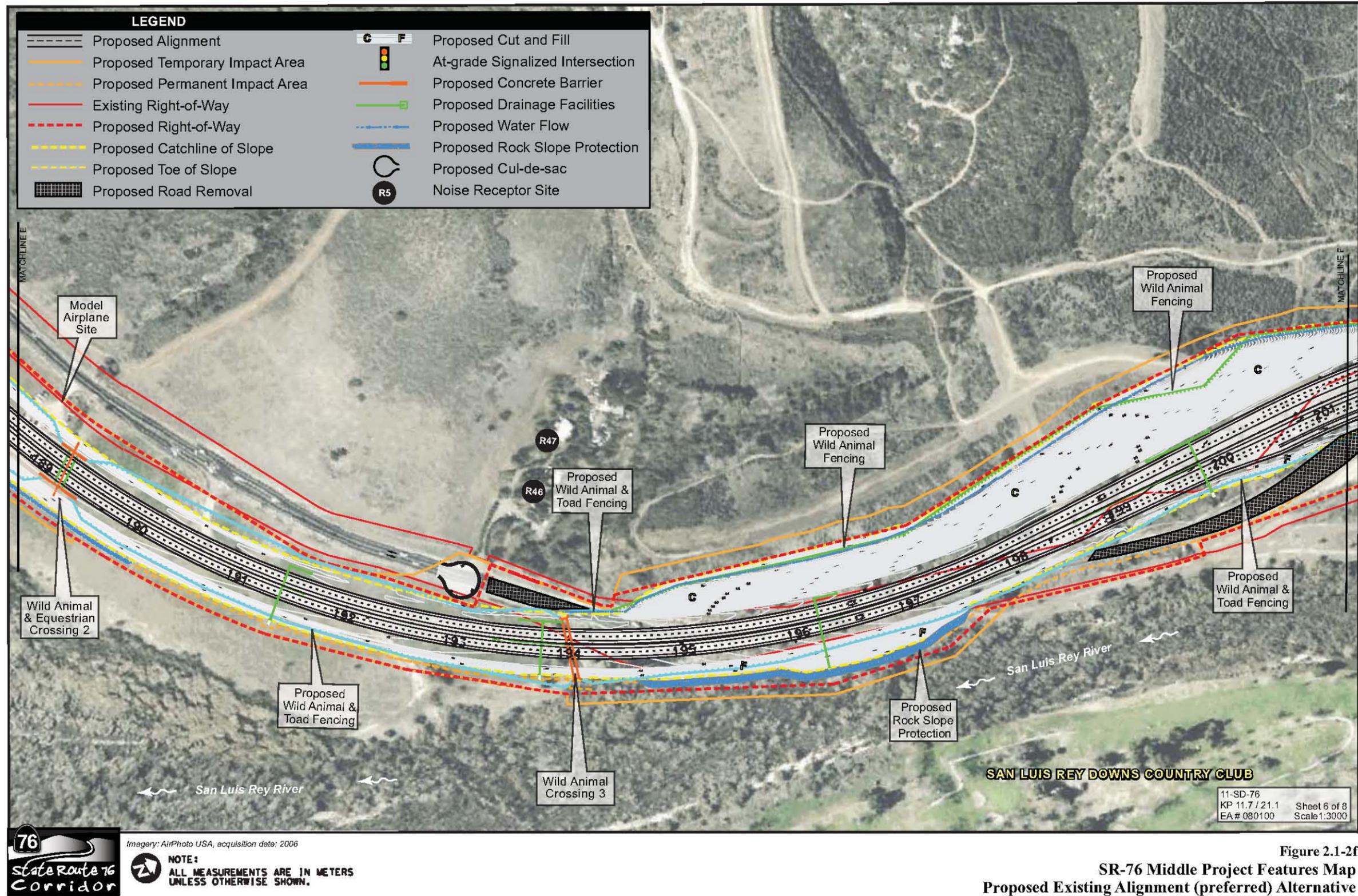


Figure 2.1-2f  
SR-76 Middle Project Features Map  
Proposed Existing Alignment (preferred) Alternative

Figure 8. SR-76 Middle Project Features Map

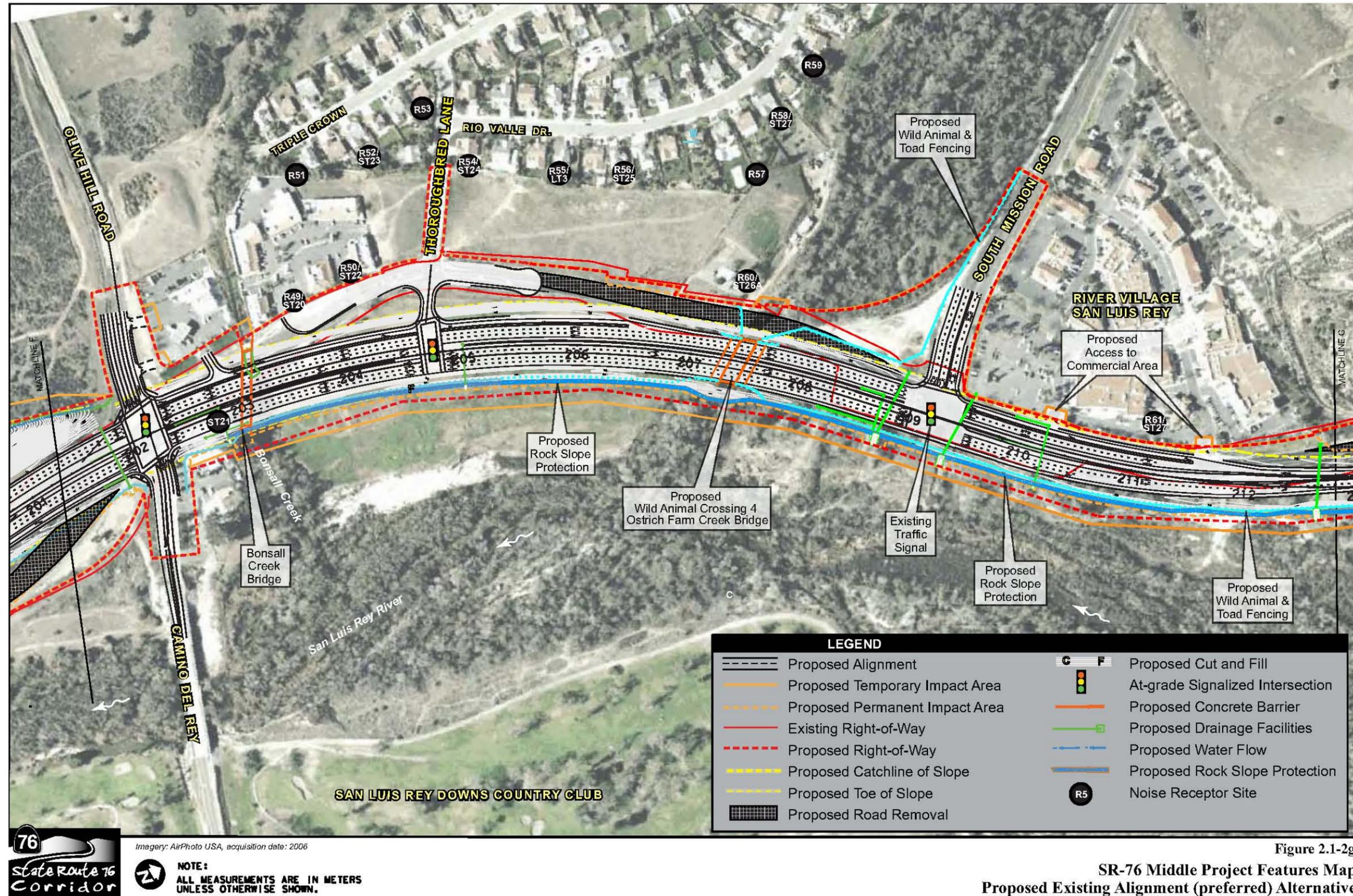


Figure 2.1-2g  
SR-76 Middle Project Features Map  
Proposed Existing Alignment (preferred) Alternative

Figure 9. SR-76 Middle Project Features Map

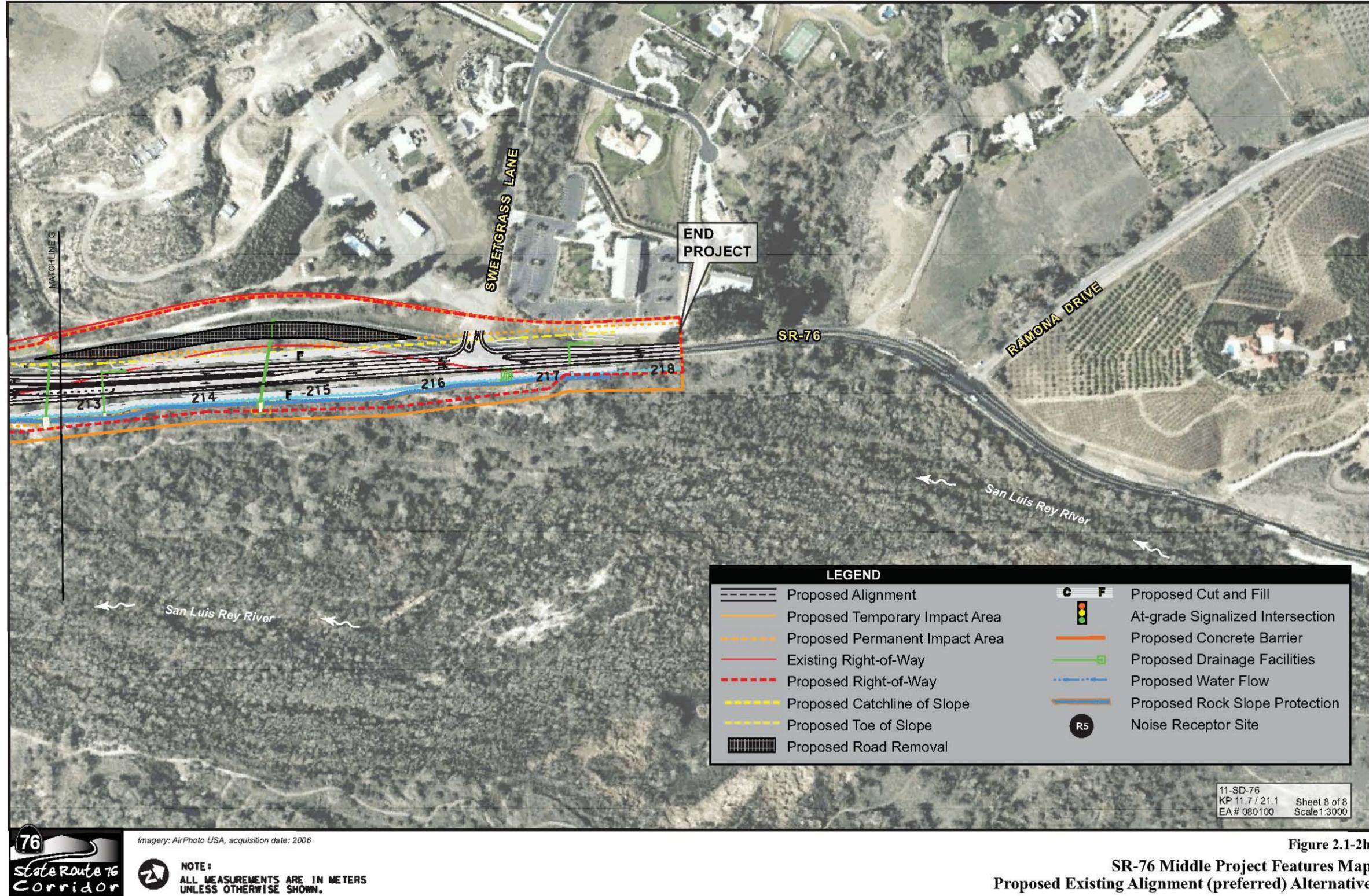


Figure 2.1-2h  
 SR-76 Middle Project Features Map  
 Proposed Existing Alignment (preferred) Alternative

Figure 10. SR-76 Middle Project Features Map

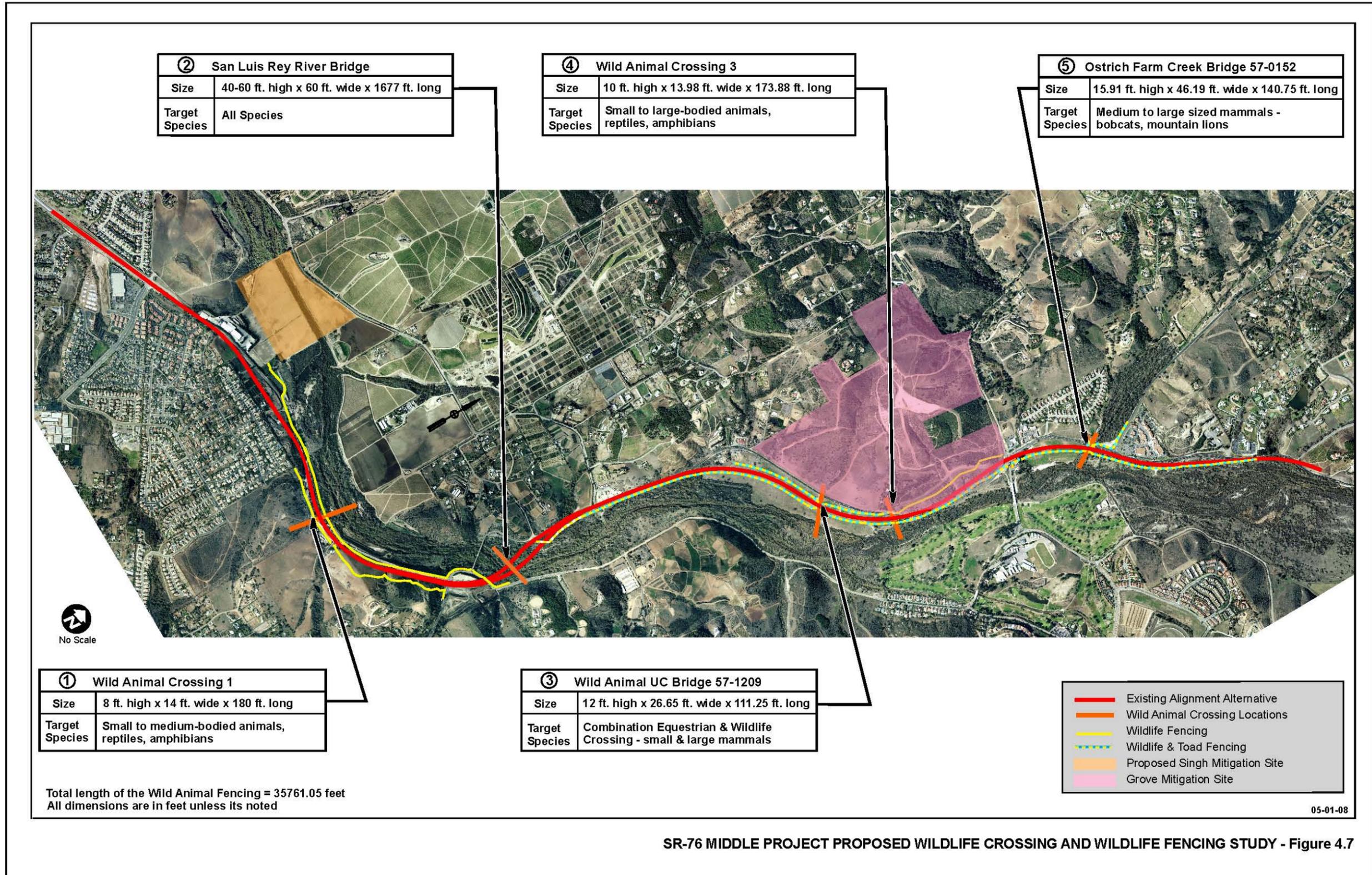


Figure 11. Proposed Wildlife Crossing and Wildlife Fencing Study

- The existing Bonsall Creek Bridge is a double cell, RCB culvert approximately 23 ft wide. The new bridge will be approximately 157 ft wide and 23 ft long and maintain four 12-ft travel lanes, two 12-ft channelization lanes, one 12-ft westbound right turn lane, two eastbound 12 foot turn lanes, two 10-ft outside shoulders, one 10-ft inside shoulder, one 4-ft inside shoulder, and one 2-ft wide concrete median barrier.
- The existing Ostrich Farm Creek Bridge is a four cell, RCB culvert approximately 45 ft wide. The bridge will be demolished and a new bridge constructed. It will be 6 ft long, 125 ft wide, and constructed with four 12-ft through lanes, two 12- ft channelization lanes, two 12-ft eastbound left turn lanes, two 10-ft outside shoulders, one 4- ft inside shoulder, one 10-ft inside shoulder, and a 2-ft wide concrete median barrier. A soft bottom will exist under the bridge
- A drainage culvert located north of Via Montellano will be constructed 13.8 ft wide and 9.8 ft high to facilitate wildlife movement.

### **2.3 Ambrosia Translocation**

Ambrosia from the Marron mitigation site (UTM 477541.31m E, 3679659.98m N) will be transplanted to the Morrison property. Approximately twenty percent (20%) of the existing ambrosia will be removed and transplanted into a suitable area on the receiver site.

### **2.4 Project Phasing**

Project construction is expected to occur between winter 2009 and summer 2012, and will be implemented in four phases.

- Phase 1: Construct SLR River bridge (expected to begin winter 2009)
- Phase 2: Melrose to East Vista Way (begin 2010)
- Phase 3: Olive Hill Road to South Mission Road, including Bonsall and Ostrich Creek bridges (expected to begin summer 2010)
- Phase 4: East Vista Way to Olive Hill Road, including San Luis Rey River Bridge (expected to begin fall 2010)
- Completion of all phases is expected by the end of 2012

The proposed project will impact 255 acres, consisting of permanent direct impacts to 1.11 acres of mule fat scrub, 0.13 acre of southern willow scrub, 0.003 acre of disturbed wetland, 18.33 acres of southern cottonwood willow riparian forest, 3.09 acres of southern coast live oak riparian forest, 24.36 acres of coastal sage scrub, 13.28 acres of disturbed coastal sage scrub, 0.72 acre of coast live oak woodland, and 43.17 acres of non-native grassland (Table 1). Additionally, the proposed project will result in permanent indirect impacts to 190.37 acres, consisting of 1.25 acres of southern willow scrub, 4.9 acres of disturbed wetland, 62.84 acres of southern cottonwood willow riparian forest, 6.57 acres of south coast live riparian forest, 0.07

acre of coastal valley freshwater marsh, 32.23 acres of coastal sage scrub, 16.59 acres of disturbed coastal sage scrub, and 0.67 acre of coast live oak woodland.

Mitigation for permanent project effects will occur under one of two scenarios, Option A or Option B. Further detail is provided in the Conservation Measures.

The analysis of project impacts on listed species was based on the final highway alignment (as of February 2008) and the available biological resource data for the Biological Survey Area (BSA) (Tables 1 and 2). The assessment relies on survey results obtained during field efforts from 2002 through 2007.

**Table 1. Vegetation Community and Cover Type Impacts**

Vegetation Communities and Cover Type	Total Area w/in BSA (Acres)	Project Impacts			
		Permanent Impacts	Temporary Impacts	Total Direct Impacts	Indirect Impacts
<b><i>Riparian and Wetlands</i></b>					
Southern Cottonwood Willow Riparian Forest	311.92	18.33	14.32	32.65	62.84
Southern Coast Live Oak Riparian Forest	12.55	3.09	0.00	3.09	6.57
Southern Willow Scrub	4.23	0.13	0.00	0.13	1.25
Mulefat Scrub	1.51	1.11	0.007	1.12	0.00
Arundo/Disturbed Wetland	19.08	0.003	1.54	1.54	4.9
Coastal and Valley Freshwater Marsh	0.26	0.00	0.00	0.00	0.07
<i>Subtotal:</i>	<b>330.47</b>	<b>22.66</b>	<b>15.87</b>	<b>38.53</b>	<b>75.63</b>
<b><i>Open Water</i></b>					
Open Water (not a vegetation type)	14.53	0.42	0.45	0.87	0.00
<i>Subtotal</i>	<b>14.53</b>	<b>.042</b>	<b>0.45</b>	<b>0.87</b>	<b>0.00</b>
<b><i>Uplands</i></b>					
		43.17 (30.72 toad habitat 12.45 other)			
Non-Native Grassland	168.06		10.66	53.83	41.60
Diegan Coastal Sage Scrub	117.98	24.36	4.09	28.45	32.23
Disturbed Diegan Coastal Sage Scrub	36.6	13.28	3.77	17.05	16.59
Coast Live Oak Woodland	3.07	0.72	.05	0.27	0.67
<i>Subtotal:</i>	<b>325.71</b>	<b>81.53</b>	<b>18.57</b>	<b>100.1</b>	<b>91.09</b>
<b><i>Other Vegetation Types</i></b>					
Urban/Developed	324.55	46.28	9.93	56.21	0.00
General Agriculture	296.94	38.81	3.65	42.46	23.65
Disturbed Habitat	182.00	9.10	1.26	10.36	0.00
Non-Native Vegetation	10.94	3.45	.41	3.86	0.00
Eucalyptus Woodland	9.74	2.89	.31	3.20	0.00
<i>Subtotal:</i>	<b>824.17</b>	<b>100.53</b>	<b>15.56</b>	<b>116.09</b>	<b>23.65</b>
<b>Total:</b>	<b>1,499.43</b>	<b>204.64</b>	<b>50.45</b>	<b>255.09</b>	<b>190.37</b>

**Table 2. Impacts to Listed Species**

Species	Permanent Impacts	Temporary Impacts	Indirect Impacts
	Number Impacted	Number Impacted	Number Impacted*
coastal California gnatcatcher	3 pairs	0	3 pairs
least Bell's vireo	4 pairs, 5 singles	7 pairs, 6 singles	12 pairs, 12 singles
southwestern willow flycatcher	0	0	1 migrant
arroyo toad	3 populations	1 population	0

\*Includes permanent and direct impacts

## 2.5 Project Location

The proposed project is located along the existing SR-76 within the lower reach of the San Luis Rey River valley and its associated floodplain. This stretch of the San Luis Rey River is perennial, receiving input from the upstream watershed. Nearby drainages include Little Gopher Canyon, Bonsall Creek, Moosa Creek, and Ostrich Farms Creek. Areas within the San Luis Rey River floodplain have been developed with agriculture, transportation, recreation (golf course), commercial, and residential uses.

The project action area is defined as the area 400 feet from the centerline of the proposed alignment, starting 0.5 mile west of Melrose Drive to Ramona Drive on the east. The action area additionally includes the entire San Luis Rey River floodplain between Ramona Drive and to a point downstream where effects are not experienced (potentially to the Pacific Ocean) and extends up each of the following creeks/canyons to their terminus; Little Gopher Canyon, Bonsall Creek, Moosa Creek, and Ostrich Farms Creek. The action also includes those mitigation lands associated with the project (e.g., Groves).

## 2.6 Conservation Measures

The proposed action includes the following conservation measures that will be implemented as part of the proposed project in order to avoid or otherwise minimize potential adverse effects of the action on listed species.

### 2.6.1 General

1. Caltrans would designate Service-approved biologists who would be responsible for overseeing monitoring and compliance with protective measures for the biological resources. The biologists will be familiar with the life history and ecology of the flora and fauna present within the San Luis Rey River watershed, including the arroyo toad, gnatcatcher, vireo, flycatcher, and ambrosia. The biologists will be familiar with field techniques, to include handling of species, as well as construction techniques relative to the project types proposed. A section 10(a)(1)(A) permit could be necessary for the handling of federally-listed species. The biologists would maintain communications with the appropriate personnel (project manager, resident engineer) to ensure that issues relating to biological resources are appropriately and lawfully managed. The biologists would also be present to ensure compliance with all conservation measures. The monitoring biologists will submit reports that document compliance with these measures to the Service upon request or, at a minimum,

included in the end of the year report. In addition, the biologists will perform the following duties.

- a. Be on site during all vegetation clearing/grubbing and weekly during project construction in upland/riparian habitat to be impacted.
  - b. Inspect the fencing and erosion control measures of all project areas (including preservation/restoration/creation sites) a minimum of once per week. Particular attention should be made immediately before and after rain events to ensure that any breaks in the fence or erosion control measures are repaired.
  - c. Train and educate all contractors and construction personnel about the biological resources associated with this project and ensure that training is implemented by construction personnel. At a minimum, training would include: 1) the purpose for resource protection; 2) a description of the sensitive species and their habitats; 3) the conservation measures in the biological opinion that should be implemented during project construction, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced project footprint to avoid impacts to sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); 4) environmentally responsible construction practices; 5) the protocol to resolve conflicts that may arise at any time during the construction process; 6) the general provisions of the Act, the need to adhere to the provisions of the Act, and the penalties associated with violating the Act.
  - d. Ensure that any measures developed in coordination with the Service to avoid all impacts to all encountered sensitive species as well as other nesting birds are implemented.
  - e. Immediately notify the Resident Engineer to halt work, if necessary, and confer with the Service to ensure the proper implementation of species and habitat protection measures. The biologist would report any breach of the conservation measures within this opinion to the Service within 24 hours of its occurrence.
  - f. Provide monthly reports and the final report. The reports would include: a summary of compliance with conservation measures, reasonable and prudent measures, and term and conditions; a summary or accounting of the acreages and applicable habitat types impacted; photographs; and other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conditions of this biological opinion was achieved.
2. Storage and staging areas will be placed as far from sensitive habitat, as possible, and kept free from trash and other waste. Staging areas for construction work will be located within permanent impact areas or previously disturbed sites within the project footprint and not adjacent to or within sensitive habitat.

3. The changing of oil, refueling, and other actions that could result in a release of a hazardous substance shall be restricted to designated areas that are a minimum of 100-feet from any sensitive plant populations, sensitive habitats, or drainages. Such designated areas will be surrounded with berms, sandbags, or other barriers to further prevent the accidental spill of fuel, oil, or chemicals.
4. Construction dust impacts will be offset through implementation of Caltrans Standard Specifications, including Section 7-1.01F Air Pollution Control, Section 10 Dust Control, Section 17 Watering, and Section 18 Dust Palliative. The project biologist will also periodically monitor the work area to ensure that construction-related activities do not generate excessive amounts of dust or cause other disturbances. Erosion control measures will be regularly checked by Caltrans inspectors, the biologist, or the resident engineer.
5. During any nighttime construction, all project lighting (e.g., staging areas, equipment storage sites, roadway) will be directed onto the roadway or construction site and away from sensitive habitat. Light glare shields may also be used to reduce the extent of illumination into adjoining areas.
6. Permanent lighting will be installed at intersections. If lighting is adjacent to sensitive habitat it will be directed or shielded away from the habitat. No permanent lights will be installed within sensitive habitat.
7. Best Management Practices to address erosion and excess sedimentation will be incorporated into the project plans. Measures that will be implemented during construction include silt fencing, gravel bags, hay bales, fiber rolls, and protection/velocity dissipation at drainage outlet points. Vegetation filters, such as swales or biostrips may also be used to remove sediment and other contaminants from runoff prior to off-site flow. Measures that will be implemented after construction include plantings, retaining walls and slope stabilization techniques.

Erosion control blankets having plastic mesh with the potential to ensnare amphibians and reptiles will not be used in areas where these animals inhabit.

8. Best Management Practices employed during construction will follow the applicable Department guidelines and be detailed in the project's Storm Water Management Plan, Storm Water Pollution Prevention Plan, and Water Pollution Control Program.
9. Dewatering may be required for some aspects of construction involving in-stream work. Dewatering would not be conducted within wetlands. In specific cases where it is deemed necessary to work in a flowing stream/creek, the work area may be isolated and the flowing water would be temporarily diverted around the work site to maintain downstream flows during construction. Proposed crossings and/or diversion structures would be the minimum necessary to complete the task. Any temporary dam or other artificial obstruction constructed would only be built from materials such as sandbags or clean gravel that would result little or no siltation. When construction is completed, the flow diversion structure

should be removed as soon as possible in a manner that would allow flow to resume and prevent debris or sediment accumulated from returning to the stream. If dewatering is conducted, either a pump would move water to an upland disposal site, or a sediment basin or other structure would be used to collect and treat the water. If applicable, a National Pollutant Discharge Elimination System permit could be required. If not applicable, the water returned to the waterway should be equivalent in basic parameters (e.g. turbidity, total suspended solids) as that in the waterway during current conditions.

### 2.6.2 Flora

10. Impacts to ambrosia associated with the construction of SR-76 will be avoided. Ambrosia will only be impacted during translocation efforts intended to benefit the species. Otherwise, ESA fencing will be constructed, prior to project impacts, around the proximal populations of ambrosia at the Jeffries Ranch, Marron, and Groves' properties. There will be a minimum 20 foot buffer between the extent of the known ambrosia population and the Environmental Sensitive Area (ESA) fencing.
11. Ambrosia translocation and long term management plans will be approved by the Service. The translocation plan will be incorporated into the Morrison property restoration plan and the long term management incorporated into the property's habitat management plan. Translocation will be implemented by a biologist with a history of translocating sensitive plant species. The exact location where the ambrosia propagules will be transplanted will be determined in the field by the Caltrans biologist in coordination with the Service prior to transplantation.

The translocated ambrosia population will be monitored for a minimum five (5) years to document success or failure of the translocation efforts. Success will be achieved when at least 25 percent (%) of the translocated ambrosia expand from the transplanted blocks as clones and/or newly established individuals.

### 2.6.3 Fauna

12. All vegetation within the construction limits will be cleared outside the breeding seasons (February 15 to September 15) to avoid impacts to the arroyo toad and migratory birds/raptors, including the gnatcatcher, vireo, and flycatcher. If clearing activities must occur during the breeding season, then pre-construction surveys will be conducted to ensure that no breeding or nesting birds are present within or immediately adjacent to the proposed clearing area. Should an active nest be located, then the Service will be contacted and discussions will commence to determine how to proceed. All possible arroyo toads will be cleared from the impact area(s) prior to project impacts (clearing, grubbing, and grading).
13. Sensitive habitat outside the alignment footprint will be designated an ESA and depicted as such on project maps and plans. No personnel or equipment will be allowed within these areas at any time. Prior to and during construction, barriers will be established in key areas

to deter public entry into the site. Additionally, temporary fencing will be provided to restrict access to sensitive habitat adjoining the work limits.

14. Pile driving associated with construction of the San Luis Rey River Bridge shall only be conducted between September 16 and February 14 to reduce noise affects to nesting/breeding birds within the project vicinity including, the gnatcatcher, vireo and flycatcher.
15. The San Luis Rey River Bridge will have design features that will provide bats with potential sites for day/night roosting.

#### 2.6.4 Arroyo Toad

16. Caltrans would develop an arroyo toad translocation monitoring program to be implemented during all construction activities that have the potential to adversely affect the arroyo toad. This program would be coordinated with the Service and finalized prior to initiation of construction activities. The program would include the following requirements set forth in the species' conservation measures below.
17. Prior to clearing, grubbing, and construction activities, Service-approved biologists will monitor arroyo toad breeding activity in those project areas containing or adjacent to breeding habitat. The biologists will determine when egg clutches or larvae are no longer present in the waterway (generally late May at lower elevation, June at higher elevation). When sign of breeding is no longer evident, an exclusionary fence will be installed and clearance surveys initiated.
18. Prior to clearing, grubbing, and grading activities, arroyo toad temporary exclusionary fence will be constructed along the perimeter of the project footprint within or immediately adjacent to arroyo toad habitat (breeding and aestivation). The intent of the fence is to fully contain the area(s) to be impacted and to remove and exclude arroyo toads. Exclusionary fence in aestivation habitat will not be installed prior to May 1. The Service-approved biologist will be present during the exclusionary fence installation, reconfigurations, breach repairs, and weekly during the breeding season.

The fence will consist of fabric or plastic at least 2 ft high, staked firmly to the ground with the lower 1 ft of material stretching outward along the ground and secured with a continuous line of gravel bags. No digging or vegetation removal will be associated with the installation of the fence and all materials shall be removed when the Project is complete. The removal of some vegetation, without disturbing the soil, within the project footprint to aid in the observance and collection of arroyo toads is acceptable.

19. Prior to clearing, grubbing, and grading activities, Service-approved biologists will perform a minimum of three nighttime surveys inside the exclusionary fence and remove all arroyo toads found within its perimeter. The approved biologist will continue until there have been two consecutive nights without arroyo toads inside the fencing. Any breach in the

exclusionary fence during times when arroyo toads are active above ground, will result in repeating the 3-day minimum clearance surveys for that particular area.

20. If conditions do not occur that result in sufficient arroyo toad emergence and movement, a Service-approved biologist will attempt to elicit a response from the arroyo toads during nights late in the known breeding season, with temperatures above 50°F, by spraying the area inside the exclusionary fence with water to a depth of approximately one to two inches to simulate a rain event.
21. Whether or not a simulated precipitation event is done, arroyo toads found within the Project footprint will be captured and translocated by Service-approved biologists to the closest area of suitable habitat. The Service-approved biologist will coordinate with the appropriate property owner(s) and the Service on where the arroyo toads will be placed.
22. Service-approved biologists will maintain a complete record of all arroyo toads encountered and moved from harms way during translocation efforts. The date and time of capture, sex, physical dimensions, and coordinates/specific location of capture will be recorded and provided to the Service, within 30 days of the completion of translocation.

In addition to reporting on the translocation effort, monthly reports (including photographs of impact areas) will be submitted to the Service during construction activities within areas demarcated by arroyo toad exclusion fencing. The monthly reports will document general compliance with all applicable conditions and report all incidents not in compliance with this biological opinion. The reports will also outline the duration of arroyo toad monitoring, the location of construction activities, the type of construction that occurred, and equipment used. These reports would specify numbers, locations, sex, observed behavior, and remedial measures employed to avoid, minimize, and mitigate impacts to arroyo toads. All field notes and other documentation generated by the Service-approved biologist shall be made available upon request to the Service.

23. To avoid transferring disease or pathogens between aquatic habitats during surveys and handling of arroyo toads, the approved biologists will follow the *Declining Amphibian Population Task Force's Code of Practice* (DAPTF, 1991) or newer version when available.
24. The use of pitfall traps, to increase capture of arroyo toads, is acceptable. All pitfall traps will be covered or removed when clearance surveys are not occurring. Evidence of predation in the traps is grounds for removing them.

### 2.6.5 Fencing

25. Directional (wildlife) fencing and a wildlife undercrossing placed at the south side of the San Luis Rey River near the Oceanside/Bonsall boundary will be constructed to enhance connectivity for wildlife species and limit incidences of roadkill. West of East Vista Way, the wildlife fencing will consist of an 8-ft tall chain link fence buried 1 foot underground, to prevent animals from digging under the barrier. East of East Vista Way, the wildlife fencing will have attached permanent 0.25 inch hardware cloth arroyo toad fencing that will be buried 1 ft underground and extend 2 ft above ground (Figure 11).
26. Wildlife and arroyo toad fencing will be inspected on a yearly basis between January 1 and March 15. All repairs necessary to maintain the integrity of the arroyo toad fencing, noted during the inspection, will occur prior March 15. Breaches in the arroyo toad fence which occur during the breeding season (March 15 to July 1) will be repaired within 1 week of the observed breach. Breaches in the arroyo toad fence, outside of the breeding season, will be repaired prior to the next breeding season.

Breaches in the wildlife fencing will be repaired within 1 week if the breach occurs during the breeding season in arroyo toad habitat and repaired by the beginning of the next breeding season if the breach occurs outside of the breeding season or outside of arroyo toad habitat.

### 2.6.6 Creation, Restoration, Enhancement, and Preservation

27. Areas temporarily impacted by construction will be restored in-kind, to the maximum extent practicable, using appropriate native species at a 1:1 ratio, except when the area is adjacent to landscaped areas or developed areas where using native species would provide little or no biological value (e.g. small isolated patch surrounded by development). A restoration/landscape plan with success criteria and remedial measures will be reviewed and approved by a qualified biologist and the Service prior to application in the field.

Sections of existing SR-76 proposed for decommissioning would be restored using the same practices and plans as those areas temporarily impacted by the project.

28. Species identified on the California Invasive Plant Council's *List of Exotic Pest Plants of Greatest Ecological Concern in California* (<http://www.cal-ipc.org>) will not be incorporated into the planting scheme. A biologist shall review the seed/plant palette for the planning area, as well as other sites along the alignment, before application in the field.
29. All plants used in the landscaping and mitigation areas will comply with Federal, State, and County laws requiring inspection for infestations. The vendor will provide certification of inspection from the County of San Diego Agriculture. The Project Landscape Inspector will also inspect the plants before accepting delivery.

30. Offsetting measures for permanent impacts include enhancement, restoration, and/or creation of habitat. A plan outlining the details and implementation schedule of all enhancement, restoration, and creation will be prepared. The plan will be submitted to the Service for review and approval within 90 days of issuance of this biological opinion. All enhancement, restoration, and creation activities to offset permanent vegetation impacts should commence the first late-summer/fall/winter season prior to or concurrently with the start of work. The latest any offsetting enhancement, restoration, or creation activities could occur would be the first late-summer/fall/winter immediately after project activities have been initiated. The plan will include the following.
- a. A 5-year maintenance and monitoring program that would be implemented for the created, enhanced, and/or restored habitats.
  - b. If established performance criteria are not met, the proponent would prepare an analysis of the cause(s) of failure and, if deemed necessary by the Service, propose remedial actions. If any of the enhanced/restored/created habitats have not met a performance criterion during the initial 5-year period, the work proponent's maintenance and monitoring obligations would continue until the Service deems the enhancement/restoration successful or contingency measures will be implemented.
  - c. Reports which assess both the attainment of yearly success criteria and progress toward the final success criteria would be included in the yearly project reporting document.
31. The following measures will be implemented at all off-site enhancement, restoration, and creation sites to avoid and minimize effects to listed species and migratory birds during the five-year restoration period (if applicable).
- a. Any construction related activities will avoid the breeding/mating season (February 15-September 15).
  - b. If maintenance and monitoring activities are conducted between February 15<sup>th</sup> and September 15<sup>th</sup>, a qualified biologist would conduct a habitat assessment and any necessary subsequent protocol surveys to determine the presence or absence of listed species and migratory birds prior to the start of proposed activities.
    - i. If nesting birds are on-site, no maintenance activities will be conducted within 150 feet of a nest (exclusion zone), except to repair broken irrigation lines or otherwise approved by the Service. If an irrigation line is broken and workers need to encroach into the 150-foot exclusion zone, then the project proponent and the Service will be notified immediately. Prior to maintenance workers accessing the 150-foot exclusion zone, the project proponent and the Service will determine the most appropriate timing and method of repair without causing harm to the nest and/or the nesting pair. Morrison is a restoration site; there will be no grading or construction. Using some hand held tools and machinery, such as for auger planting, should be permitted to 150 feet.

- ii. If listed species are on-site, the Service should be contacted prior to any activities to determine the benefit of continuing the maintenance and monitoring activities during the breeding/mating season.
  - c. An education program will be implemented by the project proponent to ensure that all enhancement, restoration, and creation site maintenance workers understand the work restrictions and are aware of the above described conservation measures.
32. Restoration will occur as early as possible following final grading and be accompanied with periodic monitoring, success criteria, and maintenance to ensure adequate coverage and to prevent erosion into adjacent biologically sensitive areas.
  33. The applicant will ensure that all irrigation is temporary and for the shortest duration possible. No permanent irrigation will be used for landscape or habitat creation/restoration/enhancement.
  34. Bullfrogs and other exotic species that prey upon or displace arroyo toads will be excluded, destroyed, or otherwise permanently removed from the site if encountered.
  35. Within 90 days of issuance of the Biological Opinion, Caltrans will provide a draft preservation mechanism (i.e., deed restriction, conservation easement, etc.) that will protect all mitigation areas in perpetuity and a draft Habitat Management Plan for the areas preserved. The draft Habitat Management Plan will be reviewed and approved by the Service prior to plan finalization.
  36. Permanent direct and indirect impacts to arroyo toad, gnatcatcher, vireo, and flycatcher would be mitigated by one of two options (A or B). The options are provided in Tables 3-8 below.

**Table 3. Option A: Compensation Sites**

Vegetation Type	Groves (acres)	Morrison (acres)*	Singh (acres)	Zweirstra (acres)	Pilgrim Creek (acres)
Coastal sage scrub	180	0	13.6 upland creation	7 upland creation	0
Coast live oak woodland	11	0			0
Non-native grassland	50	0			0
Riparian forest/riparian scrub	0	148.28 RS/RF restoration	37.9 RS/RF creation; 5.5 FWM/RS restoration	3.4 RS/RF creation; 3.3 RS/RF restoration	4.94 riparian credits

RS – riparian scrub

RF – riparian forest

FWM – freshwater marsh

\*The Morrison site totals 148.28 acres, including the 136.54 acre Morrison parcel and 11.74 acres of Caltrans right-of-way located between the Morrison parcel and the proposed alignment.

**Table 4. Option A: Mitigation for Permanent Impacts**

Habitat Type	Permanent Impacts (ac)	Mitigation Ratio	Total Compensation (ac)	Mitigation Location (ac)	Available Acres Remaining
<b>Riparian and Wetlands</b>					
Mulefat Scrub	1.11	3:1	3.33	1:1 creation at Singh= 37.9 - 1.11ac 2:1 restoration at Morrison =148.28 - 2.22ac	Singh = 36.79 creation RS/RF; 5.5 restoration- FWM/RS; Morrison = 146.06 RS/ RF; Zweirstra = 3.4 RS/RF creation, 3.3 RS/RF restoration; Pilgrim Cr = 4.94
Southern Willow Scrub	0.13	3:1	0.39	1:1 creation at Singh =36.79 - 0.13 ac 2:1 restoration at Morrison = 146.06 - 0.26 ac	Singh = 36.66 creation RS/RF; 5.5 restoration FWM/RS; Morrison = 145.80 RS/ RF, Zwierstra = 3.4 RS/RF creation, 3.3 RS/RF restoration; Pilgrim Cr = 4.94
Disturbed Wetland	0.003	3:1	0.009	1:1 creation at Singh = 36.66 - 0.003 ac 2:1 restoration at Morrison = 145.8 - 0.006	Singh = 36.66 creation RS/RF; 5.5 FWM/RS restoration; Morrison = 145.79 RS/RF, Zweirstra = 3.4 RS/RF creation, 3.3 RS/RF restoration; Pilgrim Cr = 4.94
Southern Cottonwood Willow Riparian Forest (For USACE jurisdictional impacts)	4.94	1:1	4.94	1:1 creation at Pilgrim 4.94 – 4.94	Singh = 36.66 creation RS/RF; 5.5 FWM/RS restoration; Morrison= 145.79 RS/RF, Zweirstra = 3.4 RS/RF creation, 3.3 RS/RF restoration; Pilgrim Cr = 0
Southern Cottonwood Willow Riparian Forest	18.33	3:1	54.99	1:1 creation at Singh = 36.66 - 18.33; 2:1 restoration at Morrison = 145.79 – 36.66	Singh = 18.33 creation RS/RF; 5.5 FWM/RS restoration; Morrison = 109.13 RS/RF; Zwierstra = 3.4 RS/RF creation, 3.3 RS/RF restoration; Pilgrim Cr =0.
Southern Coast Live Oak Riparian Forest	3.09	3:1	9.27	1:1 creation at Singh 18.33 – 3.09; 2:1 restoration at Morrison 109.13 - 3.36	Singh = 15.24 creation RS/RF; 5.5 FWM/RS restoration; Morrison = 105.77 RF/RS, Zweirstra = 3.4 RS/RF creation, 3.3 RS/RF restoration; Pilgrim Cr = 0.
<b>Uplands</b>					
Coastal Sage Scrub	24.36	2:1	48.72	Groves preservation 180 – 48.72	Groves = 131.28 CSS
Disturbed Coastal Sage Scrub	13.28	2:1	26.56	Groves preservation 131.28 – 26.56	Groves = 104.72 CSS
Coast Live Oak Woodland	0.72	3:1	2.16	Groves preservation 11.0 – 2.16	Groves = 8.84 CLOW
Non-native Grassland	43.17 total 30.72 toad habitat; 12.45 other	1:1 toad habitat; 0.5:1 other	36.95	Groves preservation 50.0 – 36.95	Groves = 13.06 NNG

RS – riparian scrub                      RF – riparian forest                      FWM – freshwater marsh                      CLOW – coast live oak woodland  
 CSS – coastal sage scrub                      NNG – non-native grassland

**Table 5. Option A: Mitigation for Indirect Impacts**

Habitat Type	Indirect Impacts (ac)	Mitigation Ratio	Total Compensation (ac)	Mitigation Location (ac)	Available Acres Remaining After Mitigation
<b>Riparian and wetlands</b>					
Southern willow scrub	1.25	1:1	1.25	Morrison 105.77 – 1.25	Morrison = 104.52 RS/RF Singh = 15.24 creation RS/RF; 5.5 FWM/RS restoration Zweirstra = 3.4 RS/RF creation, 3.3 RS/RF restoration Pilgrim Cr = 4.94.
Disturbed Wetland	4.9	0.5:1	2.45	Morrison 104.52 – 2.45	Morrison = 102.07 RS/RF Singh = 15.24 creation RS/RF; 5.5 FWM/RS restoration Zweirstra = 3.4 RS/RF creation, 3.3 RS/RF restoration Pilgrim Cr = 4.94
Southern cottonwood willow riparian forest	62.84	1:1	62.84	Morrison 102.07 – 62.84	Morrison = 39.23 RS/RF Singh = 15.24 creation RS/RF; 5.5 FWM/RS restoration Zweirstra = 3.4 RS/RF creation, 3.3 RS/RF restoration Pilgrim Cr = 4.94
South coast live oak riparian	6.57	1:1	6.57	Morrison 39.23 – 6.57	Morrison = 32.66 RS/RF Singh = 15.24 creation RS/RF; 5.5 FWM/RS restoration Zweirstra = 3.4 RS/RF creation, 3.3 RS/RF restoration Pilgrim Cr = 4.94
Coastal and Valley Freshwater Marsh	0.07	1:1	0.07	Morrison 32.66 – 0.07	Morrison = 32.59 RS/RF Singh = 15.24 creation RS/RF; 5.5 FWM/RS restoration Zweirstra = 3.4 RS/RF creation, 3.3 RS/RF restoration Pilgrim Cr = 4.94
<b>Uplands</b>					
Coastal sage scrub	32.23	1:1	32.23	Groves preservation 104.72 – 32.23	Groves = 72.49 CSS preservation Singh = 13.6 upland creation Zweirstra = 7.0 upland creation
Disturbed coastal sage scrub	16.59	1:1	16.59	Groves preservation 72.49 – 16.59	Groves = 55.9 CSS preservation Singh = 13.6 upland creation Zweirstra = 7.0 upland creation
Coast live oak woodland	0.67	1:1	0.67	Groves preservation 8.84 – 0.67	Groves = 8.17 CLOW preservation Singh = 13.6 upland creation Zweirstra = 7.0 upland creation

RS – riparian scrub      RF – riparian forest      FWM – freshwater marsh      CLOW – coast live oak woodland  
 CSS – coastal sage scrub

\*Long term temporary impacts to healthy southern cottonwood willow riparian forest (14.32 acres) will be mitigated at 1.5:1. Mitigation will occur onsite at 1:1; and offsite at 0.5:1 (7.16 acres). Offsite mitigation will occur at the Morrison site, leaving 25.43 acres available.

**Table 6. Option B: Compensation Sites**

Vegetation Type	Groves (acres)	Morrison* (acres)	Zweirstra (acres)	Pilgrim Creek (acres)
Coastal Sage Scrub	180	0	7 upland creation	0
South Coast Live Oak Woodland	11	0		0
Non-native Grassland	50	0		0
Riparian forest/riparian scrub	0	148.28 restore RS/RF (2.8 is FWM)	3.4 RS/RF creation; 3.3 RS/RF restoration	4.94 riparian credits

RS = riparian scrub      RF = Riparian forest      FWM – freshwater marsh

\*The Morrison site totals 148.28 acres; it includes the 136.54 acre Morrison parcel, plus 11.74 acres of Caltrans right-of-way located between the Morrison parcel and the proposed alignment.

**Table 7. Option B: Mitigation for Permanent Impacts**

Habitat Type	Permanent Impacts (ac)	Mitigation Ratio	Total Compensation (ac)	Mitigation Location	Available Acres Remaining After Mitigation
<b>Riparian and Wetlands</b>					
Mulefat Scrub	1.11	5:1	5.55	5:1 restoration at Morrison= 148.28 - 5.55	Morrison*= 142.73 RS/RF Zweirstra = 3.4 RS/RF creation; 3.3 RS/RF restoration Pilgrim = 4.94 riparian credits
Southern Willow Scrub	0.13	5:1	0.65	5:1 restoration at Morrison = 142.73 - 0.65 ac	Morrison = 142.08 RF/RS restoration acres Zweirstra = 3.4 RS/RF creation; 3.3 RS/RF restoration Pilgrim = 4.94 riparian credits
Disturbed Wetland	0.003	1:1	0.003	1:1 restoration at Morrison = 142.08 - 0.003 ac	Morrison = 142.07 RF/RS restoration acres Zweirstra = 3.4 RS/RF creation; 3.3 RS/RF restoration Pilgrim = 4.94 riparian credits
Southern Cottonwood Willow Riparian Forest (for USACE jurisdictional impacts)	4.94	1:1	4.94	1:1 creation at Pilgrim = 4.94 - 4.94	Morrison = 142.07 RF/RS restoration acres Zweirstra = 3.4 RS/RF creation; 3.3 RS/RF restoration Pilgrim = 0 riparian credits
Southern Cottonwood Willow Riparian Forest	3.4	3:1	10.2	1:1 creation at Zweirstra = 3.4 - 3.4 2:1 restoration at Zweirstra=3.3 - 3.3 2:1 restoration at Morrison = 142.07 - 3.5	Morrison = 138.58 RS/RF restoration acres Zweirstra = 0 RS/RF creation; 0 RS/RF restoration Pilgrim = 0 riparian credits
Southern Cottonwood Willow Riparian Forest	9.99	5:1	49.95	5:1 restoration at Morrison = 138.58 - 49.95	Morrison = 88.63 RF/RS restoration acres Zweirstra = 0 RS/RF creation; 0 RS/RF restoration. Pilgrim = 0 riparian credits
Southern Coast Live Oak Riparian Forest	3.09	5:1	15.45	5:1 restoration at Morrison = 88.63 - 15.45	Morrison = 73.18 RF/RS restoration acres Zweirstra = 0 RS/RF creation; 0 RS/RF restoration Pilgrim = 0 riparian credits
<b>Uplands</b>					
Coastal Sage Scrub	24.36	2:1	48.72	Groves preservation CSS = 180 - 48.72	Groves = 131.28 CSS preservation; Zweirstra 7.0 upland creation
Disturbed Coastal Sage Scrub	13.28	2:1	26.56	Groves preservation CSS = 131.28 - 26.56	Groves = 104.72 CSS preservation; Zweirstra 7.0 upland creation
Coast live oak woodland	0.72	3:1	2.16	Groves preservation CLOW = 11 - 0.66	Groves = 10.34 CLOW preservation; Zweirstra 7.0 upland creation
Non-native grassland	43.17 total = 30.72 toad habitat; 12.45 other	1:1 toad habitat; 0.5:1 other	1:1 = 30.72; 0.5:1 = 6.23	Groves preservation NNG = 50 - 36.95	Groves = 13.05 NNG preservation; Zweirstra 7.0 upland creation

RS – riparian scrub  
CSS – coastal sage scrub

RF – riparian forest  
NNG – non-native grassland

FWM – freshwater marsh

CLOW – coast live oak woodland

**Table 8. Option B: Mitigation for Indirect Impacts**

Habitat Type	Indirect Impacts (ac)	Mitigation Ratio	Total Compensation (ac)	Mitigation Location (ac)	Available acres remaining after mitigation
<b>Riparian and Wetlands</b>					
Southern willow scrub	1.25	1:1	1.25	Morrison 73.18 -1.25	Morrison = 71.93 RS/RF Zweirstra = 0 acres creation/restoration; 0 acres restoration Pilgrim = 0 riparian credits
Disturbed Wetland	4.9	0.5:1	2.45	Morrison 71.93 – 2.45	Morrison 69.48 RS/RF Zweirstra 0 acres creation/restoration; 0 acres restoration Pilgrim = 0 riparian credits
Southern cottonwood willow riparian forest	62.84	1:1	62.84	Morrison 69.48 – 62.84	Morrison = 6.64 RS/RF Zweirstra = 0 acres creation/restoration; 0 acres restoration Pilgrim = 0 riparian credits
South coast live oak riparian	6.57	1:1	6.57	Morrison 6.64 – 6.57	Morrison = 0.07 RS/RF Zweirstra = 0 acres creation/restoration; 0 acres restoration
Coastal and Valley Freshwater Marsh	0.07	1:1	0.07	Morrison 0.07 – 0.07	Morrison = 0 acres RS/RF restoration Zweirstra = 0 acres creation/restoration; 0 acres restoration Pilgrim = 0 riparian credits
<b>Uplands</b>					
Coastal sage scrub	32.23	1:1	32.23	Groves preservation 104.72 – 32.23	Groves = 72.49 CSS preservation Zweirstra = 7.0 upland creation
Disturbed coastal sage scrub	16.59	1:1	16.59	Groves preservation 72.49 – 16.59	Groves = 55.9 CSS preservation Zweirstra = 7.0 upland creation
Coast live oak woodland	0.67	1:1	0.67	Groves preservation 10.34 – 0.67	Groves = 9.67 CLOW preservation Zweirstra = 7.0 upland creation

RS – riparian scrub                      RF – riparian forest                      FWM – freshwater marsh                      CLOW – coast live oak woodland  
 CSS – coastal sage scrub

\*Long term temporary impacts to healthy southern cottonwood willow riparian forest (14.32 acres) will be mitigated at 1.5:1. Mitigation will occur onsite at 1:1; and offsite at 0.5:1 (7.16 acres). These impacts will be mitigated at the Groves site, with preservation of coast live oak woodland. The Groves remainder will be 2.51 acres of CLOW, 55.9 acres CSS, and 13.05 NNG.

**2.6.7 Reporting**

The Caltrans biologist will submit monthly reports during initial grading and clearing, and when construction occurs near sensitive biological resources; and provide a final report documenting compliance with all measures within 60 days of project completion.

### 3. STATUS OF THE SPECIES

#### 3.1 *Bufo californicus* (Arroyo toad)

##### 3.1.1 Listing Status

The Service listed the arroyo toad as endangered on December 16, 1994 (*Federal Register* 59: 3264) and a recovery plan was published in July 1999 (Service 1999a).

##### 3.1.2 Critical Habitat

Critical habitat was designated for the arroyo toad on February 7, 2001 (66 FR 9414). On October 30, 2002, the U.S. District Court for the District of Columbia vacated the final critical habitat designation and remanded the rule to the Service. The court ordered the Service to prepare a new final designation and economic analysis on or before July 30, 2004. The Service re-proposed critical habitat for the arroyo toad on April 28, 2004, with corrections on May 17, 2004 (69 FR 23254 and 69 FR 27886, respectively). Final critical habitat was again designated on April 13, 2005 (70 FR 19562-19633). However, all proposed critical habitat in San Diego County was excluded from critical habitat designation under section 4(b)(2) of the Act for economic reasons.

##### 3.1.3 Species Description

The arroyo toad is a small, dark-spotted arroyo toad of the family *Bufo* *idae*. The parotoid glands, located on the top of the head, are oval-shaped and widely separated. A light/pale area or stripe is usually present on these glands and on top of the eyes. The arroyo toad's underside is buff-colored and usually without spots (Stebbins 1985). Recently metamorphosed individuals will easily blend with the substrate and are usually found adjacent to water. At the time of listing, the arroyo toad was described as the arroyo southwestern toad (*Bufo microscaphus californicus*). Gergus *et al.* (1997) recently published genetic justification for the reclassification of the arroyo toad as a full species [i.e., arroyo toad (*Bufo californicus*)].

##### 3.1.4 Distribution

The current distribution of the arroyo toad in the United States is from the Salinas River Basin in Monterey County, south to the Tijuana River and Cottonwood Creek Basin along the Mexican Border. Arroyo toads are also known from a seemingly disjunct population in the Arroyo San Simeon River System, about 10 miles (mi) southeast of San Quintín, Baja California (Gergus *et al.* 1997). Although the arroyo toad occurs principally along coastal drainages, it also has been recorded at several locations on the desert slopes of the Transverse range (Patten and Myers 1992, Jennings and Hayes 1994). The current elevational range for most arroyo toad populations in San Diego County is about 1,000 to 4,600 ft, although they were historically known to extend into the lower portions of most river basins (Service 1999a).

##### 3.1.5 Habitat Affinities

Arroyo toads require shallow, slow-moving streams, and riparian habitats that have natural flooding regimes which maintain areas of open, sparsely vegetated, sandy stream channels and terraces (Service 2001). Stream order, elevation, and floodplain width are important factors in determining the size and long-term viability of a population of arroyo toads (Sweet 1992, Barto 1999, Griffin 1999). Streams with the greatest potential to support self-sustaining populations are typically of a high stream order (i.e., 3<sup>rd</sup> to 6<sup>th</sup> order), at low elevations (below 3,000 ft), with wide floodplains (Sweet 1992, Barto 1999, Griffin 1999). Optimal breeding habitat consists of low gradient stream reaches that have shallow pools with fine textured substrates (i.e., sand or gravel). Upland habitats used by arroyo toads during both the breeding and nonbreeding seasons include alluvial scrub, coastal sage scrub, chaparral, grassland, and oak woodland (Holland 1995, Griffin *et al.* 1999, Service 2001). Arroyo toads have also been found in agricultural fields (Griffin *et al.* 1999).

### 3.1.6 Life History

Arroyo toad larvae feed on loose organic material such as interstitial algae, bacteria, and diatoms. They do not forage on macroscopic vegetation (Sweet 1992, Jennings and Hayes 1994). Juvenile arroyo toads rely on ants almost exclusively (Service 1999a). By the time they reach 17 to 23 mm in length, they take more beetles, along with the ants (Sweet 1992, Service 1999a). Adult arroyo toads probably consume a wide variety of insects and arthropods including ants, beetles, spiders, larvae, caterpillars, and others.

Breeding typically occurs from February to July on streams with persistent water (Griffin *et al.* 1999). However, at higher elevations and in waters fed by high elevation tributaries, the breeding season may start later in the spring and continue through the summer months. Female arroyo toads must feed for a minimum of approximately two months to develop the fat reserves needed to produce a clutch of eggs (Sweet 1992). Eggs are deposited and larvae develop in shallow pools with minimal current and little or no emergent vegetation. The substrate in these pools is generally sand or fine gravel overlain with silt. Arroyo toad eggs hatch in 4 to 5 days and the larvae are essentially immobile for an additional 5 to 6 days (Sweet 1992). They then begin to disperse from the pool margin into the surrounding shallow water, where they spend an average of 10 weeks (Sweet 1992). After metamorphosis (June-early September), the juvenile arroyo toads remain on the bordering gravel bars until the pool no longer persists (usually from eight to twelve weeks depending on site and yearly conditions) (Sweet 1992). Most individuals become sexually mature by the following spring (Sweet 1992).

This species has been observed moving approximately 1 mi within a stream reach and 1.2 mi away from the stream, into native upland habitats (Holland 1995, Sweet 1992) or agricultural areas (Griffin *et al.* 1999). Movement distances may be regulated by topography and channel morphology. Griffin (1999) reported a female arroyo toad traveling more than 300 m (948 ft) perpendicular from a stream and Holland (1998) found arroyo toads 0.7 mi from a water course. Arroyo toads are critically dependent on upland terraces and the marginal zones between stream channels and upland terraces during the non-breeding season, especially during periods of inactivity, generally late fall and winter (Sweet 1992).

### 3.1.7 Population Trend

Arroyo toad population numbers and densities are not currently known because insufficient data is available on the species' normal population dynamics and on habitat characteristics that correlate with density. This species was historically found in at least 22 river basins in southern California from the upper Salinas River system in Monterey County to San Diego County and southward to the vicinity of San Quintín, Baja California, Mexico. They have been extirpated from an estimated 75 percent of their former range in the United States and they now occur primarily in small, isolated areas in the middle to upper reaches of streams.

### 3.1.8 Threats

Because arroyo toad habitats (i.e., broad, flat floodplains in southern California) are favored sites for flood control projects, agriculture, urbanization, and recreational facilities such as campgrounds and off-highway vehicle parks, many arroyo toad populations were reduced in size or extirpated due to extensive habitat loss from 1920 to 1980 (Service 1999a). The loss of habitat, coupled with habitat modifications due to the manipulation of water levels in many central and southern California streams and rivers, as well as predation from introduced aquatic species, caused arroyo toads to disappear from a large portion of their previously occupied habitat in California (Jennings and Hayes 1994). Sweet (1992, 1993) and Holland and Goodman (1998) reported that toads are sensitive to disturbance by artificial lights, particularly single males early in the breeding season. Holland and Goodman (1998) suggest that this may be because increase ambient lighting may affect the vulnerability of toads to predation. Currently, the major threats to arroyo toad populations are from stream alteration, exotic species, urban and rural development, mining, recreation, grazing, drought, wildfire, and large flood events.

The arroyo toad and its primary habitat (San Luis Rey River) is threatened by transportation projects like the widening of SR-76 and the cumulative increases to already present road effects; agricultural practices resulting in loss and degradation of habitat; habitat fragmentation caused by roads and development; exotic plant species (primarily *Arundo donax*, *Tamarix sp.*, *Brassica nigra*, and unspecified grass species) and animal species (Argentine ants (*Linepithema humile*), bullfrogs, exotic fish species, crayfish, and opossums) and their resulting changes to native habitats and depredation, sand and gravel mining effects on the hydrological regimes of the San Luis Rey River; recreational activities (equestrian, golfing, recreational centers, trails); residential development and the direct result of loss to habitat along with the ever increasing indirect effects from the ambiguous operation of a home; commercial/industrial development; wastewater treatment point source discharge of water into the San Luis Rey and the newly recognized adverse effects of chemicals (i.e. growth hormones) currently not treated for; water supply projects (water extraction for bottling, Lake Henshaw dam, Escondido Diversion Canal); urban runoff<sup>1</sup>; flood control projects which have channelized the lower reach of the San Luis

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<sup>1</sup> The lower 13 miles of the San Luis Rey River are on the USEPA's list of impaired waterbodies (a.k.a. 303(d) list) for chloride and total dissolved solids. Water quality monitoring in 2003 found water quality exceedances (i.e., outside of predefined acceptable ranges) in the following categories: pH, turbidity, ammonia, oil and grease, dissolved copper, diazinon, chlorpyrifos, total coliform, fecal coliform, and enterococcus (San Luis Rey Watershed

Rey River and the vegetation being removed to maintain functionality; human influenced shifts in fire return intervals; and illegal fills and activities resulting in an unquantifiable and unquantifiable adverse impact.

Wildfire impacts on the species from fire related effects in 2003 and 2007 have not been quantified for this species. As most arroyo toads were aestivating when the fires occurred, the fast moving fire fronts would not have contributed much heat to the soil sub-surface. Field investigations during the 2007 fires by the Department of Interior, Burned Area Emergency Response (BAER) team supported this as vegetation in arroyo toad habitat was largely unburned or suffered low vegetation mortality (BAER 2007). Post-fire precipitation during the winter of 2007 and spring of 2008 did not result in any documented significant debris flows which could result in temporal adverse effects to breeding arroyo toads. The significant post-fire growth of exotic and nuisance plants species in arroyo toad habitat may have long-term adverse effects on arroyo toad and its habitat.

### 3.1.9 Rangewide Conservation Needs

Based on the threat analysis above, stabilizing and maintaining populations throughout the range of the arroyo toad is necessary for the recovery of the species.

1. Riparian and upland habitats used for breeding, foraging, and wintering should be restored and protected from recreational activities, livestock grazing, mining, and other agricultural and urban development.
2. Introduced plant and animal populations should be removed and eliminated from arroyo toad habitat.
3. Activities that negatively alter water flow and quality should be monitored and kept to a minimum.

In 1999, a recovery plan for the arroyo toad was prepared by the Service (Service 1999a). The plan describes a strategy for recovery, downlisting, and delisting and identifies five action needs. These needs include maintaining populations throughout the range of the arroyo toad in California, monitoring the status of the existing populations, identifying and securing additional suitable habitat, conducting research for management efforts, and developing and implementing an outreach program. The San Luis Rey River is part of the Southern Recovery Unit and must maintain at least 20 self-sustaining metapopulations or subpopulations as part of the recovery criteria.

## **3.2 *Poliophtila californica californica* (Coastal California gnatcatcher)**

### 3.2.1 Listing Status

The Service listed the gnatcatcher as threatened on March 30, 1993 (58 FR 16742). In conjunction with the listing decision, 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 65088-65096). This special rule recognized the State's Natural Community Conservation Planning (NCCP) program, and several local governments' ongoing multi-species conservation planning efforts (e.g., the Multiple Species Conservation Program [MSCP]) that intend to apply Act standards to activities affecting the gnatcatcher. An interim process was established whereby jurisdictions actively involved in NCCP planning would be allowed to develop up to five percent of the remaining coastal sage habitat for projects that were consistent with the NCCP conservation guidelines (California Department of Fish and Game and California Resources Agency 1993).

### 3.2.2 Critical Habitat

The Service designated critical habitat for the gnatcatcher on December 19, 2007, which became effective on January 18, 2008 (72 *Federal Register* 72010). Designated critical habitat for the gnatcatcher includes 197,303 acres of Federal, state, local, and private land in Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties, and has been divided into 13 Critical Habitat Units (Service 2007). Approximately 76,370 acres (or 38.7 percent) of the total 197,303 acres of gnatcatcher critical habitat, and 5 of the 13 Critical Habitat Units occur within San Diego County (Service 2007).

PCEs (as outlined in the final rule) for gnatcatcher are those habitat components that are essential for the primary biological needs of providing space for individual and population growth, normal behavior, breeding, reproduction, nesting, dispersal and foraging. PCEs are provided in (1) dynamic and successional sage scrub habitats (i.e., Venturan, Diegan, and Riversidean coastal sage scrub, Riversidean alluvial fan scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties); and, (2) non-sage scrub habitats such as chaparral, grassland, riparian areas, in proximity to sage scrub habitats as described for PCE 1 above that provide space for dispersal, foraging, and nesting (72 *Federal Register* 72035).

A total of 13 critical habitat units are identified in both the final rule, although Unit 4 was exempted from the revised final designation under section 4(a)(3)(B) of the Act, and all lands in Unit 11 were removed. Several qualitative criteria were used in the selection of specific areas or units, including focusing on areas (1) throughout the geographical and elevational range of the species; (2) within various occupied plant communities, such as Venturan coastal sage scrub, Diegan coastal sage scrub, Riversidean sage scrub, maritime succulent scrub, Riversidean alluvial fan scrub, southern coastal bluff scrub, and coastal sage-chaparral scrub; and, (3) in documented areas of large, contiguous blocks of occupied habitat, or in areas that link essential populations areas (i.e., linkage areas) (72 *Federal Register* 72036).

### 3.2.3 Species Description

The coastal California gnatcatcher is a small (length: 4.3 in; weight: six grams), long-tailed member of the old-world warbler and gnatcatcher family *Sylviidae* (American Ornithologists' Union 1998). The bird's plumage is dark blue-gray above and grayish-white below. The tail is mostly black above and below. The male has a distinctive black cap which is absent during the winter. Both sexes have a distinctive white eye-ring.

The coastal California gnatcatcher is one of three subspecies of the California gnatcatcher (*Polioptila californica*) (Atwood 1991). Prior to 1989, the California gnatcatcher was classified as a subspecies of the Black-tailed gnatcatcher (*Polioptila melanura*). Atwood (1980, 1988) concluded that the species was distinct from *P. melanura*, based on differences in ecology and behavior.

#### 3.2.4 Distribution

The coastal California gnatcatcher occurs on coastal slopes in southern California, from southern Ventura southward through Palos Verdes Peninsula in Los Angeles County through Orange, Riverside, San Bernardino and San Diego Counties into Baja California to El Rosario, Mexico, at about 30 degrees north latitude (Atwood 1991). In 1990, Atwood reported that 99 percent of all gnatcatcher locality records occurred at or below an elevation of 984 ft. In 1992, Atwood and Bolsinger reported that, of 324 sites of recent occurrence, 272 (84 percent) were located below 820 feet in elevation, 315 (97 percent) were below 1,640 feet, and 324 (100 percent) were below 2,460 feet. Since that time, additional data collected at higher elevations shows that this species may occur as high as 3,000 feet and that more than 99 percent of the known gnatcatcher locations occurred below 2,500 feet (Service 2000).

#### 3.2.5 Habitat Affinity

Gnatcatchers typically occur in or near coastal sage scrub habitat. Coastal sage scrub is patchily distributed throughout the range of the gnatcatcher, and the gnatcatcher is not uniformly distributed within the structurally and floristically variable coastal sage scrub vegetation community. Rather, the subspecies tends to occur most frequently within California sagebrush (*Artemisia californica*)-dominated stands on mesas, gently sloping areas, and along the lower slopes of the coast ranges (Atwood 1990). An analysis of the percent gap in shrub canopy supports the hypothesis that gnatcatchers prefer relatively open stands of coastal sage scrub (Weaver 1998). The gnatcatcher occurs in high frequency and density in scrub with an open or broken canopy while it is absent from scrub dominated by tall shrubs and occurs in low frequency and density in low scrub with a closed canopy (Weaver 1998). Territory size increases as vegetation density decreases and with distance from the coast, probably due to food resource availability.

Gnatcatchers also use chaparral, grassland, and riparian habitats where they occur adjacent to sage scrub (Campbell *et al.* 1998). The use of these habitats appears to be most frequent during late summer, autumn, and winter, with smaller numbers of birds using such areas during the breeding season. These non-sage scrub habitats are used for dispersal, but data on dispersal use are largely anecdotal (Campbell *et al.* 1998). Probable dispersing gnatcatchers have been

documented in vegetation dominated by such species as *Brassica* spp. (wild mustard), annual grasses, *Salsola tragus* (Russian thistle), *Baccharis salicifolia* (mule fat), *Salix* spp. (willow), and *Tamarix* spp. (salt cedar) (Campbell *et al.* 1998). Linkages of habitat along linear features such as highways and power-line corridors may be of significant value in linking populations of the gnatcatcher (Famolaro and Newman 1998). Although existing quantitative data may reveal relatively little about gnatcatcher use of these other habitats, these areas may be critical during certain times of year for dispersal or as foraging areas during drought conditions (Campbell *et al.* 1998). Breeding territories have also been documented in non-sage scrub habitat (Campbell *et al.* 1998). Campbell *et al.* (1998) discuss scenarios explaining why habitats other than coastal sage scrub are used by gnatcatchers, including food source availability, dispersal areas for juveniles, temperature extremes, fire avoidance, and lowered predation rate for fledglings.

### 3.2.6 Life History

The California gnatcatcher is primarily insectivorous, non-migratory, and exhibits strong site tenacity (Atwood 1990). Diet deduced from fecal samples resulted in leaf- and plant-hoppers and spiders predominating in the samples. True bugs, wasps, bees, and ants were only minor components of the diet (Burger *et al.* 1999). Gnatcatcher adults selected prey to feed their young that was larger than expected given the distribution of arthropods available in their environment. Both adults and young consumed more sessile than active prey items (Burger *et al.* 1999).

The California gnatcatcher becomes highly territorial by late February or early March each year, as males become more vocal during this time (Preston *et al.* 1998a). In southwestern San Diego County, the mean breeding season territory size ranged from 12 to 27 acres per pair and non-breeding season territory size ranged from 12 to 42 acres per pair (Preston *et al.* 1998b). During the non-breeding season, gnatcatchers have been observed to wander in adjacent territories and unoccupied habitat increasing their home range size to approximately 78 percent larger than their breeding territory (Preston *et al.* 1998b). The smallest documented home ranges occur near the coast and increase in more inland areas (Preston *et al.* 1998b).

The breeding season of the gnatcatcher extends from mid-February through the end of August, with the peak of nesting activity occurring from mid-March through mid-May (Grishaver *et al.* 1998). The gnatcatcher's nest is a small, cup-shaped basket usually found one to three feet above the ground in a small shrub or cactus. Clutch sizes range between three and five eggs, with the average being four. Juvenile birds associate with their parents for several weeks (sometimes months) after fledging (Atwood 1990). Nest building begins in mid-March with the earliest recorded egg date of March 20 (Grishaver *et al.* 1998). Post-breeding dispersal of fledglings occurs between late May and late November. Nest predation is the most common cause of nest failure (Braden *et al.* 1997, Sockman 1997, Grishaver *et al.* 1998). Gnatcatchers are persistent nest builders and often attempt multiple broods, which is suggestive of a high reproductive potential. However, typically this is offset by high rates of nest predation and brood parasitism (Atwood 1990, Braden *et al.* 1997). Nest site attendance by male gnatcatchers was determined to be equal to that of females for the first nest attempt and then declines to almost a third of female nest attendance for later nesting attempts due to the male tending to fledglings (Grishaver *et al.* 1998, Sockman 1998).

Gnatcatchers typically live for two to three years, although ages of up to five years have been recorded for some banded birds (Dudek and Associates 2000). Observations indicate that gnatcatchers are highly vulnerable to extreme cold, wet weather (Mock 1998). Nest predation tends to occur in greater proportion in the upper and lower third of the nest shrub. Predation is lower in nests with full clutch sizes (Sockman 1997). The species of nest shrub also influences predation risk (Grishaver *et al.* 1998). Potential nest predators are numerous, and include snakes, raccoons, and corvids (Grishaver *et al.* 1998). The California gnatcatcher also is known to be affected by nest parasitism of the brown-headed cowbird (*Molothrus ater*) (Braden *et al.* 1997). Nest parasitism has apparently resulted in earlier nesting dates of the gnatcatcher, which may partially compensate for the negative effect of parasitism (Patten and Campbell 1998). However, the gains in nest success from decreased nest parasitism appear to be negated by increased nest abandonment due to predation before cowbirds have migrated into an area (Braden *et al.* 1997).

The natal dispersal, for a non-migratory bird, such as the gnatcatcher, is an important aspect of the biology of the species (Mock 1993, Galvin 1998). The mean dispersal distance of gnatcatchers banded in San Diego County is reported at less than 1.9 miles; however, birds were also documented moving up to six miles from their natal territory (Bailey and Mock 1998). The longest documented dispersal distance by a juvenile is 10.1 miles (Braden 1992). Dispersal across highly man-modified landscapes, including major highways and residential development, is known to occur (Bailey and Mock 1998, Galvin 1998, Lovio 1996, Campbell and Haas 2003, Atwood *et al.* 1998). Extensive movement by breeding adults is relatively rare (Bailey and Mock 1998). Types of habitat used during dispersal are highly variable (Campbell *et al.* 1998). Although the mean dispersal distances that have been documented above are relatively low, dispersal of juveniles is difficult to observe and to document without extensive banding studies. Therefore, it is likely that the few current studies underestimate the gnatcatcher's typical dispersal capacity (Bailey and Mock 1998). Juvenile gnatcatchers are apparently able to traverse highly man-modified landscapes for at least short distances (Bailey and Mock 1998). Natural and restored coastal sage scrub habitat along highway corridors is used for foraging and nesting by gnatcatchers and may serve important dispersal functions (Famolaro and Newman 1998). Typically, however, the dispersal of juveniles requires a corridor of native vegetation, which provides foraging, and cover opportunities to link larger patches of appropriate sage scrub vegetation (Soulé 1991). These dispersal corridors facilitate the exchange of genetic material and provide a path for recolonization of areas from which the species has been extirpated (Soulé 1991, Galvin 1998).

### 3.2.7 Population Trend

The gnatcatcher was considered locally common in the mid-1940s, but by the 1960s, this subspecies had declined substantially in the United States owing to widespread destruction of its habitat (Atwood 1990). By 1980, Atwood (1980) estimated that no more than 1,000 to 1,500 pairs remained in the United States. In 1993, at the time the gnatcatcher was listed as threatened, the Service estimated that approximately 2,562 pairs of gnatcatchers occurred in the United States. Of these, 30 pairs occurred in Los Angeles County, 757 pairs occurred in Orange County, 261 pairs occurred in Riverside County, and 1,514 pairs occurred in San Diego County (Service 1993a). In October 1996, the total number of gnatcatchers in the United States was estimated at 2,899 pairs with two-thirds occurring in San Diego County (Service 1996), after subtracting out all gnatcatcher pairs authorized for take under Habitat Loss Permits, approved Natural Community Conservation Plans, Habitat Conservation Plans, and section 7 consultations. These population estimates were intended to represent a coarse approximation of the number of gnatcatchers in southern California. Confidence intervals have not been calculated for these estimates and, therefore, we cannot be sure of their precision.

Population estimates for gnatcatcher populations in the southern portion of the species' range (i.e., Mexico) are unknown. However, past surveys within northern Baja California, Mexico, have not identified gnatcatchers within approximately 15.5 miles south of the border, despite the presence of suitable habitat (Service 2003b). The closest individual gnatcatchers have been documented at inland localities 15.5 miles to 52.8 miles south of the border (Mellink and Rea 1994). Furthermore, Mellink and Rea (1994) found consistent morphological discontinuity between the Southern California and Mexico populations of gnatcatchers, suggesting that although the species range extends into Mexico there is limited gene flow between these populations and the populations remaining in the United States (Service 2003b). In addition, the populations of gnatcatchers in Mexico are treated very differently than those located within the United States. In Mexico, the gnatcatcher is not regulated or managed by the Mexican Government (Diario Oficial 2000). Therefore, take of individuals or loss and degradation of habitat are not controlled in this portion of the species' range.

The loss, fragmentation, and adverse modification of habitat are the principal reasons for the gnatcatcher's federally threatened status (Service 1993a). The amount of coastal sage scrub available to gnatcatchers has continued to decrease during the period after the listing of the species. It is estimated that up to 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), and coastal sage scrub is considered one of the most depleted habitat-types in the United States (Kirkpatrick and Hutchinson 1977, O'Leary 1990). The elimination of nearby habitat may artificially increase populations in adjacent preserved habitat; however, these population surpluses may be lost in subsequent years due to crowding and lack of resources (Scott 1993). In addition, agricultural use, such as grazing and field crops, urbanization, air pollution, and the introduction of non-native plants have all had an adverse impact on extant sage scrub habitat. A consequence of urbanization that is contributing to the loss, degradation, and fragmentation of coastal sage scrub is an increase in wildfires due to anthropogenic ignitions. High fire frequencies and the lag period associated with recovery of the vegetation may significantly

reduce the viability of affected subpopulations (Dudek and Associates 2000). Furthermore, nest-parasitism by the brown-headed cowbird and nest predation threatens the recovery of the gnatcatcher (Atwood 1980, Unitt 1984).

Early studies suggested that the California gnatcatcher is highly sensitive to the effects of habitat fragmentation and development activity (Atwood 1990; ERCE 1990; Ogden unpublished data). The loss of coastal sage scrub vegetation has been associated with an increasing degree of habitat fragmentation, which reduces habitat quality and promotes increased levels of nest predation and brood parasitism, and ultimately, increased rates of local extinction (Wilcove 1985, Rolstad 1991, Saunders *et al.* 1991, Soulé *et al.* 1988). Although the published literature on this subject is based on studies in forested landscapes, the ecological implications of these studies are applicable to other landscape types such as coastal sage scrub.

An important corollary of habitat fragmentation is reduction of opportunity for successful natal dispersal. Dispersal of gnatcatchers is critical to demographic and genetic soundness of the population, and to population persistence of gnatcatchers in the fragmented habitat characteristic of coastal southern California. Landscape connectivity enhances population viability for many species, and, until recently, most species lived in well-connected landscapes (Beier and Noss 1998). Well-designed studies offer strong evidence that corridors provide sufficient connectivity to improve the viability of populations in habitats connected by corridors (Beier and Noss 1998). For relatively sedentary bird species such as gnatcatchers, connectivity of habitat patches is probably the most important landscape feature for maintaining species diversity of native biota (Soulé *et al.* 1988). Corridors counteract the effects of fragmentation, and should eliminate or minimize the attrition of species over time by facilitating dispersal and recolonization (Willis 1974, Diamond 1975, Brown and Kodric-Brown 1977, Frankel and Soulé 1981, Soulé and Simberloff 1986, Noss and Harris 1986, Forman and Godron 1986, Diamond *et al.* 1987, Noss 1987). Linkages that support resident populations of animals are more likely to function effectively as long-distance dispersal conduits for those species (Bennett 1990).

In addition to development and land conversion, the recent occurrence of large-scale wildfires throughout southern California likely temporally reduced the amount of gnatcatcher habitat available throughout the species' range. For example, in October 2003, severe wildfires throughout southern California resulted in the temporal loss of approximately 24,786 acres (21 percent) of gnatcatcher designated critical habitat in San Diego County, and approximately 39,418 acres (10 percent) of gnatcatcher designated critical habitat in the northern extent of the species' range, which includes Orange, Riverside, Los Angeles, San Bernardino and Ventura Counties; this loss represents an overall temporal perturbation of 64, 204 acres (12 percent) of designated critical habitat across the species' range. These fires likely impacted several known source populations of gnatcatchers in San Diego County.

Atwood *et al.* (1998) and Bontrager *et al.* (1995) found that extensive wildfires (e.g., the 2003 fires throughout San Diego County) result in adverse impacts to gnatcatcher populations within unburned areas, as well as within the burn area, due to increased mortality resulting from excessive competitive interactions between resident birds within unburned areas and birds displaced by the fires. Studies conducted after the 1993 Laguna Fire in Orange County (Wirtz *et*

*al.* 1995, Bontrager *et al.* 1995, Beyers and Wirtz 1995, Atwood *et al.* 1998) suggest that post-fire gnatcatcher population recovery is likely dependant on the amount of suitable vegetation remaining within the burned area, as well as the presence of gnatcatcher source populations in close proximity to areas affected by the fire. Furthermore, Beyers and Wirtz (1995) found that following a fire, regrowing coastal sage scrub would not be recolonized by gnatcatchers until total shrub cover approaches 50 percent, which is expected to take a minimum of four to five years. Due to the scope and intensity of the recent Southern California fires, the areas affected are expected to take several years to recover fully; therefore, any remaining gnatcatcher source populations, and remaining gnatcatcher habitat, are important to the survival and recovery of the species.

To date, a recovery plan has not been developed for the gnatcatcher. However, pursuant to the Coastal Sage Scrub Natural Communities Conservation Program (CSSNCCP), developed in 1993, San Diego County was divided into four subareas for conservation/preserve planning for the long-term conservation and protection of the coastal sage scrub vegetation community of Southern California, and the species, including the gnatcatcher, that it supports (California Department of Fish and Game and California Resource Agency 1993). The four subareas within San Diego County include the MSCP (finalized), the MHCP (finalized), the North County MSCP Plan (currently in preparation; NCMSCP), and the East County MSCP (initiated; EC MSCP). However, of these four subareas, only three (MSCP, MHCP, and NCMSCP) support viable populations of the gnatcatcher. A recovery plan for the gnatcatcher would describe the current threats to the species, the current population trend, the scope of the recovery effort, the recovery criteria, necessary recovery actions, and define recovery units. Without a recovery plan, the three subareas that support viable populations of the gnatcatcher, within San Diego County (MSCP, MHCP, and NCMSCP), as well as Camp Pendleton and Marine Corps Air Station Miramar (which are not a part of the CSS NCCP), serve as "recovery units" for the species within San Diego County. Multiple species plans developed, pursuant to the CSS NCCP, within Riverside, Orange, Los Angeles, and San Bernardino counties would similarly serve as "recovery units" for the gnatcatcher in the northern/eastern portion of its range.

### 3.2.8 Threats

The primary threats to the long-term survival and recovery of the gnatcatcher are habitat loss, fragmentation, and adverse modification of habitat due to increased urbanization throughout the range of the species. In association with urbanization, the introduction of non-native plants, non-native predators (i.e., domestic animals and brown-headed cowbirds), and changes in natural fire regimes (i.e., fire suppression or increased fire frequency due to anthropogenic ignitions) have all had an adverse impact on extant sage scrub habitat. Therefore, the survival and recovery of the gnatcatcher is dependent on: (1) the protection of large, intact blocks of suitable breeding and resident habitat; (2) known source populations of gnatcatchers; and, (3) suitable linkage habitat capable of providing for genetic exchange between known source populations and dispersal between source populations and smaller populations throughout the species' range. In addition, recovery units (multiple species preserves) have been defined as geographic, or otherwise identifiable, subunits of the species that individually are necessary to conserve the genetic diversity, population stability, demographic robustness, important life history stages, or

some other feature necessary for the long-term survival of the species in the wild (Service and National Marine Fisheries Service 2002). Therefore, stabilizing and expanding the populations of gnatcatchers within the previously described gnatcatcher "recovery units", through the development of an effective preserve design, would provide for the species' conservation needs, and preserve the coastal sage scrub vegetation community on which this species depends. Because 60 percent of the remaining gnatcatchers within the United States occur within San Diego County, the protection of gnatcatcher habitat and the maintenance of gnatcatcher population viability within San Diego County are particularly important for the survival and recovery of the species as a whole.

In October 2007, large wildfires returned to San Diego County burning approximately 370,000 acres. A complete analysis of impacts to this species has not been completed. Considering only Department of the Interior-owned lands in San Diego County, approximately 23,800 acres of designated gnatcatcher critical habitat, 19,700 acres of "very high" rated-modeled habitat, and 18,000 acres of "high" rated-modeled habitat burned. The actual total acreage of gnatcatcher habitat (critical, suitable, modeled) burned during the 2007 fires is likely much higher as non-Department of the Interior lands containing gnatcatcher habitat also burned.

### 3.2.9 Rangewide Conservation Needs

Based on the threats analysis above, the gnatcatcher has the following needs to survive and recover.

1. Functional habitat should be maintained in large, interconnected blocks sufficient to support viable, interconnected populations. In some cases, such areas may require enhancement or creation of new habitat.
2. Gnatcatcher habitat should be protected from changes in natural fire regimes as a result of fire suppression or increased fire frequency due to anthropogenic ignitions. Habitat should be managed to adequately mitigate those effects, should they occur.
3. The quality of gnatcatcher habitat should be maintained at high levels to include management of exotic plant and animal species (e.g., brown-headed cowbirds, feral cats, etc.).

## 3.3 ***Vireo bellii pusillus* (Least Bell's vireo)**

### 3.3.1 Listing Status

The least Bell's vireo was federally listed as endangered on May 2, 1986 (*Federal Register* 51: 16474), and State listed as endangered in California on October 2, 1980. A draft recovery plan was prepared for this species in March 1998 (Service 1998). On October 2, 2006, the Service announced completion of a 5-year review for the least Bell's vireo and recommended that the species be downlisted from endangered to threatened status (Service 2006).

### 3.3.2 Critical Habitat

In 1994, the Service designated areas encompassing approximately 38,000 acres in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties, California, as critical habitat for the least Bell's vireo (*Federal Register* 59: 4845). Only those areas with PCEs are critical habitat for the vireo. The PCEs that support feeding, nesting, roosting and sheltering are essential to the conservation of the vireo. These PCEs can be described as riparian woodland vegetation that generally contains both canopy and shrub layers, and includes some associated upland habitats. Vireos meet their survival and reproductive needs (food, cover, nest sites, nestling and fledgling protection) within the riparian zone in most areas. In some areas they also forage in adjacent upland habitats, which may include sage scrub and grassland communities (Service 1994).

### 3.3.3 Species Description

*Vireo bellii pusillus* is a small migratory songbird. It is olive-gray above and whitish on its underparts with two dull white wing stripes and dull white to olive narrow margins on the outer border of its wings and tail. Males and females are identical in plumage. *Vireo b. pusillus* is easily distinguished by its song, a rapid bubbling series of rough notes, increasing in tempo and intensity toward a rapid climax. Phrases of the song are alternatively slurred upward and downward. Eggs are on average 0.7 inch long, and dull white, often with fine brown, black, or reddish-brown dots concentrated on the larger end (Brown 1993).

*Vireo b. pusillus* is in the family Vireonidae, and is one of four subspecies of *Vireo bellii* (Bell's vireo) that have been recognized. Although all subspecies are similar in behavior and life history, they are isolated from one another in both their breeding and wintering grounds (Hamilton 1962).

### 3.3.4 Distribution

The least Bell's vireo was historically found in valley bottom riparian habitats from Tehama County, California, southward (but locally) to northwestern Baja California, Mexico. It ranged from near the Pacific coast to as far east (inland) as the Owens Valley, Death Valley, and along the Mojave River in California (Grinnell and Miller 1944). More than 99 percent of the remaining vireos occurred in southern California (Santa Barbara County and southward) at the time of listing in 1986, with San Diego County containing 77 percent of the population. While more than 99 percent still remain in southern California, the populations are now more evenly distributed with 54 percent of the total population occurring in San Diego County and 30 percent of the population occurring in Riverside County; however, there has been only a slight shift northward in the species' overall distribution. Least Bell's vireo breeding pairs currently occur in San Diego, Riverside, Orange, San Bernardino, Los Angeles, Ventura, Santa Barbara, Inyo, and Stanislaus counties, California (Service 2006). According to Grinnell and Miller (1944) 4,000 feet is the upper elevational limit to least Bell's vireo occurrence in coastal southern California.

### 3.3.5 Habitat Affinity

The least Bell's vireo primarily occupies riparian habitats that typically feature dense cover within three to seven feet of the ground and a dense, stratified canopy. It inhabits low, dense riparian growth along water or along dry parts of intermittent streams. The understory is typically dominated by sandbar willow (*Salix hindsiana*), mule fat (*Baccharis salicifolia*), individuals of other willow species such as arroyo willow (*Salix lasiolepis*) or black willow (*Salix gooddingii*), and one or more herbaceous species (Salata 1983a, 1983b, Zembal 1984, Zembal *et al.* 1985). Important overstory species include mature arroyo willows and black willows. Other overstory species that may contribute to vireo habitat include cottonwoods (*Populus* spp.), western sycamore (*Platanus racemosa*), and coast live oak (*Quercus agrifolia*). It primarily nests in small, remnant segments of vegetation typically dominated by willows and mule fat but may also use a variety of shrubs, trees, and vines. Nests are typically built within three feet of the ground in the fork of willows, wild rose (*Rosa californica*), mule fat, or other understory vegetation (Franzreb 1989). Cover surrounding nests is usually a moderately open midstory with an overstory of willow, cottonwood, sycamore, or oak. Crown cover is usually more than 50 percent and contains occasional small openings. The most critical structural component to least Bell's vireo breeding habitat is a dense shrub layer at two to 10 feet above the ground (Franzreb 1989). The birds forage in riparian and adjoining chaparral habitat (Salata 1983b).

### 3.3.6 Life History

The least Bell's vireo exhibits year-round diurnal activity and is known to be a nocturnal migrant (Brown 1993). This subspecies feeds primarily on insects and spiders, and rarely on fruit (Brown 1993). Insects consumed include true bugs, beetles, bees, wasps, ants, snails, grasshoppers, moths, and butterflies (Terres 1980). The vireo forages primarily within willow (*Salix* spp.) stands or associated riparian vegetation with forays into non-riparian vegetation including chaparral and oak woodlands later in the breeding season (Gray and Greaves 1984, Salata 1983b, Kus and Minor 1987). Individuals travel between 10 and 200 feet while foraging, with the majority of these destinations occurring within 98 feet of the edge of riparian vegetation (Kus and Minor 1987). Least Bell's vireo forage in all vertical vegetation layers from zero to 66 feet but most feeding is concentrated in the lower vegetation layers between zero to 20 feet (Kus and Minor 1987, Salata 1983b). Feeding behavior largely consists of collecting prey from leaves or in bark crevices while perched or hovering, and less frequently by capturing prey by aerial pursuit (Salata 1983a, 1983b).

Least Bell's vireo are mainly monogamous, however, some individuals of both sexes are sequentially polygamous within the breeding season (Greaves 1987). Male vireos contest and establish breeding territories (Barlow 1962) which range in size from 0.5 to 7.4 ac. (Gray and Greaves 1984, Collins *et al.* 1992) with most averaging between one and three ac. (Service 1998). Least Bell's vireo territories are maintained by threat and physical confrontation early in the breeding season, and vocal warnings later in the season (Barlow 1962).

The breeding season for least Bell's vireo extends from mid-March to mid- or late-September (Service 1986). A majority of the birds arrive from the Mexican wintering areas by the end of March, and depart by end of August (Zeiner *et al.* 1990). Most breeding vireos depart the breeding grounds by the third week of September, and only very few are found wintering in the United States (Garrett and Dunn 1981, Salata 1983b). Nests are typically suspended in forked branches of many different riparian species with no clear preference for any particular species (Nolan 1960, Barlow 1962, Gray and Greaves 1984). Bell's vireo nests are usually placed between 1.6 and 4.9 feet from the ground with a range between 0.7 and 26.2 feet (Brown 1993). Females probably select the nesting sites but both genders participate in nest construction (Barlow 1962). Nests appear to only be used once with new ones constructed after nest failure or for successive broods (Greaves 1987). Between two to five (typically three or 4) eggs are laid shortly after nest construction (Service 1998). A typical clutch is incubated by both parents for about 14 days with the young remaining in the nest for another 10 to 12 days (Pitelka and Koestner 1942, Nolan 1960, Barlow 1962). A female least Bell's vireo may produce two broods of young and occasionally up to four per season, although it is thought that most are capable of successfully raising only one brood (Franzreb 1989).

### 3.3.7 Population Trend

No other passerine (perching songbird) species in California is known to have declined as dramatically as the least Bell's vireo (Brown 1993). The narrow and limited nature of the habitat of the least Bell's vireo makes the subspecies more susceptible to major population reductions than the other subspecies of Bell's vireo. Intensive surveys of virtually all potential breeding habitat were conducted between 1977 and 1985 (Gaines 1977, Goldwasser 1978, Goldwasser *et al.* 1980), resulting in occurrences at only 46 of over 150 former localities. Once common, the vireo populations had decreased substantially by the late 1980's due to loss and degradation of habitat as well as from brown-headed cowbird (*Molothrus ater*) parasitism (Goldwasser *et al.* 1980).

By the time the vireo was federally listed as endangered in 1986, the rangewide population in the United States was estimated to be 300 pairs, all of which occurred in California, and a majority of which occurred in San Diego County. The United States population occurs in San Diego, San Bernardino, Ventura, Santa Barbara, Santa Ynez, Inyo, Kern, Monterey, Orange, Riverside, and Los Angeles counties (Service 1986). The vireo population in the United States has increased 10-fold since its listing in 1986, from 291 to 2,968 known territories between 2001 and 2005. Population growth has been greatest in San Diego County (621 percent increase) and Riverside County (2,997 percent increase), with lesser but significant increases in Orange, Ventura, San Bernardino, and Los Angeles counties. Since its listing in 1986, the vireo population in Santa Barbara County has declined by 54 percent and by 79 percent since its post-listing peak in 1986. Kern, Monterey, San Benito, and Stanislaus counties have had a few isolated individuals and/or breeding pairs since the original listing, but these counties have not supported any sustained populations. The number of individuals in Inyo County has increased to 11 territorial locations; however, these birds occur over widely dispersed locations, and there is some uncertainty as to whether these individuals are *Vireo bellii pusillus* or *V. b. arizonae* (Arizona Bell's vireo) (Service 2006).

Within San Diego County, most of the vireo occur within the following areas in order of number: Marine Corps Base Camp Pendleton (Camp Pendleton)/Santa Margarita River (827 territories), San Luis Rey River (233 territories), Tijuana River (150 territories), Sweetwater River (103 territories), and San Diego River (66 territories). Thus, within the 11 Population Units designated in the draft recovery plan, the following areas have the greatest number of vireos in order of number: Camp Pendleton/Santa Margarita River (827 territories), Santa Ana River (813 territories), and the San Luis Rey River (233 territories) (Service 2006).

Vireos on the Santa Margarita River at Camp Pendleton increased from 15 males in 1980 to over 1000 in 1998. Similar increases occurred at the Prado Basin on the Santa Ana River where the vireo population grew from 12 males in 1985 to 345 pairs in 1998 (Service 1998). In 2004, 413 pairs of vireos, 177 unpaired males, and a minimum of 767 fledged young were detected in the Prado Basin (Pike *et al.* 2004). The Tijuana River population grew from 13 males in 1990 to 139 males in 1998 (Wells and Turnbull 1998) and to 150 territories during the 2004-2005 breeding season (Service 2006).

The first breeding pair of vireos detected in the San Joaquin Valley since the listing of the vireo successfully bred at the San Joaquin NWR in Stanislaus County in 2005 and 2006 (Service 2006). However, preliminary reports from vireo surveys conducted in 2006 indicate that the vireo population at two key locations, Camp Pendleton and the Prado Basin on the Santa Ana River, may have declined by up to 15 percent. Possible causes for these reported declines are uncertain (Service 2006). Although single year declines should be viewed with caution when evaluating population trends, they indicate population volatility associated with a higher risk of extinction (Fagan *et al.* 1999). In summary, the United States population from Ventura County southward has increased significantly, while the population from Santa Barbara County northward has declined (Service 2006).

### 3.3.8 Threats

Causes for decline of the least Bell's vireo include destruction of habitat, river channelization, water diversions, lowered water tables, gravel mining, agricultural development, and cowbird parasitism. Management programs aimed at reducing numbers of cowbirds have been considered very successful at maintaining some local populations (Small 1994). Infectious disease is also a real threat due to the potential for entire bird populations to be killed by diseases such as the West Nile Virus. Although control of giant reed (*Arundo* spp.) has made great progress since the original listing of the vireo, invasions by other exotic species (e.g., *Tamarix* spp. and perennial pepperweed [*Lepidium latifolium*]) continue to degrade existing riparian habitat and impede recovery efforts (Kus and Beck 1998, Hoffman and Zembal 2006). Vireos are known to be sensitive to many forms of disturbance including noise, night lighting, and consistent human presence in an area. Excessive noise can cause vireos to abandon an area. Greaves (1989) hypothesized that the lack of breeding vireos in apparently suitable habitat was due to human disturbances (e.g., bulldozers, off-road vehicles, and hiking trails). He further suggested that buffer zones between natural areas and surrounding degraded and disturbed areas could be used to increase the suitability of some vireo habitat. It appears that vireos nesting in

areas containing a high proportion of degraded habitat have lower productivity (e.g., hatching success) than those in areas of high quality riparian woodland (Pike and Hays 1992).

Widespread habitat losses have fragmented most remaining populations into small, disjunct, widely dispersed subpopulations (Franzreb 1989). More than 90 percent of the original extent of riparian woodland in California had been eliminated at the time of listing, and most of the remaining 5 percent is in a degraded condition (Smith 1977, Dahl 1990, Service 1998).

Oberbauer (1990) reported a 61 percent loss of riparian habitat for San Diego County. Habitat fragmentation negatively affects abundance and distribution of neotropical migratory songbirds, in part by increasing incidence of nest predation and parasitism (Small and Hunter 1988, Yahner and DeLong 1992). An objective, systematic estimate of the amount of available riparian habitat in California does not currently exist, although estimates for smaller regions indicate stable to increasing riparian habitat (Faber 2003). Though some unauthorized and unquantified loss of riparian habitat continues to occur (Hays 2006), and no systematic estimate of the State's available riparian habitat exists, riparian habitat in San Diego County appears to have stabilized since the listing of the vireo and has improved locally where afforded protection by the Act and other federal and State legislation (i.e., Clean Water Act, California Fish and Game Code Sections 1600-1616). It appears that riparian habitat connectivity may also be improving along the mainstems of some major rivers in southern California (e.g., on the Santa Margarita and Santa Ana Rivers, and to a lesser extent the San Luis Rey River) due to giant reed removal, restoration, and the reduction of high impact activities (e.g., sand mining operations) (Service 1998), but fragmentation may still be occurring on lower order tributary streams due to increasing urban development and associated flood control (Kus 2006).

Within the limited range of the vireo, all areas occupied by vireos are threatened by unauthorized clearing activities, placement of fill materials, and exotic species. In addition, all but the Sweetwater River, which is already channelized, are threatened by flood control, water transfers, and channelization and diversion projects. More specifically, the Santa Ynez River is threatened by water diversions, agricultural and urban development, and wetland draining. The Santa Clara River is most immediately threatened by a 20,000 unit housing development and construction of two bridges throughout a majority of this critical habitat area. The Santa Ana River continues to be threatened by two extensive water conservation projects which have periodic impacts by flooding the habitat. One of these, the Prado Basin Water Conservation and Water Control Operations Project, was authorized for the incidental take of 90 pair of vireos over the life of the project (biological opinion 1-6-99-F-75). Other projects and/or threats to the vireo on the Santa Ana River include the ongoing large Santa Ana River mainstem flood control project, Caltrans highway widening and bridge replacement projects, large-scale human recreation (including an active airport on Corps-owned lands) and an increasing human population and presence in or adjacent to the river. In San Diego County the upper Santa Margarita River is threatened by development and agriculture, the San Luis Rey and San Diego Rivers are threatened by agriculture, sand and gravel mining, recreation, residential/commercial/industrial development, transportation, wastewater treatment, water supply projects, and flood control projects; the Sweetwater River is protected from development but still faces indirect impacts from recreation; Jamul-Dulzura Creeks are threatened by sand and gravel mining, water supply projects, and flood control projects and channelization; and the Tijuana River is continually threatened by

increasing disturbance and destruction of riparian habitat from illegal off-road vehicle activity, vehicle activity by border patrol, and horseback riding.

Fire is also an ongoing threat to the vireo throughout its range. In October and November of 2003, southern California experienced significant wildfire activity. The fires were distinguishable into 15 areas and burned a total of approximately 743,439 acres in Los Angeles, Riverside, San Bernardino, San Diego, and Ventura counties. It is unclear how much habitat occupied by least Bell's vireo burned in the fires that occurred in 2003 because our location data is biased to areas with proposed projects (i.e., those areas where surveys were necessary), could represent duplicative data, and/or could be mapped as a large polygon without the detail of numbers of individual birds. However, 111,725 acres of riparian habitat exist within Los Angeles, Riverside, San Bernardino, San Diego, and Ventura counties and the fires burned 5,668 acres (5 percent) of this area. The most significant impacts occurred in San Diego (3,186 acres), San Bernardino (1,304 acres), and Ventura (1,116 acres) counties due to the Cedar, Old, and Simi fires. In the case of the Cedar fire alone, the fire burned 2,314 acres of riparian habitat in San Diego County.

In October 2007, large wildfires returned to San Diego County burning approximately 370,000 acres. A complete analysis of impacts to this species has not been completed. Considering only Department of the Interior-owned lands in San Diego County, approximately 748 acres of designated vireo critical habitat burned. The actual total acreage of vireo habitat (critical, suitable, modeled) burned during the 2007 fires is likely much higher as non-Department of the Interior lands containing vireo habitat also burned.

It is assumed that no individual vireos were harmed directly by these fires since the birds are migratory and were not in the areas that burned when the fires occurred. However, the loss of 1,104 acres of suitable habitat may indirectly affect the birds since they are known to be site tenacious.

It is expected that these areas would recover and again provide suitable habitat for vireo or flycatcher, albeit a longer process to become suitable flycatcher habitat. However, the degree to which this disturbance would increase non-native invasive wetland species such as *Arundo* and tamarisk is unknown. In addition, due to the lack of vegetation within the watershed, the rivers may experience significant debris flows which may also alter the riparian systems. It is still too early to determine the long term effects of the fires; however, there could be a net loss of suitable habitat until a restoration program is initiated and successful.

### 3.3.9 Rangewide Conservation Needs

Based on the nature of the primary threats to the least Bell's vireo over the majority of its range, the survival and recovery needs of the vireo are integrally linked with the following biological principles: (1) the presence of functionally intact riparian communities with structural complexity and a dense understory, (2) the absence or control of brown-headed cowbirds, and (3) well connected riparian corridors with self-sustaining vireo populations in relatively close proximity to one another to facilitate survival and movement.

In March 1998, a draft recovery plan for the vireo was prepared by the Service (Service 1998). The Plan describes a strategy for reclassification, recovery, and delisting. Instrumental to this strategy is securing and managing riparian habitat within the historical breeding range of the vireo, annual monitoring and rangewide surveys, and research activities necessary to monitor and guide the survival and recovery of the vireo population range wide. Criterion 1 of the Plan identifies the San Luis Rey River as one of 14 population/metapopulation units that should be managed and protected to support stable or increasing vireo populations/metapopulations, consisting of several hundred or more breeding pairs. A Priority 1 recovery task includes protecting and managing riparian and adjacent upland habitats within the vireo's historical range and more specifically developing a management plan for the San Luis Rey River which addresses the major threats of agriculture, flood control, water supply projects, sand and gravel mining, recreation, residential/ commercial/industrial development, transportation, wastewater treatment projects, and unauthorized placement of fill materials, clearing, and herbicide activities (Service 1998).

Specifically, the draft recovery plan for the vireo indicates that the following criteria must be met to consider the vireo recovered:

1. Stable or increasing least Bell's vireo populations/ metapopulations, each consisting of several hundred or more breeding pairs, that are protected and managed at the following sites: Tijuana River, Dulzura Creek/Jamul Creek/Otay River, Sweetwater River, San Diego River, San Luis Rey River, Camp Pendleton/Santa Margarita River, Santa Ana River, an Orange County/Los Angeles County metapopulation, Santa Clara River, Santa Ynez River, and an Anza Borrego Desert metapopulation;
2. Stable or increasing least Bell's vireo populations/metapopulations, each consisting of several hundred or more breeding pairs established, protected, and managed for at the following sites: Salinas River, a San Joaquin metapopulation, and a Sacramento Valley metapopulation; and
3. Threats are reduced or eliminated so that least Bell's vireo populations/metapopulations listed above are capable of persisting without significant human intervention, or perpetual endowments are secured for cowbird trapping and exotic plant (*Arundo*) control in riparian habitat occupied by the least Bell's vireo. As noted above, the only areas where there are populations of several hundred or more breeding pairs documented is the Prado Basin and Marine Corps Base Camp Pendleton.

Only the Camp Pendleton/Santa Margarita River and the Santa Ana River populations have clearly met and exceeded the target of "several hundred or more breeding pairs" of vireos at the designated site. However, the general trend has been positive. While the 11 populations designated in the first criterion only represent a portion of the known vireo populations, they contain approximately 90 percent of the known vireo locations (Service 2006).

### 3.4 *Empidonax traillii extimus* (Southwestern willow flycatcher)

#### 3.4.1 Listing Status

The southwestern willow flycatcher was federally listed as endangered on February 27, 1995 (60 FR 10694) primarily due to extensive habitat loss. The California Department of Fish and Game lists this species as endangered on December 3, 1990. A final recovery plan for the southwestern willow flycatcher was published in the Federal Register on March 5, 2003 (68 FR 10485).

#### 3.4.2 Critical Habitat

Critical habitat for the flycatcher was designated on October 19, 2005, encompassing approximately 120,824 acres in Apache, Cochise, Gila, Graham, Greenlee, Maricopa, Mohave, Pinal, Pima, and Yavapai counties in Arizona, Kern, Santa Barbara, San Bernardino, and San Diego counties in southern California, Clark County in southeastern Nevada, Grant, Hidalgo, Mora, Rio Arriba, Socorro, Taos, and Valencia counties in New Mexico, and Washington County in southwestern Utah (70 FR 60886). Fifteen Management Units found in five Recovery Units were designated as critical habitat for the flycatcher. The five Recovery Units are: 1) Coastal California; 2) Basin and Mojave in California; 3) Lower Colorado River in Nevada, California/Arizona Border, Arizona, and Utah; 4) Gila in Arizona and New Mexico; and 5) Rio Grande in New Mexico (Service 2005b).

The specific biological and physical features, otherwise referred to as the primary constituent elements (PCEs), essential to the conservation of the southwestern willow flycatcher include, but are not limited to: Space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing (or development) of offspring; and habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species (Service 2005b).

#### 3.4.3 Species Description

The southwestern willow flycatcher, a relatively small, insectivorous songbird, is approximately 5.75 inches in length. Both sexes of *E. t. extimus* have grayish-green back and wings, whitish throats, light gray-olive breasts, and pale, yellowish bellies. The song is a sneezy “fitz-bew” or “fitz-a-bew” and the typical call is a breathy “whit” (Unitt 1987). *Empidonax t. extimus* is a recognized subspecies of the willow flycatcher (*Empidonax traillii*). Although previously considered conspecific with the alder flycatcher (*Empidonax alnorum*), *E. traillii* is distinguishable from that species by morphology (Aldrich 1951), song type, habitat use, structure and placement of nests (Aldrich 1953), eggs (Walkinshaw 1966), ecological separation (Barlow and MacGillivray 1983), and genetic distinctness (Seutin and Simon 1988). In turn, *E. t. extimus* is one of five subspecies of the willow flycatcher currently recognized (Hubbard 1987, Unitt 1987, Browning 1993). The willow flycatcher subspecies are distinguished primarily by differences in color and morphology (Unitt 1987). Unitt (1987) and Browning (1993) concluded that *E. t. extimus* is paler than other willow flycatcher subspecies. During the 2004 breeding

season, Paxton *et al.* experimented with the use of a Minolta Colorimeter to quantify plumage coloration variation in the willow flycatcher. Although the dataset was limited in terms of geographic distribution and sample size, preliminary analysis indicates that the colorimeter can detect substantial plumage variation within the willow flycatcher subspecies, and significant differences among the subspecies. Thus, the colorimeter may have the potential to assign subspecies status to individuals of unknown origin (i.e., migrants, wintering flycatchers) (Paxton *et al.* 2005). Sedgewick (2001) determined that the vocal signatures of the primary song form of *E. t. extimus* and the geographically adjacent subspecies, *E. t. adastus*, are distinctive and that regional populations of *Empidonax* have statistically unique vocal identities.

#### 3.4.4 Distribution

The breeding range of the flycatcher includes most of the southwestern United States (Unitt 1987, Browning 1993) with data from 1993 to 2005 indicating that flycatcher breeding territories ranged from Arizona (40.8 percent), New Mexico (32.4 percent), California (15.7 percent), Nevada (5.6 percent), Colorado (5.2 percent), and Utah (0.3 percent) (Durst *et al.* 2006). Past records of breeding in Mexico are few and confined to extreme northern Baja California and Sonora (Howell and Webb 1995). Flycatchers winter in Mexico, Central America, and northern South America (Howell and Webb 1995).

#### 3.4.5 Habitat Affinity

The flycatcher is restricted to willow-dominated riparian habitats, especially areas with abundant large trees, frequently in close proximity (i.e., seldom farther than a few dozen meters) to surface water or saturated soil (Sogge and Marshall 2000). Riparian habitat provides both breeding and foraging habitat for the species. The flycatcher nests in thickets of trees and shrubs approximately 13 to 23 feet or more in height with dense foliage from approximately zero to 13 feet above ground. The nest site plant community is typically even-aged, structurally homogeneous and dense (Brown 1988, Sedgewick and Knopf 1992). This species usually nests in the upright fork of a shrub but occasionally nests on horizontal limbs within trees and shrubs (Terres 1980). Historically, the willow flycatcher nested primarily in willows and mule fat with a scattered overstory of cottonwood (Grinnell and Miller 1944). Following more recent changes in riparian plant communities in the region, the species still nests in willows where available but is also known to nest in thickets dominated by tamarisk and Russian olive (Brown 1988). Typically, sites selected as song perches by male willow flycatchers show higher variability in shrub size than do nest sites and often include large central shrubs. Migrating willow flycatchers use habitats similar to breeding flycatchers, but would also use desert washes, oases, and open canyon woodlands near watercourses (Small 1994).

Fragmented riparian zones with large distances between willow patches and individual willow plants are not selected for either nesting or singing (Sedgewick and Knopf 1992). Flycatchers are generally not found nesting in narrow strips of riparian vegetation less than approximately 33 feet wide (Sogge and Tibbetts 1994, Sogge and Marshall 2000).

#### 3.4.6 Life History

The southwestern willow flycatcher is a diurnally active species that begins singing at a predawn hour while within the territory (San Diego Natural History Museum 1995). The flycatcher is an insectivore that forages within and above dense riparian vegetation, taking insects on the wing or gleaning them from foliage (Service 1995). This species also forages in areas adjacent to nest sites which may be more open (Service 1995).

Males typically arrive in southern California at the end of April and females arrive approximately one week later. The southwestern willow flycatcher has a home range that is larger than the defended territory. This species initiates territorial defense in late May. Territory size varies from 0.59 to 1.33 acres. Adults depart from the breeding territory in mid-August to early September (San Diego Natural History Museum 1995). Territory size varies greatly, probably due to differences in population density, habitat quality, and nesting stage. Estimated breeding territory sizes generally range from approximately 0.25-5.7 ac, with most in the range of approximately 0.5-1.2 ac (Service 2002a). The species has been reported to sing and defend winter territories in Mexico and Central America and may defend winter territories in northern South America. Lynn *et al.* (2003) surveyed a total of 42 locations in El Salvador, Costa Rica, and Panama from 1998 to 2000. They found that occupied winter habitat was characterized by four main habitat components: (1) standing or slow moving freshwater and/or saturated soils; (2) patches or stringers of trees; (3) woody shrubs; and, (4) open areas such as pastures, savannas, or bodies of water bordering forest edges.

Southwestern willow flycatchers typically raise one brood per year (Service 1995). The clutch size ranges from two to five; the average clutch size is 3.4 eggs in coastal southern California. These species usually have a monogamous mating system within one nesting season although not all territorial males are mated (San Diego Natural History Museum 1995). The southwestern willow flycatcher fledgling leaves the nest at age 12 to 15 days in early July (Service 1995) and usually disperses from the natal territory at age 26 to 30 days. About 25 percent of adults return to their territory from the previous year and at least 20 percent of juveniles return to the natal area which is usually 1.2 to 2.5 miles from the natal territory. Adults usually depart from their breeding territory between 12 August and 4 September (San Diego Natural History Museum 1995).

From 1997 through 2000, 66 percent to 78 percent of flycatchers known to have survived from one breeding season to the next returned to the same breeding site; on the other hand, 22 percent to 34 percent of returning birds moved to different sites. Both males and females move within and between sites, with males showing slightly more site fidelity. Within-drainage movements are more common than between-drainage movements. Typical distances moved range from 1.2 miles to 18 miles; however, long-distance movements of up to 136 miles have been observed on the lower Colorado River and Virgin River (Service 2002a).

#### 3.4.7 Population Trend

Although the breeding range extends through six states, Kus and Sogge (2003) noted that southwestern willow flycatchers have declined to the point of near extinction as urbanization and

burgeoning human populations have resulted in widespread loss and degradation of riparian habitat. In California, there has been a 95 percent reduction of riparian habitat over the last century and flycatchers are now absent as a breeding species from the Central Valley of California, where they were once common (Harris *et al.* 1987). Flycatchers have been dramatically reduced in number along the lower Colorado River, which historically probably supported one of the largest flycatcher populations in the Southwest (Unitt 1987). Durst *et al.* (2006) reported 1,214 territories located among 275 sites rangewide within the United States using data from 1993 to 2005. Over the range of the species, most (83 percent) breeding sites are small, both in terms of population size (five or fewer territories) and habitat patch size (Durst *et al.* 2006). Only 17 percent of the sites rangewide have more than five territories. Seven of these sites (populations) consist of 20 or more territories and only two sites have 50 or more territories, one of which is the upper San Luis Rey River (near Lake Henshaw) in San Diego County, which is outside of the project area and action area (Service, unpub. data). Not all of the 275 known sites are surveyed every year. In 2005, 142 sites were surveyed with 999 territories detected (Durst *et al.* 2006). Flycatcher territories have disappeared from 133 of the 275 sites tracked since 1993. All but two of these sites where flycatcher territories are no longer detected were composed of five or fewer territories (Durst *et al.* 2006). The two exceptions were the Colorado River inflow to Lake Mead and PZ Ranch on the San Pedro River which were larger sites where habitat was destroyed by flooding and fire, respectively (Durst *et al.* 2006). This indicates that even the "larger" sites of 50 or more territories are vulnerable to catastrophic events (e.g., fire, disease, or floods) and flood control/water supply projects.

The primary flycatcher drainages in California are the San Luis Rey River (58 territories), the Santa Ana River (34 territories), the Owen's River (28 territories), the Santa Margarita River (21 territories), and the Kern River (20 territories) (Durst *et al.* 2006).

The rangewide population of flycatcher has not experienced a significant increase in numbers as the vireo population has. This may be a byproduct of the flycatchers need for mature vegetation (greater than eight years old), their need for nearby open water, and the reduced benefit that cowbird trapping provides the flycatcher.

### 3.4.8 Threats

The southwestern willow flycatcher has declined primarily due to loss, alteration, and degradation of riparian habitats and brown-headed cowbird nest parasitism (Unitt 1987, Service 2002a). Its riparian nesting habitat tends to be uncommon, isolated, and widely dispersed. Historically, these habitats have always been dynamic and unstable in place and time, due to natural disturbance and regeneration events such as floods, fire, and drought. With increasing human populations and the related industrial, agricultural, and urban developments, these habitats have been modified, reduced, and destroyed by various mechanisms. Riparian ecosystems have declined from reductions in water flow, interruptions in natural hydrological events and cycles, physical modifications to streams, modification of native plant communities by invasion of exotic species, and direct removal of riparian vegetation. Wintering habitat has also been lost and modified for this and other Neotropical migratory birds. The major mechanisms resulting in loss and modification of habitat involve water management and land use practices (Service 2002a).

Fire is an imminent threat to occupied and potential southwestern willow flycatcher breeding habitat. Although fires occurred to some extent in some of these habitats historically, many native riparian plants are neither fire-adapted nor fire-regenerated. Thus, fires in riparian habitats are typically catastrophic, causing immediate and drastic changes in riparian plant density and species composition (Service 2002a).

In October 2007, large wildfires returned to San Diego County burning approximately 370,000 acres. A complete analysis of impacts to this species has not been completed. Considering only Department of the Interior-owned lands in San Diego County, approximately 21 acres of designated flycatcher critical habitat burned. The actual total acreage of flycatcher habitat (critical, suitable, modeled) burned during the 2007 fires is likely much higher as non-Department of the Interior lands containing flycatcher habitat also burned.

The Recovery Plan indicates that brood parasitism negatively affects the flycatcher, by reducing reproductive performance. Parasitism typically results in reductions in number of flycatcher young fledged per female per year (Service 2002a). Brown-headed cowbirds have probably occurred naturally in much of the flycatcher's range, for thousands of years (Lowther 1993). However, they likely increased in abundance with European settlement, and established in southern California only since 1900 (Rothstein 1994). However, studies have determined that nest parasitism has less of an effect on flycatchers than on vireos and that flycatchers have not responded to cowbird trapping in the same manner that vireos have (Kus and Whitfield 2005).

### 3.4.9 Rangewide Conservation Needs

The Service published a final Recovery Plan for the southwestern willow flycatcher on March 5, 2003, identifying the protection, restoration, and creation of habitat as necessary to conserve this species (Service 2003a). The breeding range of the flycatcher covers six states and the Plan specifically identifies six Recovery Units and 32 Management Units that should be managed to meet these objectives in a manner sufficient to promote stable or increasing flycatcher

populations. The Recovery Plan states that the Coastal California Recovery Unit had 19 percent of the known flycatcher territories rangewide. The Recovery Plan lists the Gila Recovery Unit as having 46 percent of the known flycatcher territories, which is the highest of all of the units. The other four units range from less than one percent (Upper Colorado) to 15 percent of the known flycatcher territories. Based on this information, the Coastal California Recovery Unit has the second highest number of known flycatcher territories identified in the Recovery Plan.

Each Recovery Unit is expected to serve as a metapopulation for the flycatcher. In functioning metapopulations, increases or decreases in one population may affect other populations. Thus, it is important to meet and maintain recovery objectives in each Recovery and Management unit, each of which may influence adjacent units (Service 2002a).

The Recovery Plan identifies guidelines that should be applied to projects to ensure recovery of the flycatcher. These guidelines include preventing the loss of flycatcher habitat; however, if such temporary impacts, permanent loss, or degradation is imminent, the guidelines recommend habitat replacement, permanent protection, and management within the same Management Unit. It states that loss of flycatcher habitat should be replaced with creation of habitat at a relatively high ratio since there is a high degree of uncertainty flycatchers would colonize created habitat. The Recovery Plan also states that cowbird trapping should not be used to offset actions that may result in loss, fragmentation, or modification of occupied or potential habitat.

The Recovery Plan requires a minimum number of territories for each management unit in order to down-list the flycatcher as threatened. The Coastal California Recovery Unit extends across 10 southern California counties. The Recovery Plan requires a minimum of 275 territories in this Recovery Unit for reclassification of the flycatcher (there were 186 known territories between 1993 and 2001) (Service 2002a). Nearly half (i.e., 125 of the 275 territories) are to be in the San Diego Management Unit. The San Diego Management Unit is expected to provide the majority of territories throughout all of the areas with flycatcher in the State of California. This is the third highest goal rangewide with the Gila River (625) and the Lower Colorado River (525) having the highest recovery goals (Service 2002a). In 2005, the Coastal California Recovery Unit had the fourth largest number of territories (135) and San Diego Management Unit had the fifth largest number of territories (86) of any one management unit throughout the 29 management units. Three of the top were within the Gila Recovery Unit and the fourth was in the Rio Grande Recovery Unit (Durst *et al.* 2006).

A Population Viability Analysis (PVA) was conducted as part of the Recovery Plan for the flycatcher. The PVA found that metapopulations appear to be the most stable and secure in those areas where a large number of sites of substantial size are highly connected. There are only three such areas throughout the species' range that meet these criteria: Coastal California, Gila, and Rio Grande. In addition, the PVA found that the greatest benefit within a metapopulation should occur if sites are less than nine miles apart, each with 10 to 25 territories. Sites that are less than nine miles apart assure a high likelihood of connectivity. Once a threshold of about 25 territories/sites is reached, the benefit of increasing the number of birds diminishes. This risk-spreading strategy reduces the likelihood that catastrophic events (e.g., fire, flood, disease) would negatively impact all sites (Service 2002a). Such a strategy may be

even more important with the likely risk to avian species from infectious diseases such as West Nile Virus.

### **3.5 *Ambrosia pumila* (San Diego ambrosia)**

#### **3.5.1 Listing Status**

San Diego ambrosia was listed as endangered on July 2, 2002 (67 FR 44372). This species is also on the California Native Plant Society's list 1B with an R-E-D (Rarity-Endangerment-Distribution) code of 3-3-2, and a California Natural Diversity Data Bank ranking of G1S1.1

#### **3.5.2 Critical Habitat**

Critical Habitat has not been proposed or designated for this species.

#### **3.5.3 Species Description**

San Diego Ambrosia is a clonal, perennial herb in the Asteraceae (sunflower) family. They arise from a branched system of rhizome-like roots (Service 1999b). This rhizomatous perennial habit results in groupings of aerial stems, often termed clones, that are, or at least were at one time, all attached to one another. The aerial stems are 0.5 to 3 decimeters (2 to 12 inches) rarely to 5 decimeters (20 inches) tall and densely covered with short hairs. The leaves are 3 to 4 times pinnately divided into many small segments and are covered with short, soft, gray-white, appressed hairs. The fruiting heads are enclosed by cup-like structures that have no spines, although some reports note a few vestigial spines. *A. pumila* may be distinguished from other species of *Ambrosia* in the area by its leaves which are twice divided, involucre (cup-like structures) lacking hooked spines, and lack of longer stiff hairs on the stems and leaves (Service 1999b).

#### **3.5.4 Distribution**

San Diego ambrosia is distributed from western Riverside County and western San Diego County, California, south in widely scattered populations along the west coast of Baja California, Mexico, to the vicinity of Cabo Colonet (Munz 1974, Reiser 1996). Additional populations occur in the central highlands of Baja California in the vicinity of Laguna Chapala near Catavina (Reiser 1996). Some remnant populations have been found in urbanized places such as National City (Reiser 1996). It has also been reported from two areas in Oceanside (near El Camino Real and near Mission Boulevard in east Oceanside).

#### **3.5.5 Habitat Affinities**

San Diego ambrosia occurs in open habitats in coarse substrates near drainages, and in upland areas on clay slopes or on the dry margins of vernal pools. It also occurs in a variety of associations that are dominated by sparse grasslands or marginal wetland habitats such as river terraces, pools, and alkali playas (Munz 1974, Reiser 1996). Reiser (1996) noted that San Diego

ambrosia may also occur in creek beds and willow woodlands lacking tree canopies. Dudek and Associates (1999) found *Ambrosia pumila* in sandy loam textured soils, that were moderately acidic (pH ranging from 4.48 to 5.77) and low in salinity. San Diego ambrosia has been reported from 0-9 percent slopes on sandy or clay loams (Boling 1988). At Mission Trails Regional Park in San Diego, *Ambrosia pumila* occurred upon slope angles ranging from 0 to 18 percent with the vast majority of plants occurring at slope angles of less than 5 percent (Dudek & Associates, Inc. 1999). San Diego ambrosia generally occurs at low elevations (i.e., less than 180 meters in San Diego County) (Payne 1996). Commonly associated species include *Nasella* spp., *Avena* spp., *Bromus* spp., *Centaurea melitensis*, *Ambrosia psilostachya*, *Hemizonia fasciculata*, *Holocarpha virgata*, *Distichlis spicata*, *Eremocarpus setigerus*, and several vernal pool species.

### 3.5.6 Life History

Sexual reproduction and seed-set are not considered to be common in this taxon suggesting that propagation and dispersal by seed is limited. Because pollen is contained in the downward facing male cluster and is positioned above female flower heads, *Ambrosia pumila* may self-pollinate. Perennial *Ambrosia* species generally produce fewer seeds than annual species and invest more reproductive resources in below-ground root structures. Several biotechnical reports from transplantation efforts offer support for the lack of or low seed reproduction in the species (Dudek and Associates 2000). *Ambrosia* species are probably primarily wind pollinated, but other vectors (e.g. crawling insects) are a possibility (Payne, pers. Comm. 1998). Propagation is primarily through extensions of rhizomes indicating that each population could be a single plant and restricted to the immediate habitat. The species propensity to reproduce asexually suggests that the most common form of dispersal may be movement of rhizome-like structures either short distances by growth or longer distance by flood disturbance (Boling 1988, Marquez 1991-1993, and RECON 1993). *Ambrosia pumila* also partially relies on animal vectors for seed dispersal. *Ambrosia pumila* is sensitive to seasonal conditions and variation resulting in fluctuations in the above ground biomass. Flowers are generally present from June through September (Munz 1974).

### 3.5.7 Population Trend

This species has been reported from 49 occurrences in the United States (CDFG 2004). Four were combined with other occurrences, six were based on misidentified specimens, and two that were based on old collections have not been documented since 1936 (CDFG 2004). Three occurrences consist of transplanted plants from other occurrences that were subsequently partially or totally eliminated (CDFG 2004). There are, therefore, 34 verifiable native reported occurrences of this species. Twenty of these (59 percent) have been extirpated since the 1930's, nearly all by commercial development and activities associated with highway construction (Service 1999b). One occurrence, with a single stem in 1996, is considered non-viable due to the small size of the occurrence and the high level of disturbance of the site (CDFG 2004). Subtracting this non-viable occurrence, there are currently 15 extant native occurrences of this species. Twelve occurrences are in San Diego County, and three are in western Riverside County (City of Lake Elsinore 2000).

### 3.5.8 Threats

The primary threat to San Diego ambrosia is habitat loss due to urbanization, habitat fragmentation, isolation, and associated impacts from non-native species competition. Nearly all U.S. populations occur in sites that are disturbed and frequently affected by secondary impacts (e.g., trampling, non-native plant competition) due to proximity of development and infrastructure (e.g., roads and utilities).

### 3.5.9 Rangewide Conservation Needs

Ambrosia does not have a Recovery Plan developed. Nonetheless, to promote the long term survival and conservation of this species, the further loss and degradation of ambrosia habitat should be prevented. This would include reducing direct, indirect and cumulative effects. To avoid further loss of the species, populations should be permanently preserved and managed and new populations created.

## **4. 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 which are contemporaneous with the consultation in progress.

### **4.1 Site Characteristics and Surrounding Land Uses**

The proposed SR-76 Melrose Drive to South Mission Highway Improvement project is located along the existing SR-76 from approximately 0.5 mile west of the SR-76/Melrose Drive intersection to approximately 0.6 mile east of the SR-76/South Mission Road intersection (Post-Mile 7.5-13.1). Native upland and riparian vegetation communities within this stretch of the river are known to support several federally listed species including arroyo toad, vireo, flycatcher, toad, gnatcatcher, and ambrosia.

The BSA consisted of the footprint of the proposed project and the Southern Alternative, all areas lying between the two alignments, and a 500-foot limit from the outer edges of the proposed shoulder (Figure 2). The BSA includes a portion of the San Luis Rey River, its associated floodplain, and other adjacent lands. The overall topography consists of a broad, level floodplain and valley floor bordered by steep hillsides divided by lesser tributaries. The San Luis Rey River and its floodplain are the dominant topographic features in the BSA. The historical floodplain of the San Luis Rey River can be considered relatively wide (approximately 1,000 ft wide) at the eastern terminus of the BSA but becomes much narrower (approximately 500 ft wide) at the western terminus. Portions of the historical floodplain have been converted to agricultural fields, ranches and the San Luis Rey Downs Country Club Golf Course. Elevation in the BSA ranges from approximately 100 ft above mean sea level (AMSL) along the San Luis

Rey River at the western terminus of the BSA to approximately 350 ft AMSL on the slopes above the San Luis Rey River in the eastern half of the BSA. Although existing within a semiarid region and exhibiting a braided channel at points along its reach, the San Luis Rey River is a perennial river. The source of water originates from its perennial tributaries: Little Gopher Canyon Creek, Bonsall Creek, Moosa Canyon Creek, Ostrich Farms Creek, and several unnamed tributaries. In addition, a substantial amount of water originates as urban runoff, particularly from the San Luis Rey Downs Country Club Golf Course, as well as agricultural irrigation runoff.

Soils within the BSA are dominated by sandy loams and riverwash. The riverbed at this location is composed of an alluvial deposit of riverwash (U.S. Department of Agriculture [USDA] 1973). The alluvium in the floodplain and valley floor can provide suitable substrate (friable) for burrowing animals, including arroyo toad.

Eighteen vegetation types were identified within the project's BSA (Table 1, Figures 12 and 13), including riparian, wetlands, uplands and other vegetation types (EDAW, 2007).

#### **4.2 Relationship to Regional Preserves**

The highway widening would occur in an area covered under the California Department of Fish and Game's NCCP program. The NCCP, which began in 1991, 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 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 project falls within the NCMSCP and Oceanside Subarea Multiple Habitat Conservation Plan; both plans are under development. These programs are comprehensive habitat conservation planning programs that address multiple species needs and the preservation of native vegetation communities. The programs propose a preserve system that would replace the approach of using project-specific biological mitigation, which by itself does not contribute adequately to the continued existence of sensitive species, or to the maintenance of natural biodiversity. Within the study corridor, pre-approved mitigation areas and preserve areas are associated with the San Luis Rey River Linkage along the river corridor. The San Luis Rey River Linkage extends east from the City of Ocean side boundary across Interstate 15 and the Rice Canyon Linkages and towards the Palomar Mountain foothills.

Vegetation Communities

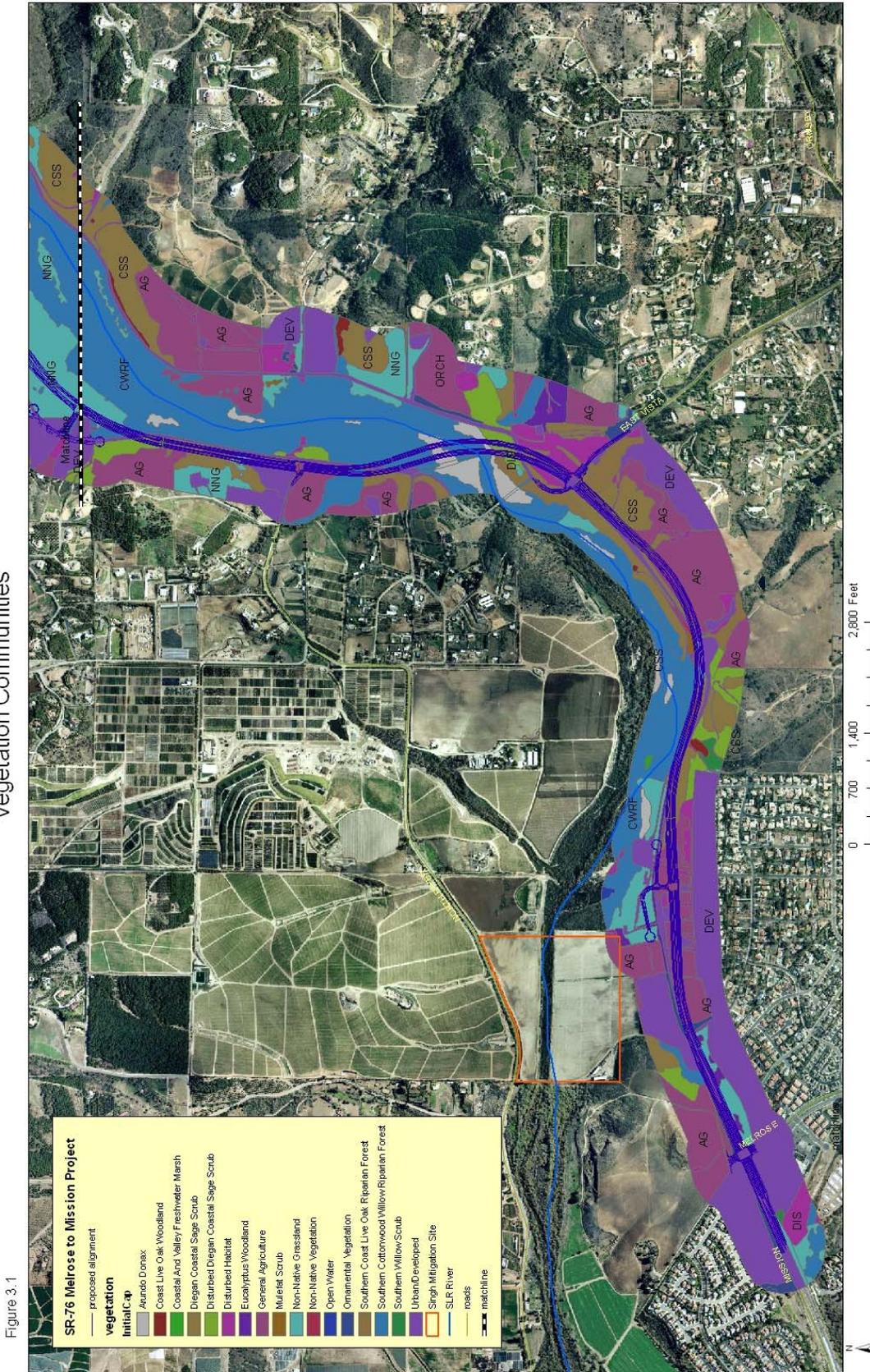


Figure 12. Vegetation Communities

Vegetation Communities

Figure 3.2

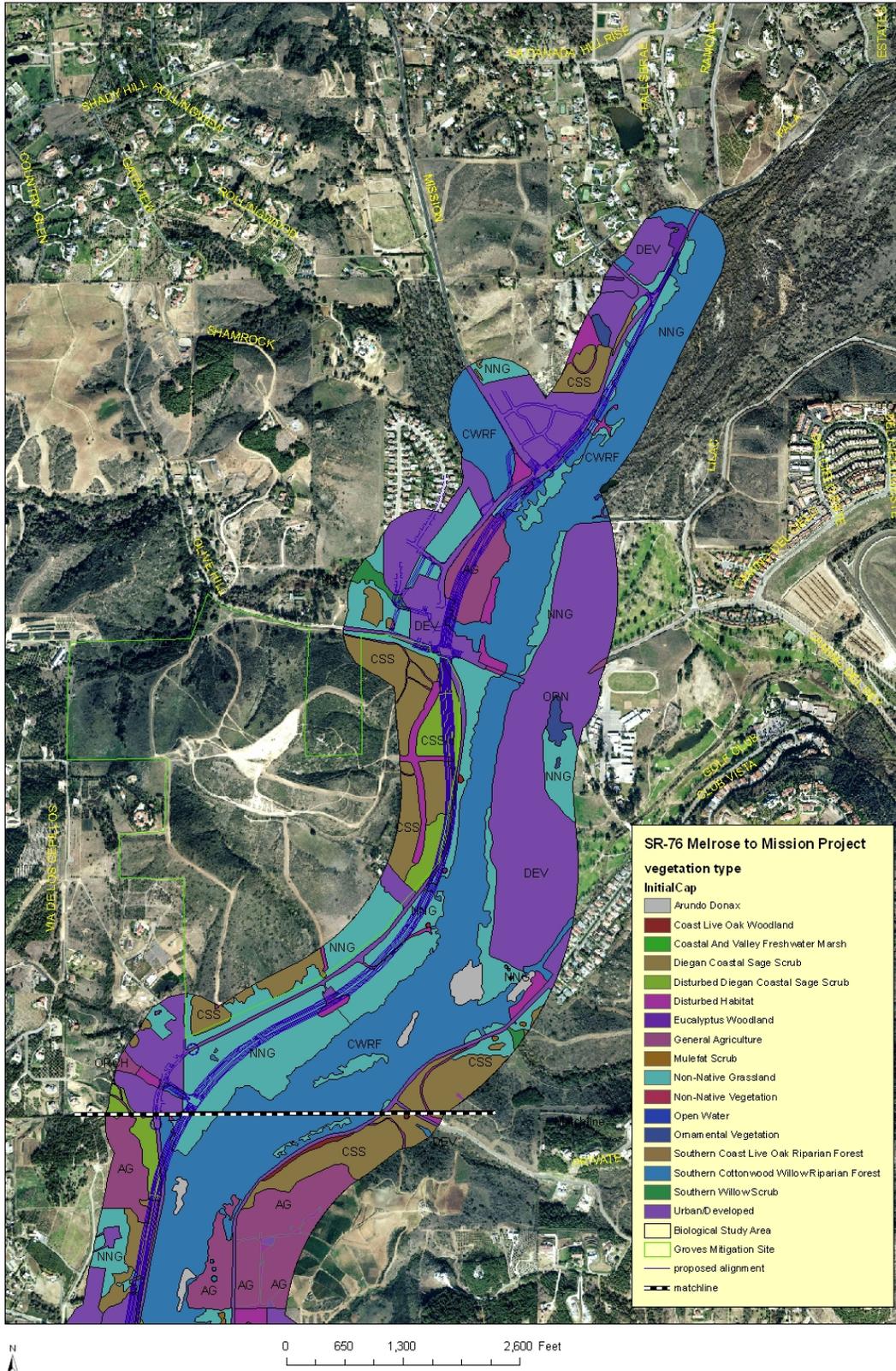


Figure 13. Vegetation Communities

### 4.3 Species and Critical Habitats within the Project Area

#### 4.3.1 Arroyo Toad

The San Luis Rey River is one of the few remaining occupied drainages that has habitat conditions conducive to supporting a large, robust population. The largest populations of arroyo toads in San Diego County can be found here. Key features distinguishing it from most other occupied drainages are: high stream order (4<sup>th</sup> to 5<sup>th</sup> order), low elevation (below 1,000 feet), and broad stream terraces. The only other drainages that support similar conditions, to any extent, are the San Antonio River (Monterey County), San Juan Creek (Orange County), San Mateo Creek (Orange/San Diego Counties), the Santa Margarita River (San Diego/Riverside Counties), Santa Ysabel Creek (San Diego County), and the Sweetwater River (San Diego County) (J. Stephenson, Service, pers. com.). Yet the amount of such high-quality habitat is small on most of these drainages; the San Luis Rey River has the longest stretch of intact high-quality habitat. Its geographic position is also highly significant, lying between the Santa Margarita River and Santa Ysabel Creek. Overland movement between these drainages is still possible and is likely critical to maintaining genetic interchange and metapopulation viability (J. Stephenson, Service, pers. com.). The connection of the San Luis Rey River population to the closest existing population (Santa Margarita River) is slowly being severed by development along the I-15 corridor. Loss of the San Luis Rey population would effectively sever connectivity between key populations to the north (i.e., San Juan, San Mateo, Santa Margarita) and the south (i.e., Santa Ysabel, Sweetwater).

Arroyo toads initially were found in the San Luis Rey River on May 23-24, 1927, when J. R. Slevin collected a large series of specimens on the river 4.8 kilometers (3 miles) west of Bonsall (California Academy of Science 62908-62915, San Francisco). Historically, arroyo toads were noted from near the mouth of the San Luis Rey River (L. M. Klauber, unpubl. field notes, April 2, 1932) to Indian Flats Campground in the Cleveland National Forest (California Academy of Science 173699-173700, San Francisco), a distance of about 32 kilometers (20 miles) and an elevational range of 25 to 1,280 meters (80 to 4,200 feet). Today, arroyo toads have scattered breeding sites within the main river down to the City of Bonsall, and another disjunct breeding site above Lake Henshaw at Barker Valley and Indian Flats Campground (elevation 825 to 1,280 meters [2,700 to 4,200 feet]).

Development has resulted in the direct loss of most of the arroyo toad upland habitat along the lower San Luis Rey River (Pacific Ocean to I-15). The channelization of far eastern portion of the lower San Luis Rey River and associated feeder streams with rip-rap likely precludes usage of the banks for burrowing, protection, and forage as well as make the migration of arroyo toads from the channel into the uplands a difficult if not impossible task. Many factors within the lower San Luis Rey River have also precluded the most likely avenue for arroyo toad movement between the San Luis Rey River and Santa Margarita River (i.e., the coastal plain where the elevation change is small and where, in flood years, the estuaries may have been in close proximity).

Arroyo toads are not currently known to occupy the lower 7.2-mile channelized stretch, which was surveyed in 1996, 1997, and 1998 and occupancy is very unlikely if the river remains channelized. Upstream of the channelized stretch arroyo toad breeding habitat is partially connected to upland burrowing areas, primarily east of I-15. However, the presence of SR-76 immediately adjacent to the river has vast impacts on dispersal and burrowing outside of the floodplain (primarily on the north side of the river). Arroyo toads are currently believed to occupy the majority of the river between Bonsall and Pala. Given the numerous positive surveys from Bonsall to Pala over the past several years, viable populations appear to exist in these areas. However, there has been no rigorous qualitative or quantitative evaluation of the population size or trends and that merely observing that a species is present over several years does not, by itself indicate a prognosis for long-term persistence.

No arroyo toads were documented within the BSA during surveys conducted by either AMEC in 2002 or URS in 2003. Potential arroyo toad breeding habitat may have been greatly reduced in quantity and quality during the 2002 survey period. Because of the extremely dry year, the flow level of the San Luis Rey River was greatly reduced during the normal rainy season and many of the potentially suitable breeding pools previously observed did not form. Many of the areas that had previously been considered good quality breeding habitat for the species were overgrown with dense vegetation.

However, arroyo toads were previously observed breeding in the northern end of the BSA in the mid-1990s up to 2001, in the vicinity of the San Luis Rey Downs Golf and Country Club course, starting about 1,000 ft below the Camino Del Rey Bridge crossing and extending about 1 mile downstream. At the downstream end of the BSA, a breeding population of arroyo toads was documented in 1998. Breeding pools supporting approximately 18 arroyo toads (approximately 14 males and 4 females) were observed at this location. The upland habitat consisting of coastal sage scrub east of Old River Road and north of Dentro de Lomas was also known to support arroyo toads in 1998. This area was completely overgrown with invasive aquatic and riparian plant species during the 2002 surveys, probably due to the lack of scouring action (Figures 14 and 15).

Arroyo toad was detected during protocol surveys in 2006 for the future SR-76 East project between Bonsall and Interstate 15. During those surveys, two arroyo toad sightings were recorded in the western portion of the BSA, while seventy three (73) arroyo toad sightings were documented from Via Monserate to Interstate 15 (EDAW 2006).

Arroyo toads have been observed moving approximately 1.6 kilometers within a stream reach and 1 kilometer away from the stream, into native upland habitats containing friable, sandy soils (Holland 1995, Sweet 1992) or agricultural areas (Griffen *et al.* 1999). Griffen (1999) reported a female arroyo toad traveling more than 300 meters perpendicular from a stream and Holland (1998) found arroyo toads 1.08 kilometers from a water course. Therefore, it is possible that arroyo toads move between the San Luis Rey River and the uplands within the project area.



Figure 14. Listed Species

### Listed Species

Figure 3.4

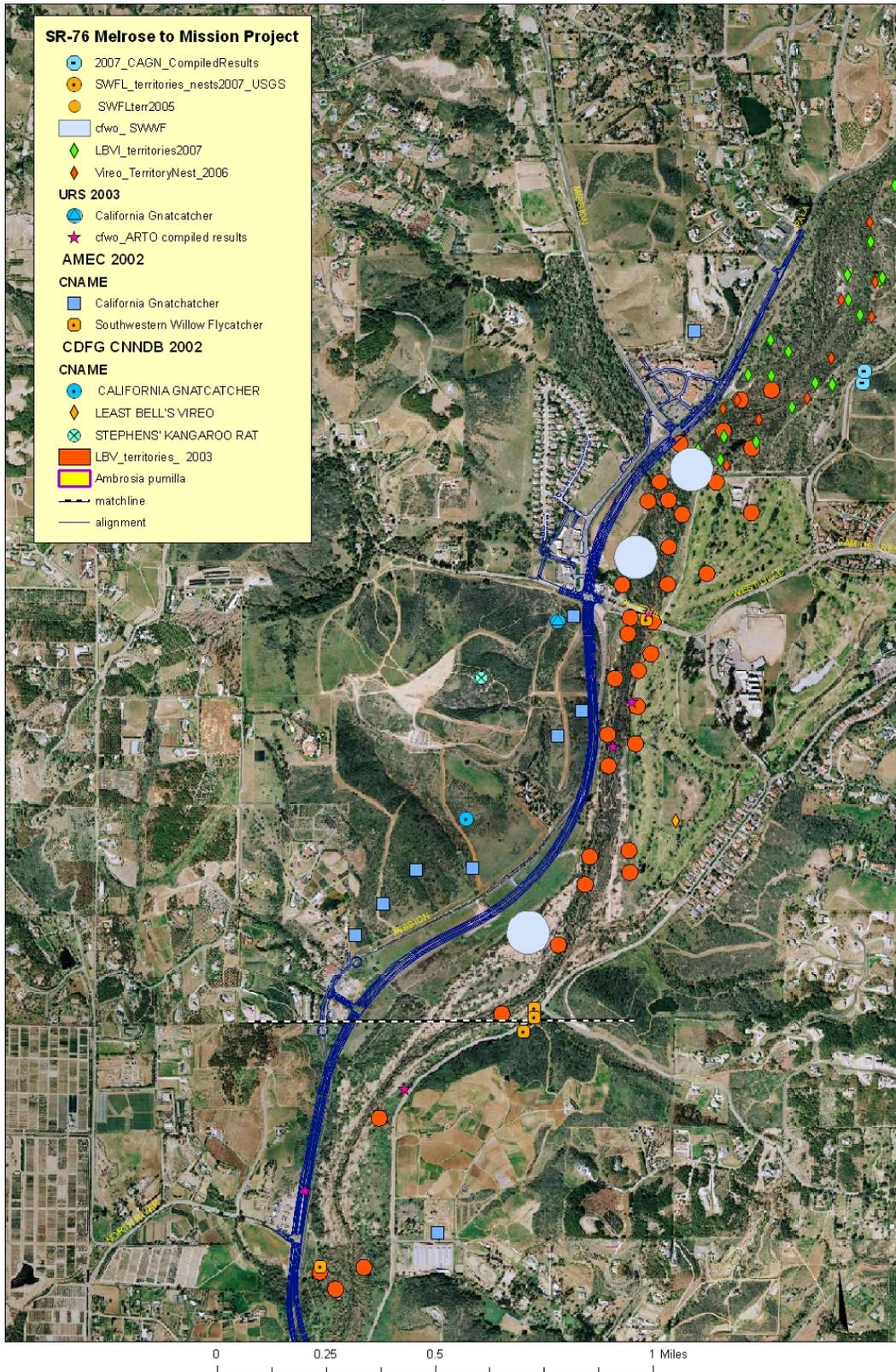


Figure 15. Listed Species

The project area occurs in excluded arroyo toad critical habitat Unit 14. Essential lands in Unit 14 include portions of the San Luis Rey River and adjacent upland areas below the La Jolla Indian Reservation, as well as sections of Pala and Keys Creeks in the lower and middle San Luis Rey River Basin. The unit encompasses approximately 8,669 ac (3,508 ha), of which 84 percent is private land, 10 percent is on the Pala Indian Reservation, and 5 percent is on the Rincon Indian Reservation. Approximately 30 mi (48 km) of the San Luis Rey River from the western edge of the La Jolla Indian Reservation downstream to the confluence with Guajome Creek near the City of Oceanside are designated as critical habitat. Unit 14 also includes approximately 3.4 mi (5.5 km) of Pala Creek and 1.7 mi (2.7 km) of Keys Creek upstream from their confluence with the San Luis Rey River. Unit 14 contains an indispensable arroyo toad population in the San Luis Rey River Basin. This unit was known to be occupied at the time of listing in 1994. This long, low elevation [all below 1,000 ft (305 m) in elevation] unit is situated in a broad, flat valley with a low-gradient river that supports all the primary constituent elements, such as shallow pools for breeding and sandy substrates in adjacent upland terraces for foraging, burrowing, and aestivating. This unit is necessary for the conservation of the arroyo toad because it supports one of the largest contiguous river reaches that is occupied by the species and has the ability to support a viable population. Special management considerations that are required in this unit include addressing issues regarding dams and water diversions in the upper end of the unit and minimizing impacts from intensive urbanization, agriculture, exotic predators, and invasive plant species.

#### 4.3.2 Least Bell's Vireo

In the early 1900's, and even as late as the 1940's, the vireo was considered a common bird in the riparian plant communities of California. By 1984, cowbird parasitism and habitat destruction had reduced vireo numbers in the lower San Luis Rey River to approximately eight breeding pairs. The virtual elimination of cowbird parasitism since 1991 has played a key role in the population increase in the lower San Luis Rey River, which numbered 117 territories and 110 breeding pairs in 2003<sup>2</sup>. Another factor in increasing the vireo population had been the regrowth of riparian vegetation primarily within the Corps flood control channel area, which has subsequently been impacted by the removal of habitat to retain the functionality of the levee system. The population of vireo in the lower San Luis Rey River (Table 9) extends upstream of the flood control channel where 130 male vireos were observed in 2002, with at least 49 confirmed breeding pairs (Peterson *et al.* 2002). The lower San Luis Rey River, with a total of 159-245 vireo pairs, now represents the third largest vireo population throughout the species range within the United States (Marine Corps Base Camp Pendleton and the Prado Basin are the largest two populations).

Monitoring of the vireo (and flycatcher) in the lower San Luis Rey River has occurred since the 1980's. Vireo territory sizes have been reported ranging from 0.5 to 7 acres (Service 1998). Within the channelized stretch of the San Luis Rey, territory sizes ranged from 0.59 - 5.79 acres with an average of 1.9. Productivity of vireos had been high in the channelized stretch. From

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<sup>2</sup> Cowbirds still remain a significant threat in the area with an average of 500-600 cowbirds captured each year in the lower San Luis Rey.

1989 to 2003 the number of fledglings per pair ranged from 1.7 to 3.3, with an average of 2.4. In the channelized stretch, vireos had an average of 2.6 fledglings per pair whereas upstream of the channelized stretch, vireos had an average of 1.8 fledglings per pair. This represents a 25 percent difference in productivity and is likely due, in large part, to the Corps' ongoing cowbird trapping and nest monitoring.

**Table 9. Least Bell's vireo territory numbers for the San Luis Rey**

Location	Number of Territories														
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
I5-College	11	9	26	31	54	52	50	70	69	86	80		82	117	
College-I15	43	39	59	76	99	114	90				137	132	130		

The upper San Luis Rey River does not have the same extensive monitoring records as the lower and is not currently available for analysis. Vireo have been reported by the Forest Service on the upper San Luis Rey River, however the individuals are believed to have been migrants without evidence of regular breeding in the area.

The majority of suitable habitat within the BSA is occupied (Figures 14 and 15). A total of 28 to 29 locations within the BSA were occupied by least Bell's vireo in 2002 (USGS 2005 and AMEC 2004) and a total of 44 territories (and 242 point locations) were identified within the BSA during the 2003 surveys (URS 2004).

The project site occurs within the San Luis Rey Area of designated critical habitat for the vireo (Figure 16). Approximately 6,000 acres of critical habitat exist on the San Luis Rey River. Critical habitat is designated from I-5 to Pala Road.

#### 4.3.3 Southwestern Willow Flycatcher

Nearly the entire San Luis Rey River provides foraging, dispersal, and migratory habitat. Flycatchers were not observed nesting in the lower San Luis Rey River until 1999; however, flycatchers are difficult to identify except during a small window in the spring when they vocalize. Therefore they may have been present in the lower San Luis Rey River, but unobserved prior to 1999.

Surveys for the Rosemary Mountain Quarry project during 2003 and 2004 detected a trio (polygynous pair) of flycatchers, nine individual flycatchers, and one pair of flycatchers within the portion of the San Luis Rey River that is directly south of Rosemary's Mountain.

Surveys related to the San Luis Rey Flood Control project documented, between 2000 and 2004, a growing population of flycatchers. Starting in 2000 there were 3 territories within the lower San Luis Rey River. By 2003 between 10 and 13 territories had been documented from within the channelized stretch of the San Luis Rey River to approximately two miles upstream of I-15. This population is separate from the population of flycatchers near Lake Henshaw. The lower San Luis Rey River flycatcher locations are spread out along the river and are associated with permanent water sources and large wide mature riparian vegetation near Whalen Lake and Guajome Lake.

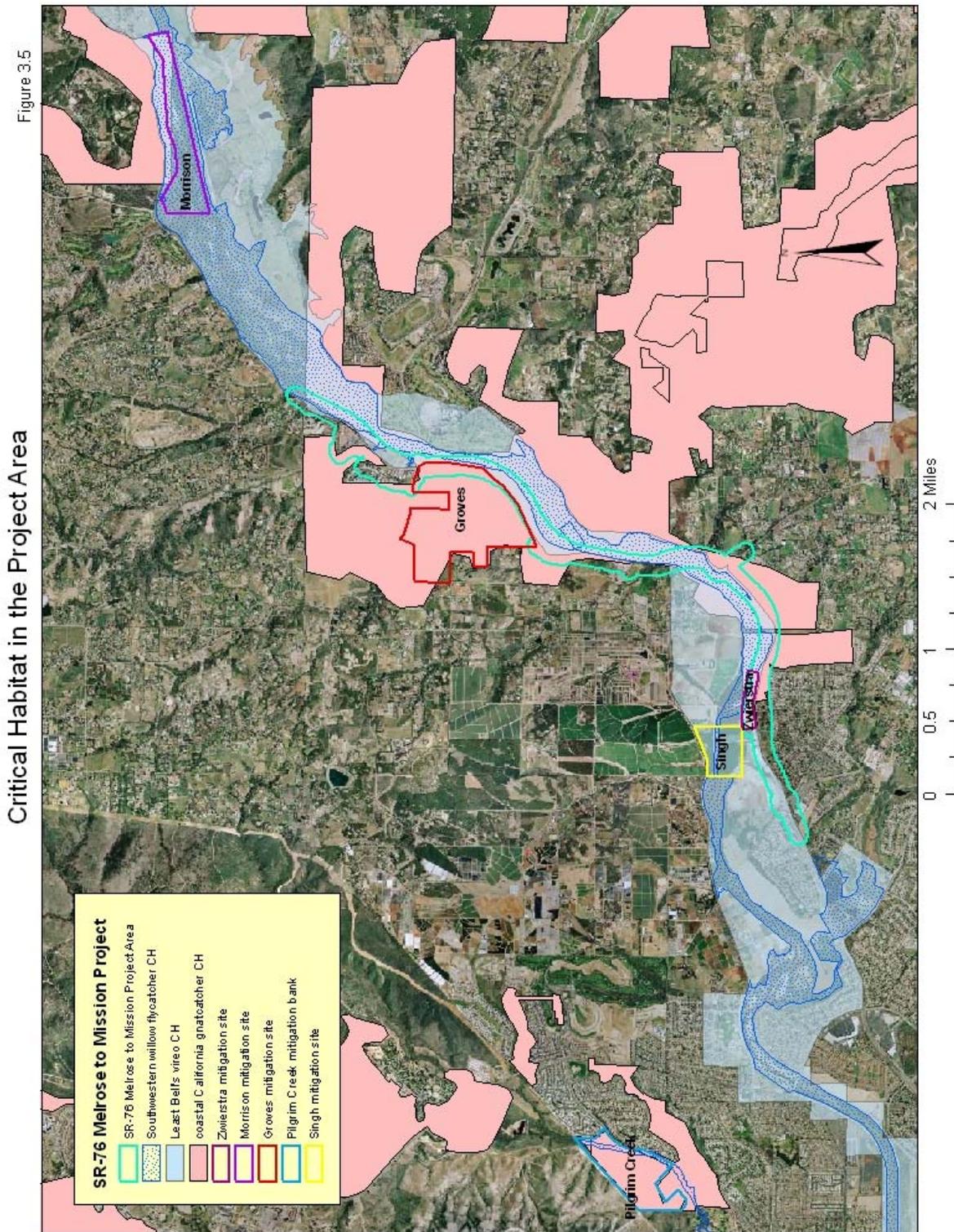


Figure 16. Critical Habitat in the Project Area

There is a very large and successful population of flycatcher near the Forest Service's San Luis Rey Picnic Area. The area is located along the San Luis Rey River and SR-76 immediately downstream of Lake Henshaw. Historically, between 40 and 50 pairs occupy this stretch with approximately 12 pairs on Forest Service land. One focused survey along the Cleveland National Forest stretch in 2008, located numerous flycatcher, including one nest (Roblek, Service, unpublished data). This population is the only known population of flycatcher on the Cleveland National Forest. Cowbird trapping has occurred in this area without evidence that the trapping effort was benefiting the flycatcher based on the lack of nest-parasitism with and without trapping. A survey of cowbirds on the adjacent Lusardi grazing allotment found no evidence of cowbird foraging. The same stretch of river has been designated critical habitat and is comprised of approximately 22 acres.

Flycatchers were documented at a total of 17 localities within the BSA during the protocol surveys conducted by AMEC in 2002 and URS in 2003 (Figure 15 and 16). Five (5) of the sightings most likely represented migrants, one sighting was a pair, and the remaining sighting was a single male. The pair observed during the breeding season was located along the San Luis Rey River in the northern portion of the BSA. In 2003, URS documented the presence of migrating, solitary flycatchers at three localities within the BSA. The habitat was not occupied for more than a single survey (URS 2004).

The project site occurs within the San Diego Management Unit of designated critical habitat for the flycatcher. This management unit encompasses approximately 4,804 acres (1944 ha) that contains essential features for breeding, non breeding, territorial, migrating, and dispersing southwestern willow flycatchers and helps provide metapopulation stability, population growth, gene flow, connectivity, and protection against catastrophic losses. A total of eight flycatcher breeding sites (seven on the San Luis Rey River and one on Pilgrim Creek) are known to occur within this Unit (Service 2005b). Breeding sites have been detected since 1994. Durst *et al.* (2005) reported 67 territories from the San Luis Rey River drainage with a single site on the upper San Luis Rey holding 44 territories.

#### 4.3.4 Coastal California Gnatcatcher

The proposed project area contains areas of undisturbed native upland habitat areas, including areas suitable for the gnatcatcher (i.e., coastal sage scrub). The majority of the BSA, 909.57 acres, is located within designated critical habitat for the gnatcatcher, Units 3 and 5 (Service 2007). These lands consist of designated core gnatcatcher populations and sage scrub habitats identified as high or moderate value.

Unit 3 encompasses approximately 17,325 ac (7,011 ha) within the MHCP planning area in northwestern San Diego County. Included are lands within the cities of Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista. This unit provides for connectivity and genetic interchange among core populations, contains large blocks of high-quality habitat capable of supporting persistent populations of gnatcatchers, and contains the last significant gnatcatcher populations remaining south of MCB Camp Pendleton abutting the coast.

Unit 5 encompasses approximately 34,705 ac (14,045 ha) within the planning area for the NCMSCP. Lands designated/proposed for critical habitat within this unit contain several core gnatcatcher populations and intervening linkage areas of sage scrub. This unit constitutes the primary inland linkage along the I-15 corridor between San Diego populations and those in southwestern Riverside County (Unit 10).

Gnatcatchers were documented at 10 locations within the BSA during the protocol surveys conducted by AMEC in 2002. One gnatcatcher pair was located south of SR-76 and southwest of the creek along East Vista Way, on the northern and western facing slopes. One pair of gnatcatcher, with one begging juvenile, was observed in the northern portion of the BSA on a hill west of SR-76. The juvenile was not detected during subsequent visits to this survey patch. Three separate pairs of gnatcatcher were observed on the western side of SR-76, near the northern portion of the BSA. In addition, gnatcatcher was documented in this same location in 2002 (Service unpublished data). Four pairs of gnatcatchers were observed northwest of SR-76, near the northern-central portion of the BSA (AMEC 2004). One pair of gnatcatchers was observed east of SR-76, in the central portion of the BSA. One pair of gnatcatchers was also detected within the BSA during the protocol surveys conducted by URS in 2003 and is presumed to be one of the same pairs observed by AMEC in 2002. The pair was detected approximately 300 ft west of the intersection of SR-76 and Camino Del Rey/Olive Hill Road, using approximately 6 ac of coastal sage scrub habitat. Additional gnatcatcher localities were observed in the BSA, south of SR-76 and southwest of East Vista Way, during other surveys related to the project.

#### 4.3.5 San Diego Ambrosia

The northernmost known natural occurrences of ambrosia in San Diego County occur along the San Luis Rey River. Natural occurrences along the project corridor are known at Jeffries Ranch (150-200 plants) and the Groves properties. There are two additional occurrences, but are unnatural as they were translocated as a result of widening SR-76 and constructing the Bonsall Bridge. One population was planted along Pilgrim Creek and the other at the Marron Mitigation site.

In 2005, approximately 200 one-gallon ambrosia plants were planted at the Marron Mitigation site. The transplanted ambrosia appear to be proliferating on-site (Roblek *personal observation*, Service 2007). Surveys in 2008 indicated there the ambrosia now covers approximately 1.11 acres.

In addition, there are plants currently being held in a nursery from impacts during a San Diego Gas and Electric project along the San Luis Rey River.

#### **4.4 Proposed Off-site Compensation Locations**

The proposed compensation sites have been identified in regional planning efforts as important to the conservation of the aforementioned species and to the build out of the preserve within the NCMSCP and the City of Oceanside Subarea Plan within the MHCP area (Figure 17).

##### **4.4.1 The Groves**

The Groves property consists of total of 286 acres located at the southwest corner of SR-76 and Olive Hill Road in the community of Bonsall (Figures 18 and 19). A majority of the area contains designated critical habitat for gnatcatcher. Numerous gnatcatchers have been recorded on site during formal and informal surveys. There are no significant data available to estimate the size of this metapopulation. Approximately, 180 acres of coastal sage scrub occurs on site with about 82 acres categorized as disturbed. The site is occupied by gnatcatcher and ambrosia. The property also consists of approximately 11 acres of coast live oak woodland, and 50 acres of non-native grassland. The Groves is located in close proximity to the San Luis Rey River, which supports a significant arroyo toad population. Although the Groves property does not provide breeding habitat for the arroyo toad, it does contain upland habitat appropriate for burrowing, dispersing and foraging. Access control has been built at this site.

##### **4.4.2 Morrison Property**

The Morrison property, totaling about 121 acres, is located southeast of Gird Road and SR-76 in Bonsall (Figures 20-23). The San Luis Rey River crosses the southern portion of the property. Both arroyo toad and vireo have been documented on site. The property has approximately 2.8 acres of freshwater marsh, 38.7 acres riparian forest, 74 acres of riparian scrub, 3.6 acres of disturbed habitat, and 5.3 acres of non-native grassland. Due to the presence of riparian habitat, the flycatcher potentially may use the site.

##### **4.4.3 Singh Property**

The 60-acre Singh property is located southeast of Sleeping Indian Road and North River Road and is bisected by the San Luis Rey River in the northeastern area of the city of Oceanside (Figure 24 and 25). The property is currently used for growing row crops (tomatoes). No listed species are known to occur on this site. Future mitigation plans would dictate creation and restoration of the site.

##### **4.4.4 Zweirstra Property**

The 19.38-acre Zwierrstra property is located along the north side of the SR-76 Melrose to Mission project between Melrose and East Vista Way. Its northwestern corner abuts the Singh property's southeastern corner. Four acres are currently riparian forest with the remainder in use as a dairy farm and residence. Vireo and arroyo toad were historically documented within the stretch of the river adjacent to this property.

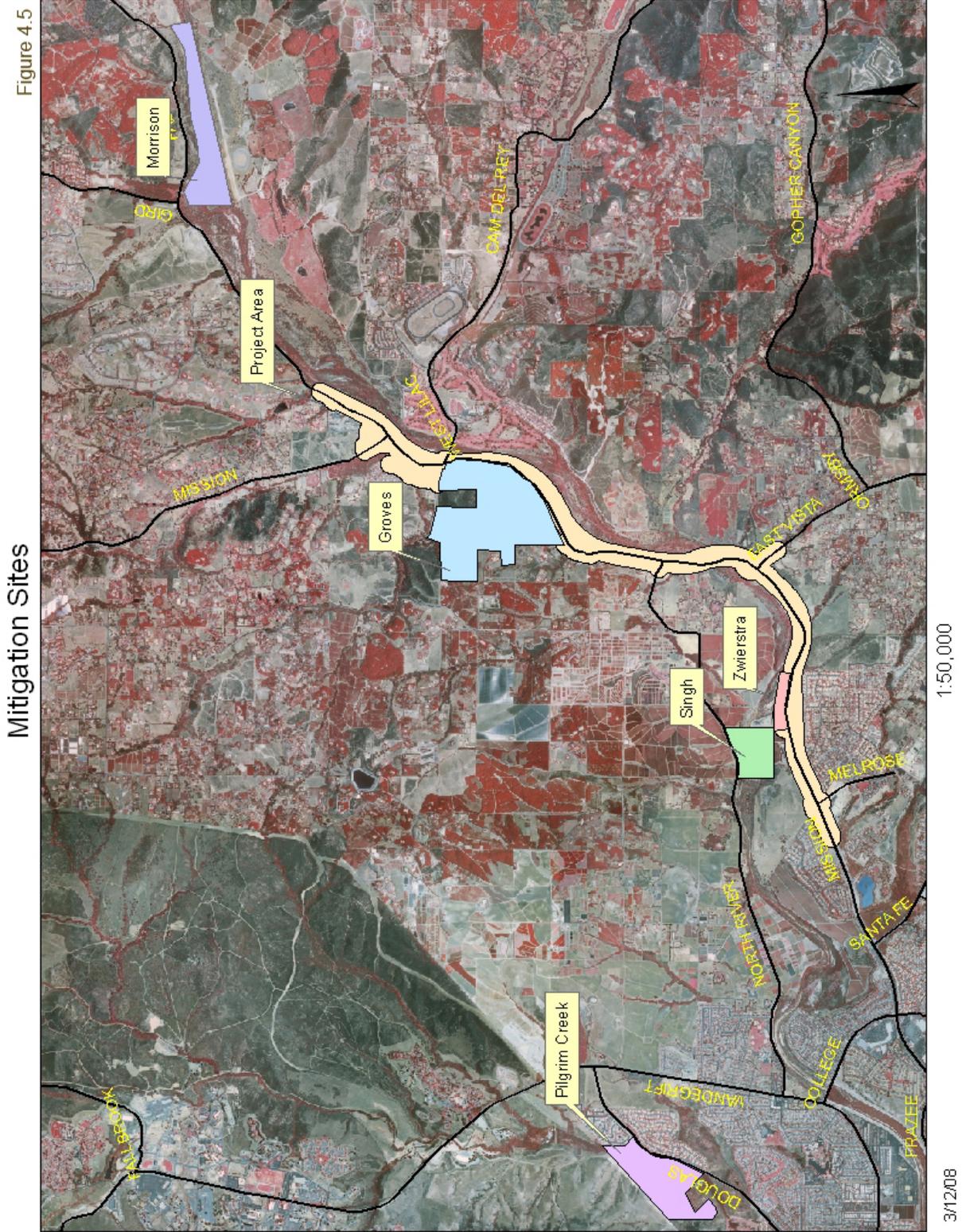


Figure 17. Mitigation Sites

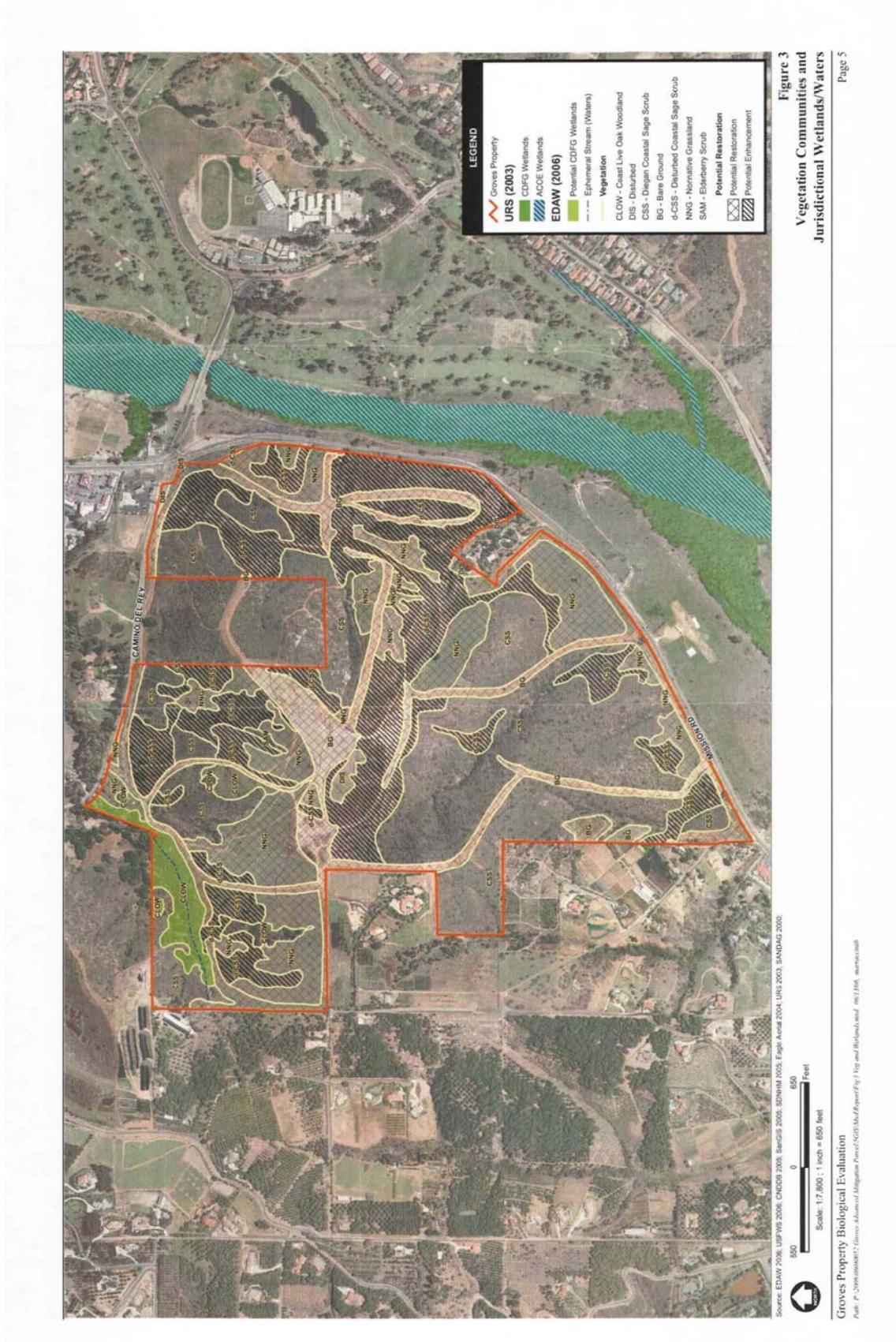


Figure 18. The Groves Vegetation

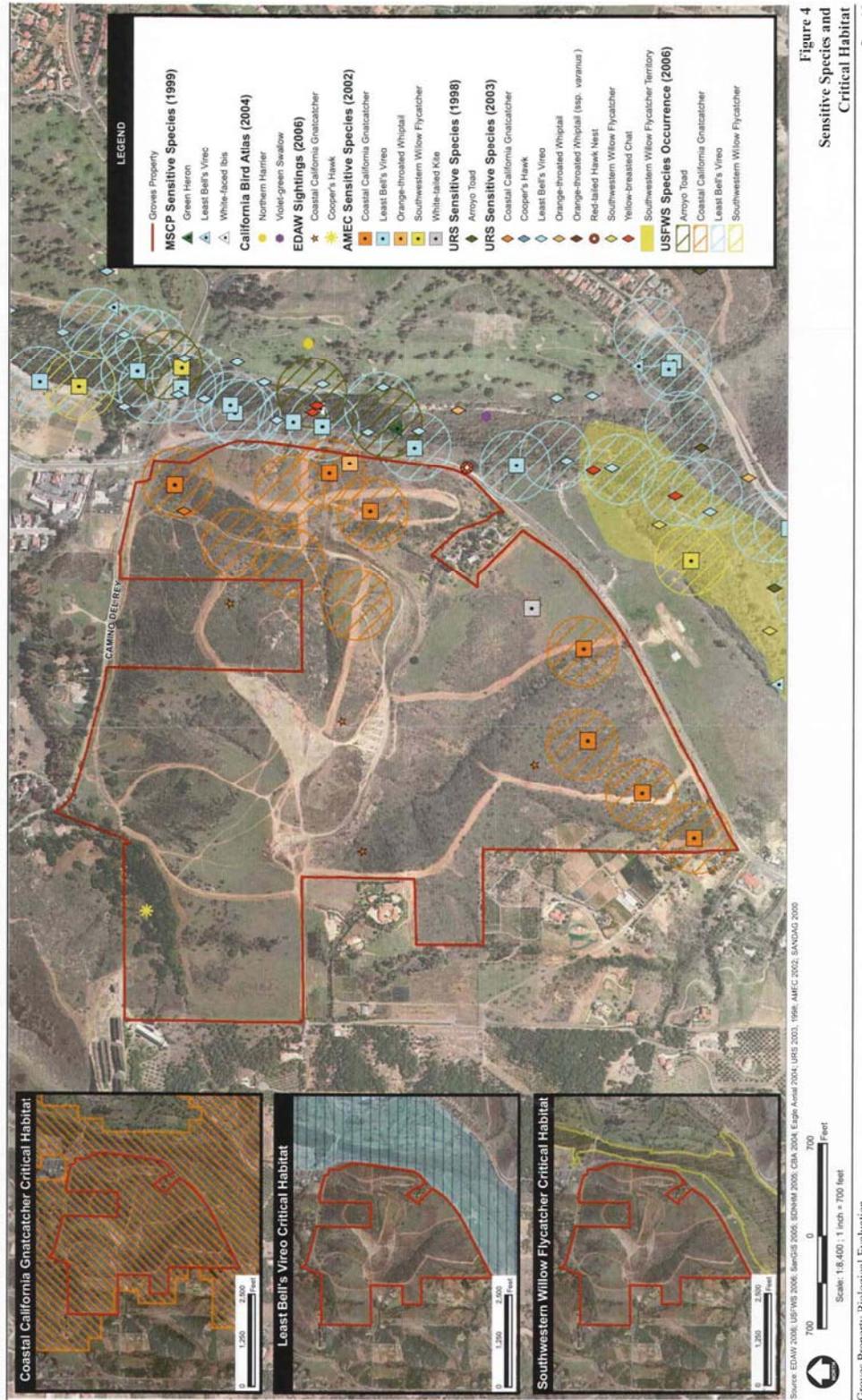
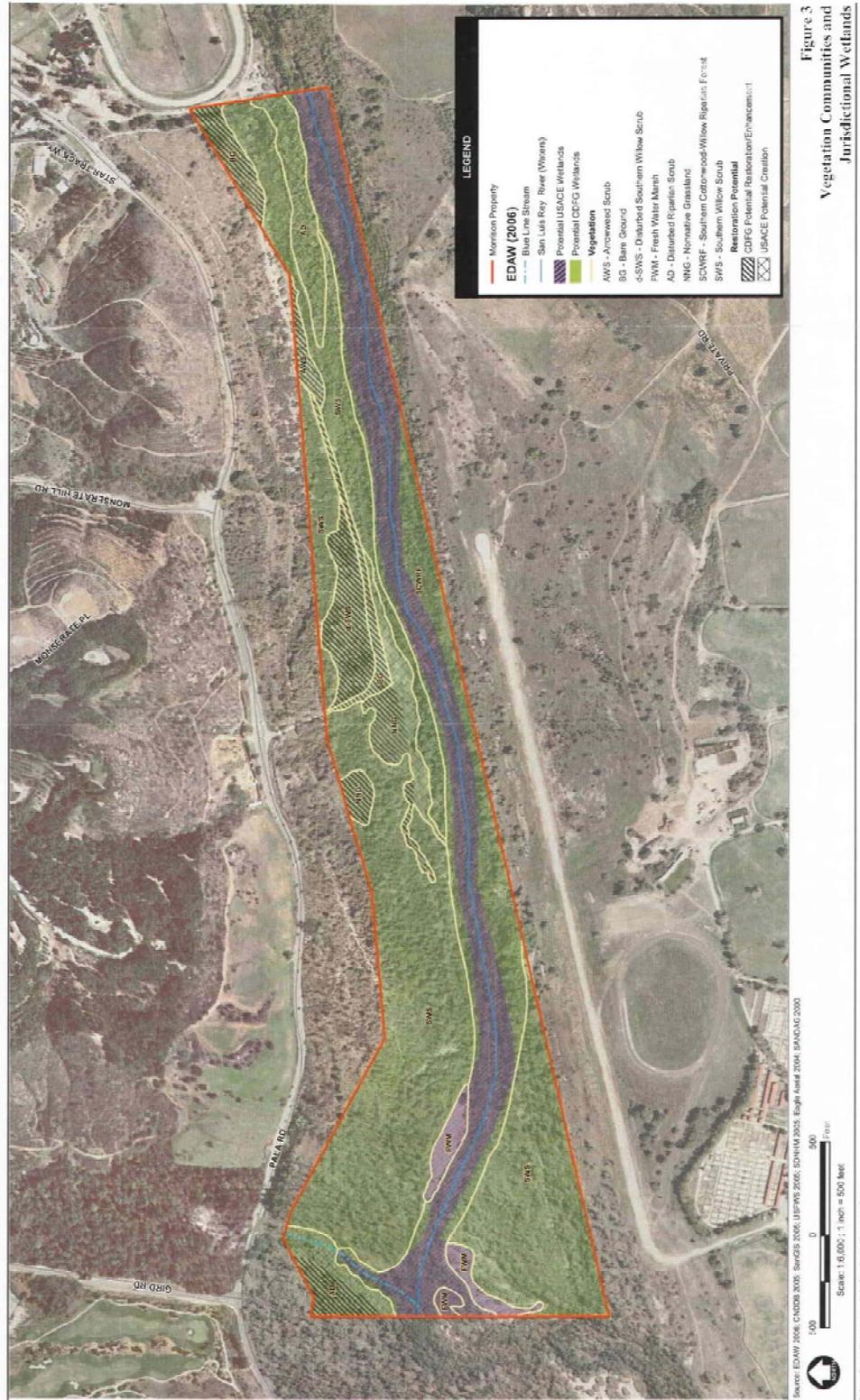


Figure 4  
Sensitive Species and  
Critical Habitat

Figure 19. The Groves Sensitive Species and Critical Habitat



**Figure 3**  
**Vegetation Communities and**  
**Jurisdictional Wetlands**

**Figure 20. Morrison Vegetation**

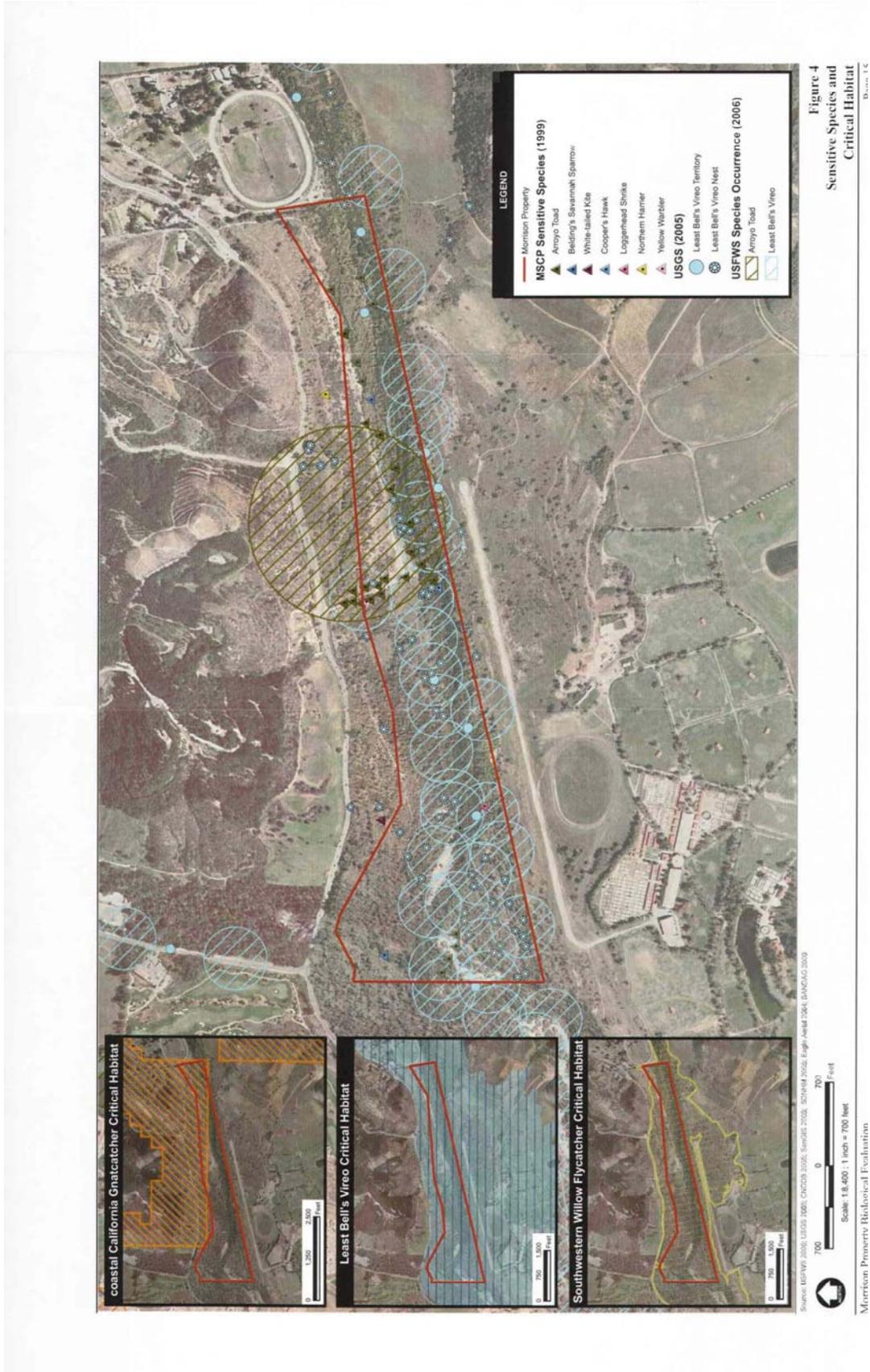


Figure 21. Morrison Sensitive Species and Critical Habitat



**Figure 22. Morrison Exotic Species Removal and Planting Areas**

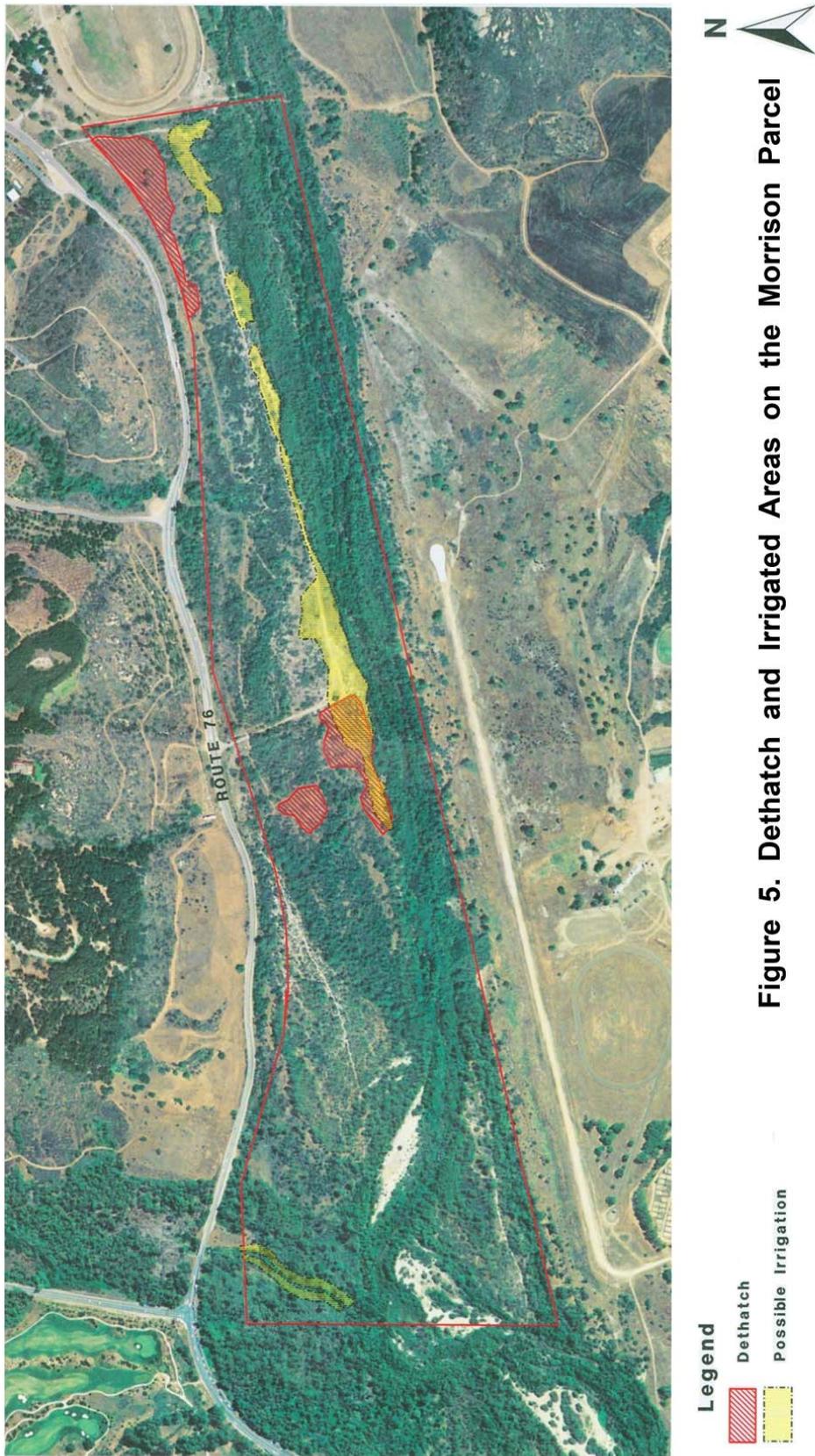


Figure 23. Morrison Proposed Dethatch and Irrigated Areas

Singh Parcel - Existing Vegetation



Figure 24. Singh Existing Vegetation

# SINGH MITIGATION SITE

Figure 4.6

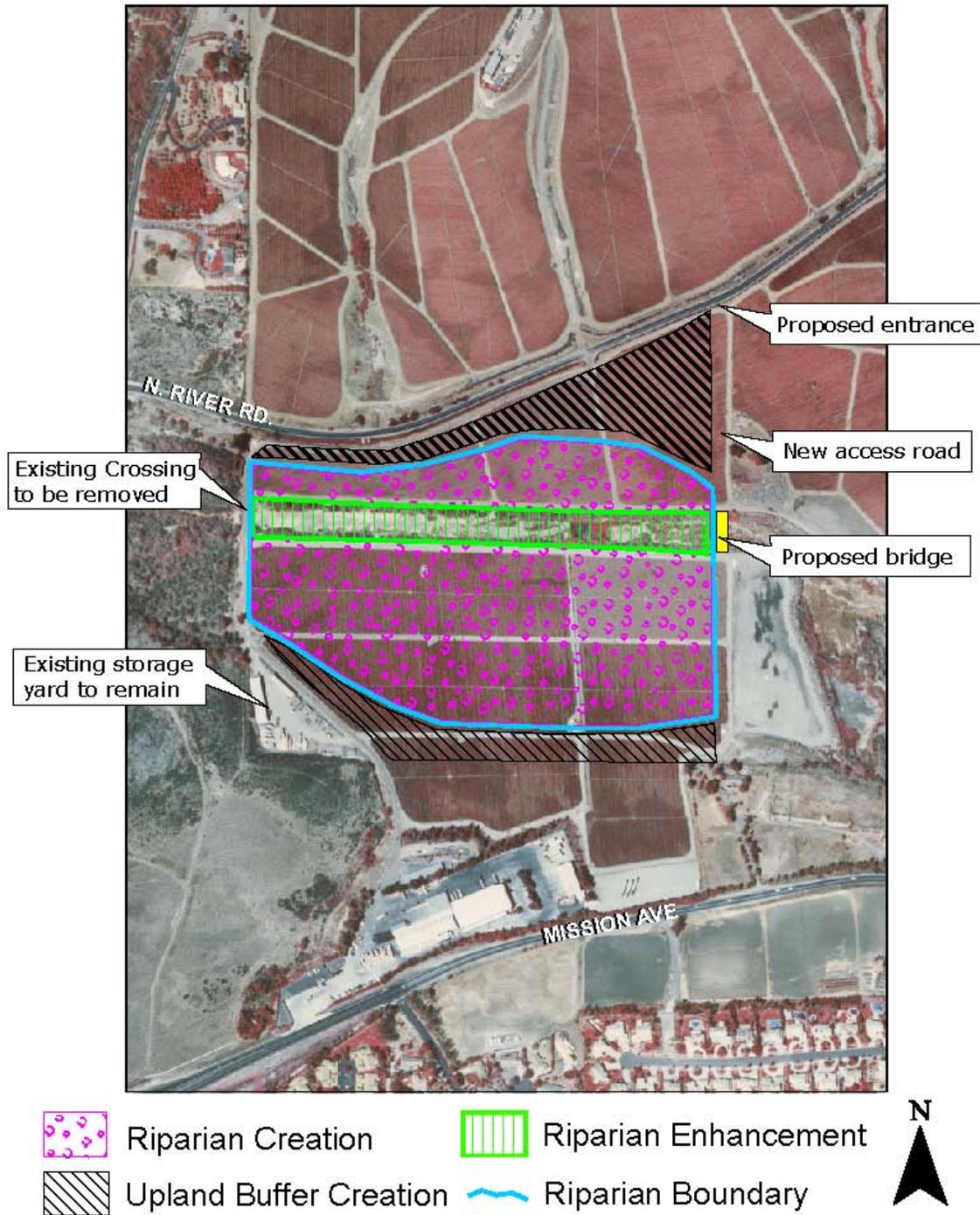


Figure 25. Singh Proposed Creation/Enhancement

#### 4.4.5 Pilgrim Creek Mitigation Bank

The Pilgrim Creek Mitigation Site is located along Pilgrim Creek, a tributary to the San Luis Rey River. The site is bordered to the west by Marine Corps Base Camp Pendleton, to the south by a golf course, and on the remaining sides by Douglas Drive and residential developments. The stretch of Pilgrim Creek on the site supports approximately 9.8 acres of willow-dominated riparian habitat along a narrow channel. Coastal sage scrub, including 34.6 acres of restored habitat, covers the slopes bordering the site to the west, and the center of the site supports riparian vegetation planted in 1996 within a 49.8 acre restoration area, as well as 1.5 acres of freshwater marsh. An additional small cell of planted riparian vegetation lies between Pilgrim Creek and Douglas Drive on the east side of the creek. This bank has 4.9 acres of available wetland mitigation credit.

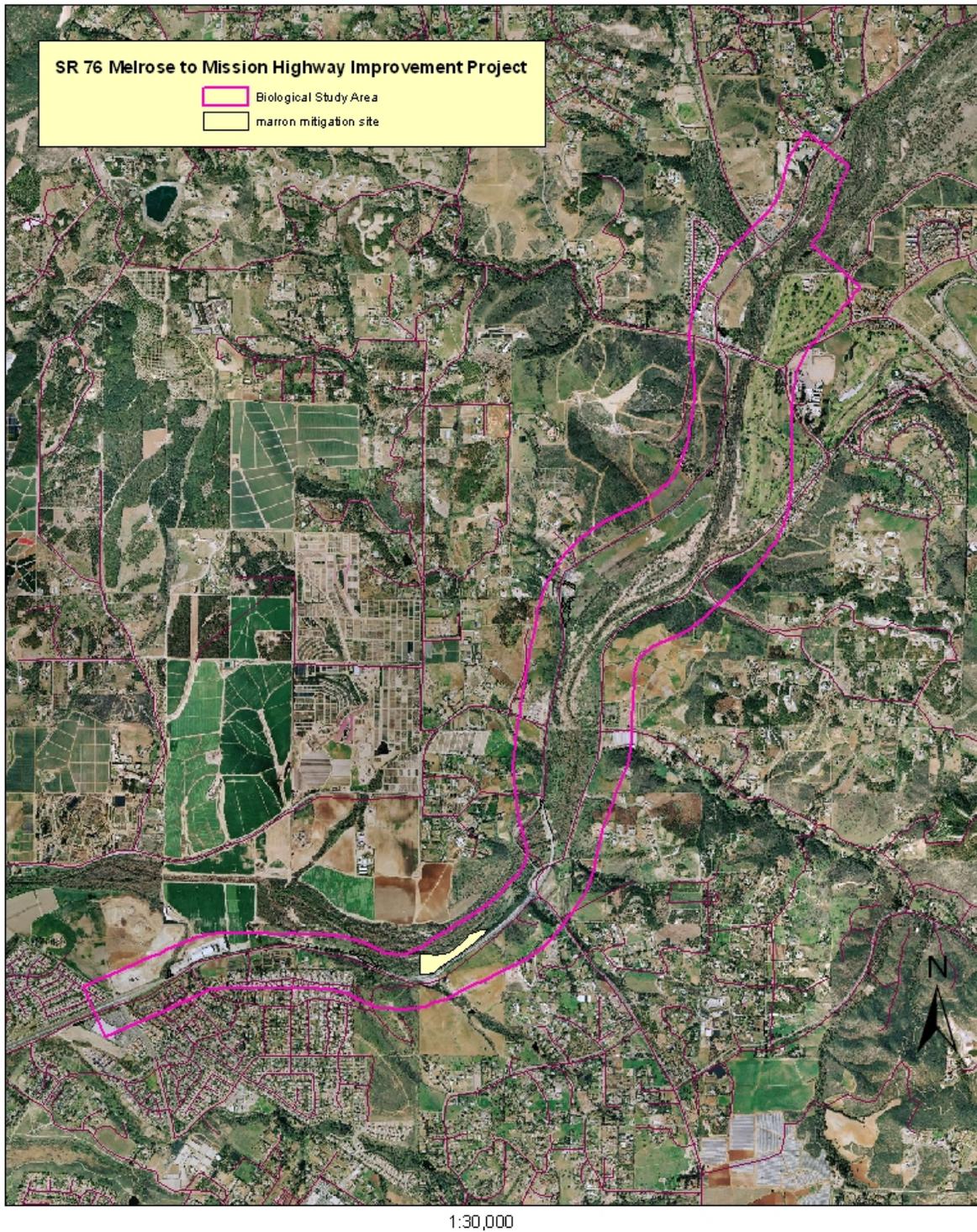
#### 4.4.6 Marron Mitigation Site

The 10.5-acre Marron Mitigation Site is located north and parallel to SR-76 from Post Mile 8.9 to Post Mile 9.2 (Figures 26 and 27). The San Luis Rey River runs parallel to the site directly north. The property is bordered to the north and northeast by agricultural and to the west by the Feck (City of Oceanside) Mitigation Site. It was selected as off-site mitigation for the San Mateo Creek Bridge Emergency Repair Project to provide habitat for the vireo and arroyo toad. In addition to the riparian and coastal sage scrub created on site, ambrosia was planted. Approximately 200, 1-gallon container plants that were salvaged from the SR-76 West extension were planted out on February 15, 2005. The ambrosia has expanded rapidly and now covers approximately 438,430 square feet (1.11 acre).

### **4.5 Projects and Land Uses Affecting Species and Critical Habitats**

A long list of historical projects and land uses along the San Luis Rey River, and the adjacent uplands, have degraded vireo, flycatcher, arroyo toad, gnatcatcher, and ambrosia habitat in this area. In addition, there is a long history of illegal fills and activities within the San Luis Rey River. Some of these have resulted in enforcement actions by the U.S. Army Corps of Engineers (Corps) and the Environmental Protection Agency, but many unauthorized activities go undetected. These types of activities all have the potential to impact the vireo, flycatcher, gnatcatcher, and toad either directly through mortality or indirectly due to loss or degradation of habitat.

# Marron Mitigation Site



**Figure 26. Marron Mitigation Site Location**

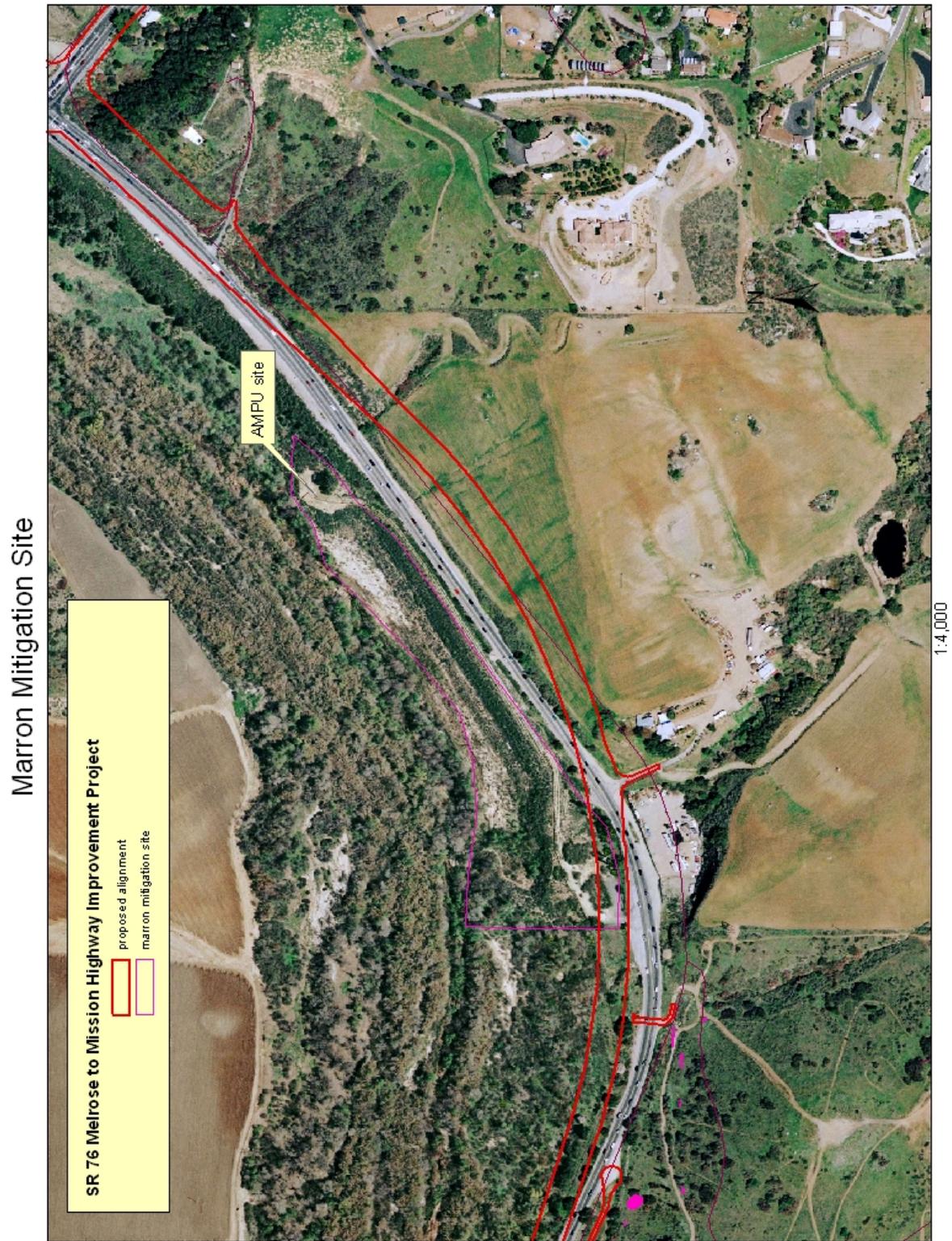


Figure 27. Marron *Ambrosia pumila* Location

#### 4.5.1 Geotechnical Borings along State Route 76

On December 20, 2007, the Service consulted informally on geotechnical borings at four locations along SR-76 in preparation for a new San Luis Rey River Bridge as part of the SR-76 Melrose Drive to South Mission Highway Improvement project. During this informal consultation, the Service determined that the proposed boring activity would have no effect on the arroyo toad; however, the proposed activity may affect, but is not likely to adversely affect, the flycatcher, gnatcatcher, and vireo. The proposed boring sites are located within designated flycatcher, gnatcatcher, and vireo critical habitat; however, through implementation of the avoidance and minimization measures, the proposed activity will not adversely affect designated critical habitat. On January 18, 2008, the Service issued a biological opinion for seven additional geotechnical boring locations along SR-76 in preparation for a new San Luis Rey River Bridge on arroyo toad, flycatcher, gnatcatcher, and vireo. The Service determined that, provided the description of the proposed action and conservation measures are implemented, the proposed project may affect, but is not likely to adversely affect the flycatcher and vireo, and will have no effect on the gnatcatcher. Take was authorized for no more than five (5) arroyo toad. The 22.5-acre action area includes seven boring sites (Piers 5-10 and Abutment 11), SR-76, access routes to these sites that are located east of SR-76 and the San Luis River Bridge, and a staging area that is located immediately north of the intersection at SR-76 and North River Road.

#### 4.5.2 Small Projects and Storm Water Operations along State Route 76

On August 29, 2007, the Service issued a draft programmatic biological opinion (FWS-SDG-3946.7) for project related effects from various small projects and storm water operations along SR-76 on arroyo toad, vireo and its designated critical habitat, flycatcher and its designated critical habitat, gnatcatcher and its designated critical habitat, the endangered light-footed clapper rail (*Rallus longirostris levipes*), and ambrosia. Drainage improvements and maintenance project activities for storm water facilities are conducted by the Caltrans along SR-76 within the San Luis Rey River watershed. The biological opinion also provides guidance for emergency repairs. Drainage improvements and maintenance projects, covered by the biological opinion would occur within 200 feet from the paved road surface, or up to but not beyond Caltrans' ROW fence or unmarked ROW boundary, whichever is less. Individual drainage and maintenance projects would not exceed one (1) acre of total area impacted. Projects that exceed one (1) acre of total impacts and/or extend beyond the Caltrans ROW would be reviewed on a case-by-case basis and require a project specific tiered biological opinion appended to the programmatic opinion. In a given calendar year, total project impacts (permanent and temporary) would not exceed 10 acres, of which up to 5 acres would be permanent.

#### 4.5.3 San Luis Rey River Flood Control

Construction of the flood control project from 1988-2000 resulted in the confinement of the San Luis Rey River and the permanent loss of 1,985 acres of the 100-year floodplain and an additional 1,209 acres of 500 year floodplain (total 500 year loss is 3,194 acres). This action

consequentially resulted in the loss of arroyo toad populations and reduced the carrying capacity of the channel for vireo and flycatcher, by reducing the amount of available habitat. Furthermore, the construction of the levees acts to constrict floodwaters, and to increase both its velocity and force, making the remaining riparian habitat more susceptible to washing out during a flood.

In December 2005, the Corps began removing vegetation within the channelized stretch of the San Luis Rey River to alleviate flood concerns by regaining the functionality and capacity of the river. Exotic plants have been and will continue to be removed. Implementation of the project will clear approximately 55 acres of exotic plant species, mostly *Arundo donax* and *Tamarix* sp., from a maximum 100-foot swath of vegetation along an approximately 5-mile reach of the flood control channel between Benet Road and College Boulevard. Additional clearing, consisting of native vegetation will occur in phases with an overall goal of providing 71,200 cubic feet per second of flow in channelized stretch of the river. An unquantified amount of sediment may be removed to achieve desired flow.

#### 4.5.4 Rosemary's Mountain Quarry

The proposed Rosemary's Mountain Quarry and associated SR-76 improvements project areas are located on the north side of SR-76, approximately 1.25 miles east of I-15. The proposed quarry site and the proposed road improvement area are located north of the San Luis Rey River. Native upland and riparian vegetation communities within this stretch of the river are known to support several federally-listed species including, vireo, flycatcher, arroyo toad, and gnatcatcher. Vireo surveys detected 22 vireo territories, one transient, and 2 dispersing vireos. The 22 territories included five in Horse Ranch Creek and 17 in the San Luis Rey River.

The project would permanently impact approximately 15.2 acres of arroyo toad upland habitat. Impacts to 14.6 acres of suitable upland arroyo toad habitat would be offset by the perpetual preservation and management of 14.6 acres of suitable arroyo toad upland habitat. The remaining 0.6 acre would be offset by the restoration of the 14.6 acres. The proposed project would result in direct impacts to 1.6 acres of vireo/flycatcher habitat. The 1.6 acres of impact include 1.5 acres of designated critical habitat for the flycatcher and 1.3 acres of designated critical habitat for the vireo. Creation/ restoration/enhancement of 4.8 acres of riparian habitat within designated vireo/flycatcher critical habitat in the San Luis Rey River would be used to offset this impact. Impacts to 40 acres of gnatcatcher habitat (including critical habitat) would be off-set through the on-site preservation and management of 12.6 acres of coastal sage scrub and 3.9 acres of coastal sage-chaparral, and the off-site purchase, preservation, and management of 63.59 acres of coastal sage scrub within Critical Habitat Unit 5 on and adjacent to the Sangra Ranch property.

#### 4.5.5 Unauthorized Dredge and Fill

The Environmental Protection Agency issued an administrative order to Brown Bulk Transportation Inc. and Valley Material and Supply Company on August 10, 2000, with regard to an unpermitted aggregate mining operation within the San Luis Rey River. According to the

EPA, on numerous days between January 1997 and January 2000, heavy equipment such as bulldozers, front-end loaders, excavators, and dump trucks discharged dredged and fill materials, primarily consisting of earthen materials such as sand, gravel, dirt and rocks, into the San Luis Rey River. The parties also stockpiled and sorted aggregate within the boundaries of the San Luis Rey River, constructed an earthen levee (which altered the hydrology at the confluence of Pala Creek and the San Luis Rey River), removed hundreds of thousands of cubic yards of aggregate from the main channel of the River, and excavated a pit in the main channel of the San Luis Rey which measures approximately 800 feet in length, by 500 feet in width, by 20 feet in depth. At least 3 arroyo toad males were located in the San Luis Rey River, downstream of its confluence with Pala Creek in the spring of 2001 (Jesse D'Elia, Service, *personal observation*). However, the pit that was created has provided more habitat for bullfrogs (*Rana catesbeiana*) which utilize deep standing water to complete their life cycle. In fact, several bullfrogs were found within a few meters of all 3 calling male arroyo toads (Jesse D'Elia, Service, *personal observation*) and 1 bullfrog was found within inches of a calling arroyo toad.

#### 4.5.6 Sand Mining

In 1986, J.W. Sand and Materials, Inc. began mining sand from a 42-acre site in the San Luis Rey River channel approximately 1 mile east of I-15. The County of San Diego Major Use Permit for the project permitted excavation to a depth of 10 feet within approximately 40 acres of the 42-acre site. As part of the permit conditions, J.W. Sand and Materials was required to prepare and implement a revegetation/reclamation plan for the 40-acre impact area. Mining activities have concluded and the revegetation plan has been implemented.

#### 4.5.7 Pala Casino

A casino was built on the Pala Indian Reservation in 2000 and 2001 directly to the west of Pala Creek, just north of the San Luis Rey River floodplain. This project resulted in the loss of approximately 20 acres of low quality upland arroyo toad habitat. As part of the gaming facility project, the Tribal water system and wastewater system for the Reservation was upgraded to provide water and sewer services to the casino. This upgrade included two new water supplies wells which were each able to produce 200 gallons per minute. To compensate for these impacts, the Pala Tribe has designated a 40-acre parcel of land upstream along the San Luis Rey River as a preserve for arroyo toads.

#### 4.5.8 Rincon Casino

The project resulted in the loss of approximately 53 acres of high quality upland arroyo toad habitat and the translocation of 143 arroyo toads. To off-set the impacts to arroyo toad upland habitat, the Rincon Tribe has committed to purchase and preserve 53 acres of suitable arroyo toad upland habitat along the San Luis Rey River. In addition, the Tribe has committed to the preparation and implementation of a long-term management plan on the portion of the San Luis Rey River, and adjacent upland habitat, located on the Rincon Reservation.

#### 4.5.9 Wildfires

In October and November of 2003, southern California experienced significant wildfire activity. The fires were distinguishable into 15 areas and burned a total of approximately 743,439 acres in Los Angeles, Riverside, San Bernardino, San Diego, and Ventura counties. It is unclear how much habitat for arroyo toad, vireo, and flycatcher burned in the fires as pre and post fire surveys were not completed across the range of these species where the fires burned. However, 111,725 acres of riparian habitat exists within Los Angeles, Riverside, San Bernardino, San Diego, and Ventura counties and the 2003 fires burned 5,668 acres (5 percent) of this area. The most significant impacts occurred in San Diego (3,186 acres), San Bernardino (1,304 acres), and Ventura (1,116 acres) counties due to the Cedar, Old, and Simi fires. In the case of the Cedar fire alone, the fire burned 2,314 acres of riparian habitat in San Diego County.

In October 2007, large wildfires returned to San Diego County burning approximately 370,000 acres. A complete analysis of impacts to these species has not been completed. Considering only Department of Interior owned lands in San Diego County, approximately 24,600 acres of habitat for vireo, flycatcher and gnatcatcher burned. The actual total acreage of species habitat (critical, suitable, modeled) burned during the 2007 fires is likely much higher as non-Department of Interior lands containing species habitat also burned.

It is assumed that no individual vireo or flycatcher were killed or harmed directly by the wildfires as they are migratory species and were not present when the fires occurred. Gnatcatcher were very likely harmed or killed during the wildfires as they are a resident species. Temporal loss of habitat and habitat type conversion are additional adverse effects these species, whether migratory or not, must cope with.

It is very difficult to quantify the impacts the wildfires have had on arroyo toad and there are potential impacts from the fire itself, as well as numerous scenarios that could adversely affect arroyo toad post-fire. Wildland fires change run-off and sedimentation patterns and severe fires may result in significant leaching of post-fire ash and releases of nutrients into stream water (Wright and Bailey 1982). Large deposits of sediment in the river channel following fires can affect the amount of habitat available for amphibian breeding and rearing, reducing reproductive output and recruitment (Gamradt and Kats 1997). Several fires have occurred in the recent past that has deposited post-fire ash in arroyo toad breeding areas of the San Luis Rey River. We believe that these events likely caused arroyo toads to find alternate breeding sites or may have prevented them from breeding in the spring following the fires because it is doubtful that arroyo toad breeding pools would form in the area affected by the fire-induced sedimentation deposits.

#### 4.5.10 Groundwater Pumping

Individual landowners, private water bottling companies, municipalities, and Tribes along the San Luis Rey River continue to pump unknown quantities of water from the river, as this activity is largely unregulated.

Oceanside currently pumps 8 percent of its water supply from the San Luis Rey River aquifer ([http://www.oceansidecleanwaterprogram.org/slrr\\_w.asp](http://www.oceansidecleanwaterprogram.org/slrr_w.asp)). The Pala Tribe also pumps a

significant amount of groundwater to meet the needs of the town as well as its hotel/casino. Water for private bottling is ongoing on top of Palomar Mountain with an unquantifiable impact to the headwaters of the San Luis Rey River. In the San Luis Rey River watershed, surface water and groundwater are an integrated system (PBS&J 2003). Groundwater pumping in the 1950s and 1960s caused the San Luis Rey River to become ephemeral. After construction of the San Diego aqueduct in 1947, imported Colorado River water became available and groundwater pumping in the San Luis Rey River declined. Nevertheless, groundwater pumping is ongoing. Groundwater pumping has the potential to change the hydrology (amount and timing of flows) within the San Luis Rey River which can reduce or eliminate habitat for all species associated with the river.

#### 4.5.11 Vector control

The County of San Diego has been conducting vector control activities in the San Luis Rey River during the bird and amphibian breeding seasons. Activities involve hand-broadcasting and helicopter drops of larvacide (*Bacillus* sp.) into breeding pools along the corridor. Impacts to federally-listed species from these activities are unknown and could involve impacts to diets and breeding behavior.

## 5. EFFECTS OF THE ACTION

This section presents an analysis of the direct and indirect effects of the proposed action on the arroyo toad, flycatcher, vireo, gnatcatcher, and ambrosia and their designated critical habitats, including interrelated and interdependent actions (Figure 28-31). The degree to which any of these activities affect the above species is described in terms of modification of suitable habitat and surface disturbance. These effects are discussed with respect to the conservation needs of the arroyo toad, vireo, flycatcher, gnatcatcher, and ambrosia and their designated critical habitats within the action area and within the larger conservation strategy for these species.

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that would 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 and are later in time, but are still reasonably certain to occur.

Impacts to Vegetation

Figure 4.1

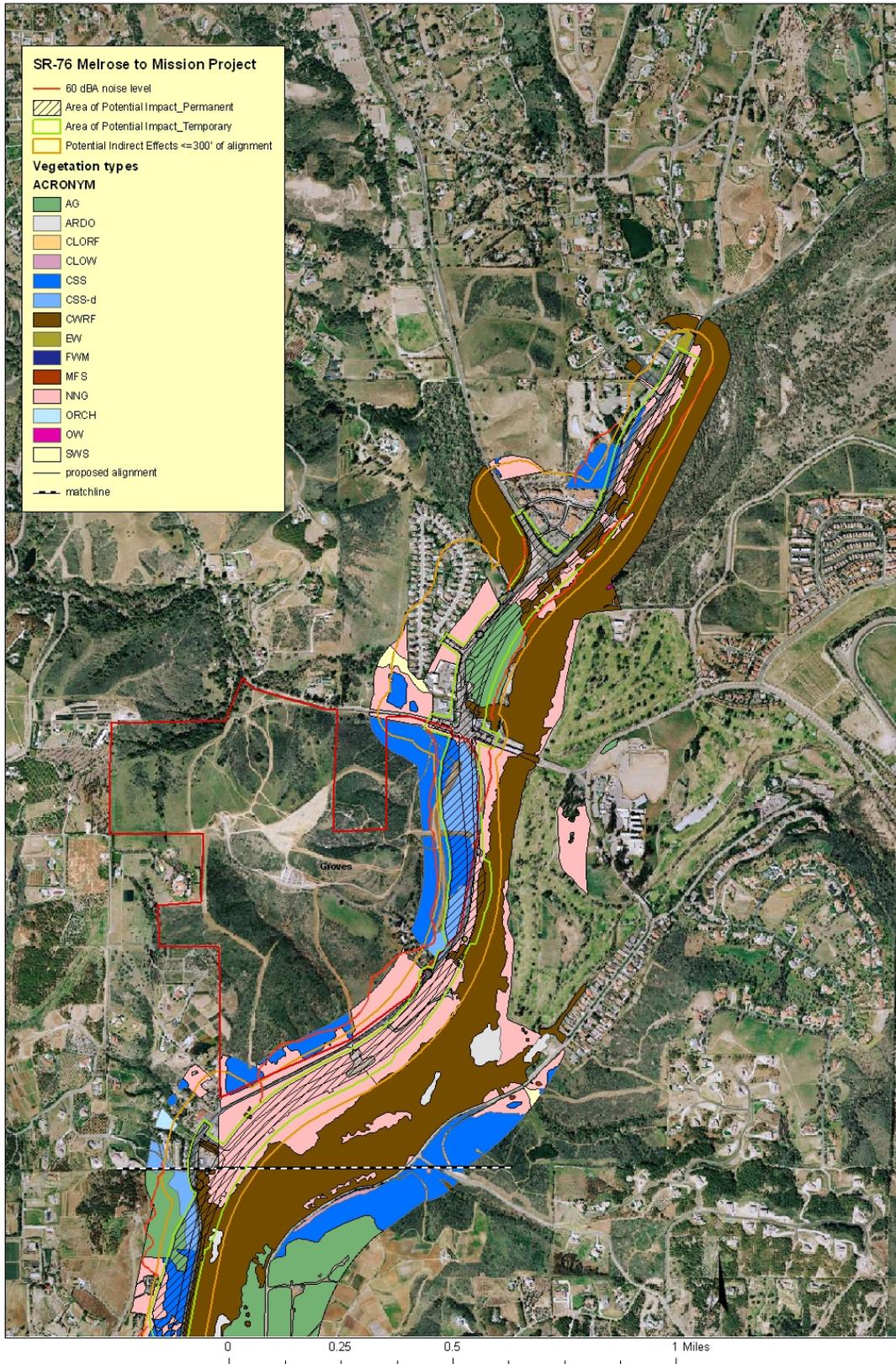


Figure 28. SR-76 Middle Impacts to Vegetation

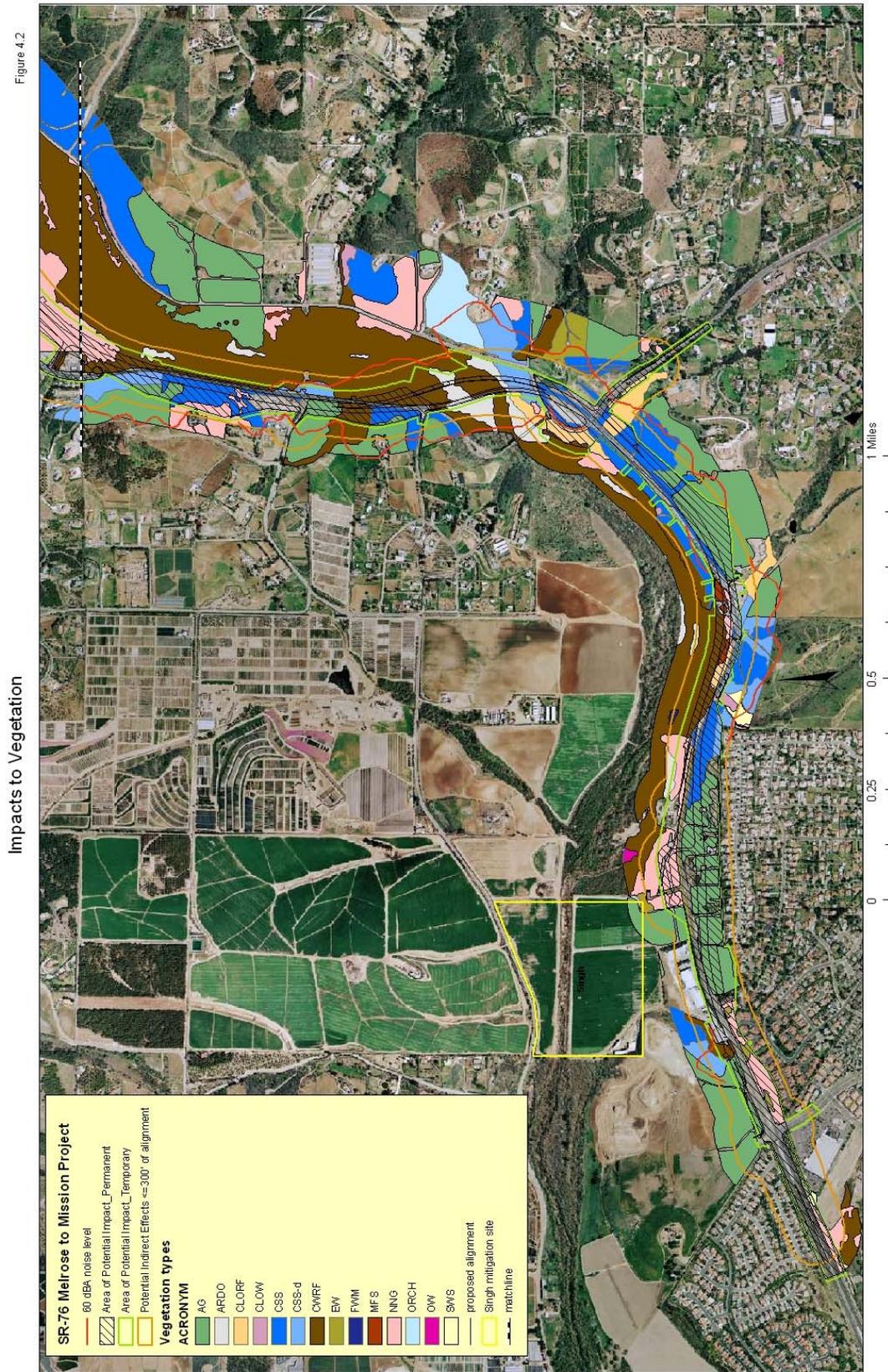


Figure 29. SR-76 Middle Impacts to Vegetation

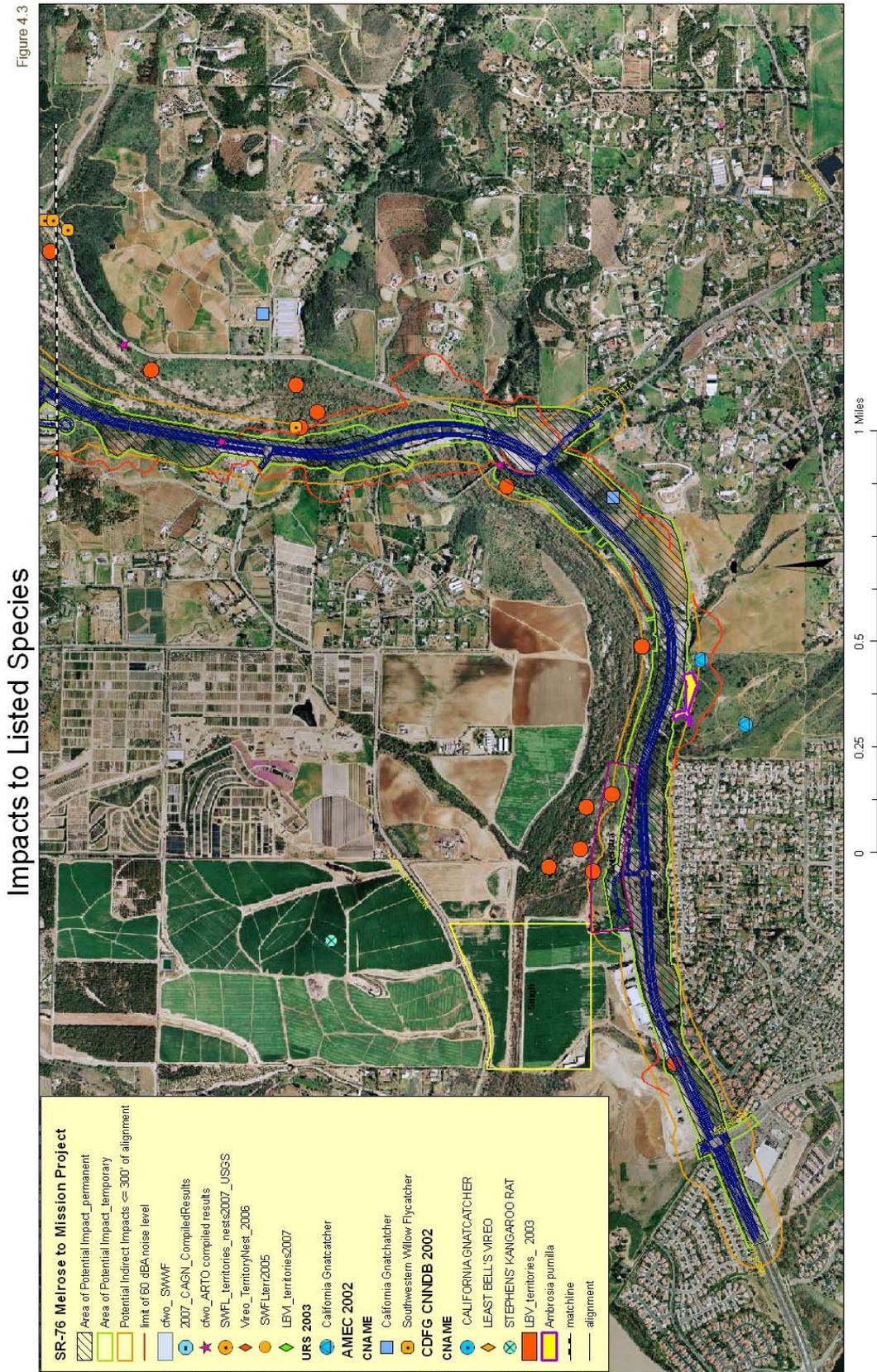


Figure 30. SR-76 Middle Impacts to Species

### Impacts to Listed Species

Figure 4.4

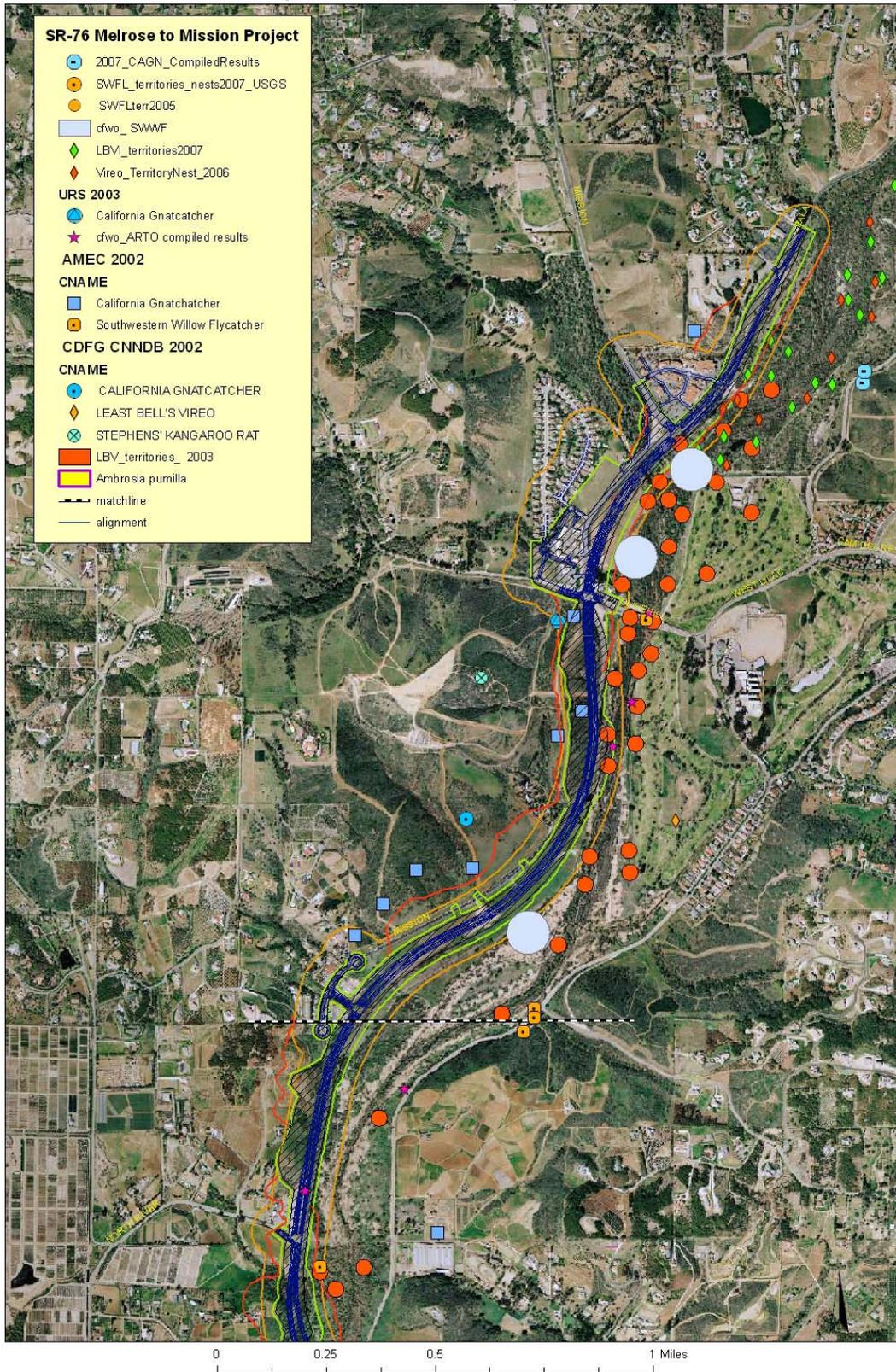


Figure 31. SR-76 Middle Impacts to Species

This biological opinion does not rely on the regulatory definition of “destruction or adverse modification” of critical habitat at 50 CFR 402.02. Instead, we have relied upon the statute and the August 6, 2004, Ninth Circuit Court of Appeals decision in *Gifford Pinchot Task force v. U.S. Fish and Wildlife Service* (No. 03-35279) to complete the following analysis with respect to critical habitat.

Effects to habitats located within the alignment footprint are considered permanent direct effects, and impacts to habitat located between the alignment and limits of disturbance (for construction access and grading) were assessed as temporary direct effects. Construction and operation of the SR-76 Melrose Drive to South Mission Highway Improvement project will result in permanent impacts to arroyo toad, vireo, flycatcher, and gnatcatcher habitat. Approximately 22.66 acres of riparian and wetlands, 24.36 acres of Diegan coastal sage scrub, 13.28 acres of disturbed Diegan coastal sage scrub, and 43.17 acres of non-native grassland would be removed by construction (see Table 1). Another 7.86 acres of combined coastal sage scrub and disturbed coastal sage scrub, 15.87 acres of riparian and wetlands, and 10.66 acres of non-native grassland would be temporarily disturbed. For purposes of evaluation, the areas located within 300 feet of the proposed alignment’s edge of traveled way, as well as anticipated traffic noise at or above 60 dBA, were considered as the area of indirect effects. Traffic noise associated with the project may have a permanent indirect effect on listed and sensitive species. Because birds are dependent upon sound and can be sensitive to noise, Caltrans analyzed the potential effects of the project’s noise on those birds within the project area that are federal or state listed as threatened or endangered. Caltrans study used a value of 60 decibels on the A-scale (dBA) as the level at which potential effects could occur to sensitive avian wildlife (see Table 2).

## 5.1 Proposed Compensation

Permanent direct impacts to the vegetation communities listed in Table 1 would be offset through the implementation of one of the two options in Tables 3-8 and as discussed below.

Temporary disturbance to both upland and riparian habitats, within the project area, would be offset through native revegetation of the area (1:1 ratio) upon completion of construction. All seeding/planting will occur on site within the temporarily disturbed habitat and involve replacement with in kind/similar native species, to the maximum extent practicable. Temporary disturbance to cottonwood willow riparian forest, where this habitat contains the primary constituent elements for arroyo toad, vireo, and flycatcher, would be offset through native revegetation of the area, as above, and will include restoration of similar habitat at the Morrison property at an additional 0.5:1 ratio, for a total of 1.5:1 ratio. All indirect impacts (with the exception of arundo/disturbed wetland) will be offset at a 1:1 ratio through restoration/enhancement at the Morrison property or preservation at the Groves. Indirect effects to arundo/disturbed wetland will be offset at 0.5:1 through restoration of riparian scrub/riparian forest at Morrison.

### 5.1.1 Option A (Tables 3-5)

Option A proposes to offset permanent direct impacts to riparian and wetland communities through the creation of wetland communities (1:1 ratio) at the Singh and/or Zweirstra properties, purchase of 4.94 acres of wetland creation credits at the Pilgrim Creek Mitigation Bank, and the restoration/enhancement of riparian forest and riparian scrub at the Morrison Property (2:1 ratio), for a total compensation ratio of 3:1. Permanent direct impacts to upland habitats would be offset through off-site preservation at the Groves at a 2:1 ratio for coastal sage scrub (including disturbed), 3:1 ratio for coast live oak woodland, 1:1 ratio for non-native grassland arroyo toad habitat, and 0.5:1 ratio for non-toad habitat non-native grassland. All mitigation sites would have a restoration/creation/enhancement plan for short term and habitat management plan to further ensure all habitat types are self-sustaining over the long term.

At the Singh location, located near the southern end of the project, approximately 37.9 acres of riparian scrub/riparian forest creation and 5.5 acres of freshwater marsh/riparian scrub restoration would be created/restored and preserved. At the Morrison site, located along the San Luis Rey River north of the project area, an estimated 148.28 acres of riparian scrub/riparian forest would be restored and preserved with additional ambrosia translocation occurring on the property. The Zweirstra site has the potential for 3.4 acres of riparian scrub/riparian forest creation and 3.3 acres of riparian scrub/riparian forest restoration. In addition, approximately 13.6 acres of coastal sage scrub creation/buffer could occur on the Singh property and 7 acres of coastal sage scrub creation/buffer could occur on the Zweirstra property. This proposed upland creation would be available to offset impacts from future projects (e.g., SR-76 East). The Groves property, located just west and adjacent to the current SR-76, would be utilized to compensate for permanent impacts to upland habitats. The Groves site contains upland areas consisting of approximately 180 acres of coastal sage scrub, 50 acres of non-native grassland, 0.5 acres elderberry scrub, and 11 acres of coast live oak woodland.

Through a combination of preservation, restoration, creation, and enhancement, habitat for the arroyo toad, gnatcatcher, vireo, flycatcher, and ambrosia would be managed and preserved in perpetuity.

### 5.1.2 Option B (Tables 6-8)

Option B proposes to offset permanent direct impacts to riparian and wetland vegetation types through restoration/enhancement at Morrison, creation at Zweirstra, and the purchase of wetland creation credits at the Pilgrim Creek Mitigation Bank (Tables 6, 7, and 8). Permanent direct impacts to upland habitats would be offset through off-site preservation at the Groves using the ratios shown in Tables 7 and 8. The approximately 7 acres of upland creation at Zweirstra would be available to offset impacts from future projects (e.g., SR-76 East). See Tables 7 and 8 for more details. All mitigation sites would have a restoration/creation/enhancement plan for short term and habitat management plan to further ensure all habitat types are self-sustaining over the long term.

This option would offset permanent direct impacts to 1.11 acres of mulefat scrub, 0.13 acre of southern willow scrub, 3.09 acres of southern coast live oak riparian forest, and 9.99 acres of southern cottonwood willow riparian forest at a 5:1 ratio. Impacts to 4.94 acres of Corps jurisdictional southern cottonwood willow riparian forest would be offset at a 1:1 ratio through the purchase of creation credits at the Pilgrim Creek Mitigation Bank. Impacts to an additional 3.4 acres of southern cottonwood willow riparian forest would be offset at a 3:1 ratio through a combination of 1:1 creation at Zweirstra (3.4 acres) and 2:1 restoration at Zweirstra (3.3 acres) and Morrison (3.5 acres). Arundo/disturbed wetland would be offset at a 1:1 ratio through the restoration of 0.003 acre at Morrison (Table 7 and 8).

Caltrans would restore approximately 148.28 acres of native riparian scrub/forest habitat for vireo and arroyo toad to mitigate for impacts to riparian forest/scrub. In addition to the restored habitat, approximately 27 acres of degraded habitat, within the Caltrans right of way along SR-76, would be enhanced through exotic removal; however, some of this area may be impacted by the future widening of SR-76. Within the 149 acre restoration area, approximately 6.53 acres of non-native grass and mustard degraded meadow would be de-thatched to open up this habitat for use by arroyo toads. These restoration activities would create additional arroyo toad habitat and restore vireo habitat along the corridor.

## **5.2 Wildlife Corridors**

Impacts to wildlife corridors due to habitat loss would be compensated by mitigation discussed above and shown in Tables 3-8. Loss of habitat connectivity would be addressed by the placement of wildlife crossings and directional fencing at suitable locations.

The wildlife crossings assessment conducted by Caltrans determined suitable wildlife crossings as part of the SR-76 Melrose Drive to South Mission Highway Improvement project. The assessment was performed by: utilizing GIS mapping to illustrate the spatial extent of the linkage zone and any recognized areas of high conservation value; conducting site assessments to identify existing and potential crossing locations for large and medium-bodied mammals, including mule deer, mountain lion, coyotes and bobcats; prioritizing wildlife crossing locations and developing design alternatives that maintain or enhance the functionality of this linkage. In addition to large mammals, species occurrences include medium-bodied mammals such as raccoon, gray fox, striped skunk, long tailed weasel, desert cottontail and gray squirrel. Small mammals, such as mice species, as well as toad and frog species, lizards, and snakes are present in the project vicinity and are known to utilize wildlife crossings. The assessment identified specific factors relating to wildlife crossings, including habitat linkages that corresponded to designated open space areas, preservation areas and areas under public ownership. Existing connectivity at roads was evaluated, including culverts, undercrossings and bridges. Specific landscape features were assessed, including ravines, riparian areas, wetlands and tributaries of the San Luis Rey River, and locations at which these resources were separated by roads and/or developed areas. A determination was made of intersecting locations where the proposed project had the potential for retrofitting existing or adding new crossing structures (University of California, Davis and Department of Transportation, 2007). Wildlife movement across the roadway will be discouraged; traffic along this stretch of SR-76 is unlikely to allow successful

crossings. Further, wildlife crossings will be discouraged where suitable habitat does not exist on the other side of the road.

Wildlife fencing would consist of 8-foot tall chain link fence buried 1 foot underground. Beginning at the Singh eastern property line, wildlife fencing will be placed along the north side of the alignment until just past the southern San Luis Rey Bridge abutment. Wildlife fencing would be constructed along the south side of the alignment beginning at the eastern edge of Jefferies Ranch development and continue to East Vista Way. North of the bridge, wildlife fencing would also include permanent 0.25-inch hardware cloth toad fencing that would be buried 1 foot underground and extend 2 feet above ground. This fencing would funnel wildlife of all sizes to crossings. Fencing would continue along the southern side of the alignment to the northern project limit. Toad and wildlife fencing would also be placed along the north side of the alignment from Via Montellano until the road grading begins along the edge of the Groves property. Wildlife fencing would continue until Olive Hill Road. Toad and wildlife fencing would also be placed along the north side of the road alignment where it borders the Bonsall Preserve.

Suitable wildlife crossings were found at the following sites (see Figure 11).

1. South of the river near the Oceanside/Bonsall boundary, directional fencing and a wildlife under crossing would benefit wildlife by enhancing connectivity, and will limit incidences of roadkill. This wildlife under crossing will be a RCB culvert measuring 8 ft high, 14 ft wide and 180 feet long within a corridor that consists of a strip of oak forest and leads to and from rural residential, agricultural vacant lands and open water. The Marron mitigation parcel lies immediately northeast of this location. Directional fencing would be provided along both sides of the proposed highway project and would extend northeast to East Vista Way, and southwest to the Jeffries Ranch subdivision south of SR-76; the north side would continue to the Singh mitigation parcel.
2. At Ostrich Farms Creek, a bridge will be constructed that will allow wildlife to pass underneath the alignment. It would be approximately 5 feet high, 46.19 feet wide and 140.75 feet long. The exact height is still to be determined. Design features include a soft bottom channel to increase wildlife movement. This crossing would allow movement between the Bonsall Preserve and the San Luis Rey River. This larger structure would provide greater opportunity for wildlife to cross the roadway than currently exists.
3. Two locations along the proposed project and adjacent to the Groves mitigation site would be fitted with box culverts. This would provide wildlife movement between the site and the San Luis Rey River. At the western location, box culvert measuring 12 feet high, 26.65 feet wide and 111.25 feet long would be constructed, allowing movement to and from upland habitats. Culverts with appropriate substrate may provide connectivity for most small and medium mammals, reptiles, amphibians, and possibly large mammals. At the eastern location, a box culvert measuring 10 feet high, 13.98 feet wide and 173.88 feet long would be constructed, providing a connection between upland habitat at the Groves mitigation site and San Luis Rey River riparian areas.

### 5.3 Arroyo Toad

No construction activities are proposed during the arroyo toad breeding season (March 15-July 31) within suitable arroyo toad breeding habitat; therefore, no impacts are anticipated to occur to breeding arroyo toads, arroyo toad eggs, and/or arroyo toad larvae. However, adult and juvenile arroyo toads may still remain after translocation efforts are completed and may be burrowed within the impact area(s) or moving through the active construction site.

#### 5.3.1 Direct Impacts

The proposed project would cause direct effects to the arroyo toad from excavating, filling, or driving on arroyo toads burrowed into the soil or moving within the project footprint, or trampling of arroyo toads by work crews. In addition, the effects related to the translocation of arroyo toads are unknown. Handling procedures are detailed in the *Declining Amphibian Population Task Force's Code of Practice* (proposed for revision). Following these procedures is a conservation measure of this Opinion and should reduce or eliminate direct death or injury if followed and arroyo toads react uniformly. However, eliciting the emergence of arroyo toads and translocating them could result in currently unknown physiological, ecological and biological impacts, as it could conceivably occur anytime of the year including mid-aestivation.

Direct impacts would result in the permanent loss of 22.66 acres of riparian and wetland habitat types that are potential breeding habitats for the arroyo toad. Temporary disturbance would impact an additional 15.87 acres of riparian and wetland vegetation.

Potential aestivation areas within 3,000 feet of known arroyo toad populations were evaluated; permanent impacts to these areas include 0.005 acre of coastal sage scrub (including disturbed coastal sage scrub), 30.72 acres of non-native grassland, and 37.52 acres of agricultural land. Temporary impacts would occur to 2.61 acres coastal sage scrub (including disturbed), 11.75 acres of non-native grassland, and 2.30 acres of agricultural land that provide potential arroyo toad aestivation habitat<sup>3</sup>.

Approximately 148.28 acres on the Morrison property and adjacent Caltrans right-of-way would be impacted through the restoration/enhancement of riparian scrub/forest. The majority of this area would be planted with cottonwood, oak, sycamore, and other riparian species to fill gaps after the removal of exotic species (e.g., arundo). This acreage includes approximately 6.53 acres of non-native grassland and degraded meadow on Morrison that would be dethatched and replanted with a mixture of native grasses, forbs, and upland or upland/riparian transitional species to enhance the area for arroyo toads.

#### 5.3.2 Indirect Impacts

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<sup>3</sup> Upland habitats, which the arroyo toad may use for aestivation, include coastal sage scrub, non-native grassland, and agricultural land.

Indirect effects likely would occur to approximately 75.63 acres of riparian and wetland habitat, 1.26 acres of coastal sage scrub, 17.01 acres of non-native grassland, and 2.39 acres of agricultural land.

Indirect effects, including increased invasive flora and fauna and increased predation, are expected to occur as a result of the proposed project. Invasive species are now recognized as a threat to biodiversity in native plant communities, second only to direct habitat loss and fragmentation (Pimm and Gilpin 1989, Scott and Wilcove 1998). Non-native, weedy species often out-compete and exclude native species, potentially altering the structure of the vegetation, degrading or eliminating upland habitat utilized by the arroyo toad, and providing food and cover for undesirable non-native animals (Bossard *et al* 2000). Furthermore, the increased irrigation required by many common landscaping species may provide suitable conditions for the establishment of introduced Argentine ants (*Linepithema humile*) within the on-site and adjacent biological open space areas. Argentine ants can build up to large colonies and eliminate the native ant fauna that is a major food source of the arroyo toad (Holway 1995, Human and Gordon 1997). In addition, human activity in the project area, during construction and throughout the life of the proposed project, may result in accumulation of trash and food, attracting predators that prey on arroyo toads, as well as increased frequency of intrusion into on-site and adjacent biological open space areas by humans and domestic animals.

Overspray or over-application of herbicide is a concern as immediate contact or delayed contact (leaching) with arroyo toads may be lethal or result in adverse effects.

In addition to the indirect effects described above, arroyo toads have the potential to cross SR-76 when moving between the San Luis Rey River and upland habitats. Undocumented breaches in the permanent arroyo toad barrier fencing are likely to occur over the life of the project. Arroyo toads that enter the SR-76 roadway have a very high potential of being struck by motor vehicles as the project would result in increased vehicle capacity and volume. It is likely that the SR-76 would represent a complete barrier to arroyo toads.

### 5.3.3 Conservation Measures to Offset Impacts to Arroyo Toad

Compensation for permanent direct impacts to riparian and wetland habitats would occur at either a 3:1 or 5:1 ratio, depending on which option is chosen (see Tables 3-8). Permanent impacts to upland habitat would offset at 2:1 for coastal sage scrub (including disturbed) and 3:1 for coast live oak woodland. Where non-native grassland provides potential habitat for arroyo toad aestivation, impacts would be offset at a 1:1 ratio. Non-toad grassland impacts would be offset at a 0.5:1 ratio.

To avoid and minimize direct effects to the arroyo toad, exclusionary fencing would be installed. The area within the barrier fence would be surveyed by a Service-approved biologist prior to construction. If climatic conditions are not appropriate for arroyo toad movement during the clearance surveys, the biologist would attempt to illicit a response from the arroyo toad by irrigating the area to simulate a rain event. Any arroyo toads detected within the barrier fencing would be picked up by a biologist and placed on the outside of the barrier fence within the

nearest suitable habitat. All fencing materials would be removed following construction. Ingress and egress of construction equipment and personnel would be kept to a minimum, but when necessary, equipment and personnel would use a single access point to the site. This access point would be as narrow as possible and would be closed off by exclusionary fencing when personnel are not on the project site.

Utilizing an experienced arroyo toad biologist for translocation efforts and oversight of the exclusionary fencing would greatly increase capture rates of arroyo toads and ensure further exclusion from the impact areas.

Directional fencing and a wildlife undercrossing placed at the south side of the San Luis Rey River near the Oceanside/Bonsall boundary would enhance connectivity for wildlife species and limit incidences of roadkill and at the Bonsall Preserve/Ostrich Farms Creek crossing a bridge is planned to provide wildlife movement where none currently exists. In addition, strategically placed wildlife crossings from the San Luis Rey River to drainages at the Groves property would provide additional wildlife movement opportunities. Therefore, the widening of SR-76 is not anticipated to preclude connectivity between arroyo toad breeding areas and suitable upland habitat or result in the fragmentation of suitable arroyo toad upland habitat. To minimize road mortality, a permanent arroyo toad barrier fence would be installed between the San Luis Rey River and SR-76 to prevent arroyo toads from attempting the dangerous crossing where movement into the upland is not possible or beneficial.

To avoid and minimize impacts to arroyo toads currently using portions of the Morrison property, no grading is proposed during restoration. Exotic plant species would be removed from the entire site outside the arroyo toad breeding season and natives would be replanted to enhance the habitat on site for both the arroyo toad and vireo.

Temporary disturbance to potential arroyo toad habitat would be offset through native revegetation of the impacted area (1:1 ratio) upon completion of the project. Indirect impacts would be offset at 1:1 for all potential arroyo toad habitats except disturbed wetland/giant reed that would be offset at a 0.5:1 ratio. Other measures to avoid/reduce adverse effects on the arroyo toad would involve restricting vegetation clearing from occurring during the breeding season (working from July 1 through March 1), except for a minimal amount of cutting vegetation to increase detection during the clearance surveys, having a Service-approved restoration plan, as well as other measures designed to avoid or minimize impacts.

#### 5.3.4 Summary of Impacts to Arroyo Toad

Direct impacts would result in permanent impacts to approximately 22.66 acres of riparian and wetland habitat types which are potential breeding habitats for the arroyo toad and 0.005 acre of coastal sage scrub (including disturbed coastal sage scrub), 30.72 acres of non-native grassland, and 37.52 acres of agricultural land that may provide aestivation habitat. Temporary impacts would occur to 2.61 acres coastal sage scrub (including disturbed), 11.75 acres of non-native grassland, and 2.30 acres of agricultural land that provide potential arroyo toad aestivation habitat. Non-native habitats impacted would be restored with natives.

Conservation measures require an arroyo toad exclusion fence and all arroyo toads appropriately removed from within the impact area(s) and translocated. No direct impacts to breeding arroyo toads, their nests, eggs, or young are expected from construction activities related to the proposed project. Direct and indirect effects would be avoided and/or minimized through implementation of the conservation measures in this biological opinion.

The project would impact approximately 1.05 percent of the 8,669 acres of habitat that occurs within excluded critical habitat unit 14. The loss of this small percentage of habitat is not expected to reduce the function or connectivity of this unit should it be reconsidered and designated in the future.

#### **5.4 Southwestern Willow Flycatcher and Least Bell's Vireo and Critical Habitat**

The proposed action is likely to result in adverse effects to the vireo and flycatcher, through temporal and permanent removal of habitat and road-related indirect effects. Vegetation clearing and grubbing associated with the project would occur outside of the vireo and flycatcher breeding season (March 15 through September 15) to avoid the potential for direct impacts to individual vireos and flycatchers, nests, eggs, or young along the road realignment.

##### **5.4.1 Direct Impacts**

The project would result in permanent direct impacts to approximately 22.66 acres of riparian and wetland vegetation that is suitable vireo habitat. Included in this total are approximately 18.33 acres of southern cottonwood willow riparian forest and 0.13 acres of southern willow scrub that is also potential nesting habitat for the flycatcher. Temporary impacts to approximately 15.87 acres of riparian and wetland areas, including 14.32 acres of southern cottonwood willow riparian forest, would affect vireo and flycatcher nesting and breeding habitat. No temporary impacts are expected in the southern willow scrub.

A total of 44 vireo territories were identified in the BSA during the 2003 surveys. Of this total, portions of approximately 4 territories and 5 individuals would be permanently impacted by the proposed project. Approximately 7 pairs and 6 individual vireos may be temporarily impacted. One pair of flycatchers, observed in the southern cottonwood willow riparian forest along the San Luis Rey River in the northern portion of the BSA, may be affected by the proposed project.

Both permanent and temporary project impacts would occur immediately adjacent to SR-76 within the Caltrans' right-of-way. Generally, vireo and flycatcher territories would extend up to the road and not beyond due to the high vehicle capacity of SR-76, associated road edge effects (fragmentation, noise, car collisions), and the absence of vireo or flycatcher habitat on the other side of the road. Existing fragmentation and road effects would be exacerbated from project related increases to the road capacity and volume. Implementation of project would primarily impact the edges of territories and not complete territories.

Approximately 148.28 acres on the Morrison property and adjacent Caltrans right-of-way would be impacted through the restoration/enhancement of riparian scrub/forest. The majority of this area would be planted with cottonwood, oak, sycamore, and other riparian species to fill gaps after the removal of exotic species (e.g., arundo). The application of herbicide is not expected to result in adverse effects to the vireo or flycatcher, because the application would occur to individual plants and would be greater than 100 feet from a given nest.

#### 5.4.2 Indirect Impacts

For purposes of evaluation, the areas located within 300 feet of the proposed alignment's edge of pavement, as well as anticipated traffic noise at or above 60 dBA, were considered as the area of indirect effects. Potential vireo and flycatcher habitat within this 300-foot band was assessed as being indirectly affected by project-related road effects such as lighting, dust, increased non-native species plant intrusion, resulting in potential loss of individual vireos or flycatchers or the habitats necessary to support these species. Indirect effects could impact up to 75.63 acres of riparian habitat, including vireo and flycatcher nesting habitat. Based on the noise analyses conducted by Merkel and Associates in 2006, the project would have the net effect of increasing exposure to 60 dBA traffic noise across 29.66 acres of habitat suitable for the vireo, including 27.17 acres of habitat potentially suitable for the flycatcher. When noise effects are combined with the 300-foot area of indirect effects, the project would have the net effect of increasing exposure to 60 dBA of traffic noise across 16.72 acres of habitat suitable for the vireo and flycatcher.

Increased noise poses an indirect, potential threat to vireo within the project action area (e.g., RECON 1988, Pike and Hays 1992). Noise is thought to be potentially harmful to a variety of bird species (Gunn and Livingston 1974, RECON 1988, Pike and Hays 1992). Many birds have acute senses of hearing (Dooling 1980, Knudsen 1978, Fay and Feng 1983) and researchers have documented and described the negative effects of noise on birds. For instance, Fletcher *et al.* (1971) reported that few, if any, of the reported or suggested effects of noise on wildlife would benefit them or increase their chances for survival, whereas known, detrimental noise effects may decrease their chances for survival or even lead to their death. In the extreme, the apparent effects of noise can be devastating to wildlife populations.

Dufour (1980) of the Environmental Protection Agency (EPA) identified four major categories of noise effects on wildlife: 1) auditory physiological, 2) nonauditory physiological, 3) behavioral, and 4) masking. Although masking (i.e., interference with the reception of auditory signals because of interfering environmental noise) and behavioral considerations are of primary concern in this instance, Dr. R. J. Dooling (1980), bioacoustics expert from the University of Maryland, stated and documented that "as studies with humans have shown, noise has other deleterious effects (other than masking) and there is no reason to think that noise would not effect animals in the same way." For instance, Gunn and Livingston (1974) reported that a bird population exposed to helicopter disturbances and human activity suffered (in contrast to the control population) lower hatching and fledging success and increased rates of nest abandonment and the premature disappearance of nestlings. Woolf *et al.* (1976) concluded that prenatal

auditory stimulation can affect the development (and, therefore, the physiology) of an avian embryo inside an egg.

“Masking,” however, may be most detrimental to small perching birds, like the vireo and flycatcher. In essence, “excess sound can interfere with the perception of important, relevant auditory signals” (Miller 1974). Whether a vireo or flycatcher receives potentially vital auditory information depends on such noise parameters as environmental attenuation, signal to noise ratios, and discrimination of the receiver given the background noise. The pertinent biological literature suggests that birds utilize their sense of hearing to locate their young and mates, to establish and defend territories, and to locate and evade predators (Scherzinger 1970, Shen 1983). The life of a vireo or flycatcher may well depend upon its detection of an alarm call given by another vireo or flycatcher (or other source) that warns of the approach of potential predators.

Masking noise may also affect the breeding behaviors of affected birds. Dooling (1980) concluded that, if “noise masks vireo song for the human (at some given distance) then it probably also significantly masks vireo song for the vireo.” Dooling continued that “the human almost certainly does better than the vireo in hearing a signal in noise around 2 to 4 kilohertz (probably about twice as good).” Given Dooling’s remarks concerning the relative acuities of human and vireo hearing and the aforementioned dependence of the vireo and flycatcher on their sense of hearing, unabated, masking noise could adversely affect vireo and flycatcher pairs or individuals that are present in, or adjacent to, the subject action area.

In addition to noise impacts, the project has the potential to degrade designated vireo and flycatcher critical habitat through introduction of exotic plants from landscaping. In some cases, exotic plants can out-compete and supplant native plants, changing the structure and floristics of the plant community upon which vireos and flycatchers depend. Furthermore, the increased irrigation required by many common landscaping species may provide suitable conditions for the establishment of introduced Argentine ants within the on-site and adjacent biological open space areas. In addition, human activity in the project area, during construction and throughout the life of the proposed project, may result in accumulation of trash and food, attracting predators that may prey on vireos and flycatchers, as well as increased frequency of intrusion into on-site and adjacent biological open space areas by both humans and domestic animals. Habitat degradation, as described above, would reduce the quality of designated vireo and flycatcher critical habitat.

#### 5.4.3 Least Bell’s Vireo Critical Habitat

Direct effects to designated vireo critical habitat with primary constituent elements for the vireo are expected from the permanent removal of approximately 22.66 acres of riparian vegetation. The proposed impacts would occur within the San Luis Rey River critical habitat area. Vireo critical habitat stretches from near Lilac Road in Pala, southwestward along the San Luis Rey River nearly to I-5 in the west, totaling approximately 656.1 acres within the entire length of the BSA. A total of approximately 114.16 acres of designated vireo critical habitat would be

affected directly or indirectly by the proposed project. This loss could reduce the amount of habitat available to vireos for breeding and foraging activities.

#### 5.4.4 Southwestern Willow Flycatcher Critical Habitat

Direct effects to designated flycatcher critical habitat with primary constituent elements are expected from the permanent removal of approximately 18.33 acres of cottonwood willow riparian forest. The proposed impacts would occur within San Diego Management Unit of designated critical habitat. A total of approximately 337.32 acres of the segment of San Luis Rey River within the BSA is located in designated critical habitat for the flycatcher. A total of approximately 96.87 acres of designated flycatcher critical habitat would be directly or indirectly impacted by the proposed project. This loss could reduce the amount of habitat available for breeding and foraging activities.

#### 5.4.5 Conservation Measures to Offset Impacts to Vireo and Flycatcher

Disturbance to riparian and wetland habitats would be offset through restoration/enhancement of riparian and wetland habitat at the Morrison parcel, creation at the Zweirstra property, and/or riparian creation/restoration at the Singh parcel. Depending on the option chosen, compensation would occur at either a 3:1 ratio (1:1 creation, 2:1 restoration/enhancement) or 5:1 for riparian and wetland vegetation. Under Option A, impacts to riparian and wetland vegetation would be offset at a 3:1 ratio through creation of riparian habitat at the Singh property and restoration/enhancement at Morrison. However, under Option B, 4.94 acres of impacts to cottonwood willow riparian forest would be offset at a 1:1 ratio through the purchase of credits at Pilgrim Creek, 3.4 acres would be offset at a 3:1 ratio through the 1:1 creation (3.4 acres) of habitat at Zweirstra, and 2:1 (6.8 acres) restoration/enhancement at Zweirstra (3.3 acres) and Morrison (3.5 acres). Impacts to 1.11 acres of mulefat, 0.13 acre of southern willow scrub, and 3.09 acres of coast live oak riparian forest would be offset through restoration/enhancement at Morrison. An additional 9.9 acres of permanent direct impacts would be offset at a 5:1 ratio through restoration/enhancement of 49.95 acres of riparian habitat at Morrison. Permanent direct impacts to 0.003 acre of disturbed wetland/giant cane would be offset at a 1:1 ratio through the restoration/enhancement of native habitat species at Morrison.

Potential indirect impacts to 16.72 acres of vireo and flycatcher habitat would be compensated at a 1:1 ratio (Table 3 and Table 8). A mitigation plan, outlining the details of the entire wetland and riparian preservation effort would be prepared and submitted to the appropriate resource agencies for review, with implementation following finalization of the document.

Temporary disturbance to 15.87 acres of vireo and flycatcher habitat would be offset through native revegetation of the impacted area (1:1 ratio) upon completion of the project. Temporary disturbance to cottonwood willow riparian forest, where this habitat contains the primary constituent elements for vireo, flycatcher and arroyo toad, would be offset through native revegetation of the area, as above, and would include restoration of similar habitat at the Morrison property at an additional 0.5:1 ratio, for a total 1.5:1 ratio. All seeding/planting would occur on-site and involve replacement with in-kind/similar, native species. Any graded habitat

(e.g., slopes, ROW) adjacent to the wildlife corridor would be revegetated with an appropriate, native plant mix. The proposed seed mix would be reviewed and approved by a qualified biologist prior to application in the field. The best methods of revegetation would be determined during design and could include hydroseeding, cuttings, planting, and possibly temporary irrigation. Riparian vegetation would require irrigation. Other measures to avoid/reduce project effects upon the vireo and flycatcher would involve restricting vegetation clearing from occurring during the breeding season.

All vegetation within the construction limits would be cleared outside the vireo/flycatcher breeding season (March 15 to September 15) to avoid/minimize impacts to breeding birds. If activities occur during the breeding season, then a pre-construction survey would be conducted to ensure that no nesting birds are present within the proposed work area. Should a bird nest site be located, then appropriate measures may include (but are not limited to) monitoring during grading and construction to ensure no impacts to the occupied site, designation of the location as an Environmentally Sensitive Area (ESA), and delaying/restricting project activities until nesting and fledging are complete. Pile driving would only be conducted between October 1 and February 14 to reduce noise affects to nesting/breeding birds within the project vicinity. During night construction, all project lighting would be directed onto the roadway or construction site and away from sensitive habitat. Light glare shield may also be used to reduce the extent of illumination into adjoining areas. Other direct and indirect impacts to flycatchers and/or vireos would be avoided and/or minimized through the implementation of conservation measures in this biological opinion.

To avoid and minimize impacts to vireo currently using portions of the Morrison property, no grading is proposed during restoration. Exotic plant species would be removed from the entire site outside the vireo and flycatcher breeding seasons and natives would be replanted to enhance the habitat on site for both vireo and flycatcher.

#### 5.4.6 Summary of Impacts to Vireo and Flycatcher

Direct impacts to flycatcher and vireo and their designated critical habitats would occur as a result of the permanent loss of 22.66 acres of riparian and wetland vegetation suitable for vireo and flycatcher. An additional 15.87 acres of riparian and wetland vegetation would be temporarily impacted and approximately 75.63 acres would be affected by indirect impacts. No direct impacts to breeding flycatchers and vireos, their nests, eggs, or young are expected from construction activities. Direct and indirect effects would be avoided and/or minimized through implementation of the conservation measures in this biological opinion. A total of up to 23 pairs of vireo, 23 single vireos, and 1 migrant flycatcher may be harmed through direct and indirect affects to breeding and nesting habitat.

Impacts to designated vireo and flycatcher critical habitat would be off-set per the ratios set forth in the conservation measures and Tables 3-8 through the creation/restoration/enhancement of riparian habitat. Therefore, the ecological function of designated vireo and flycatcher critical habitat is expected to continue to provide connectivity and genetic interchange between significant vireo and flycatcher populations along the San Luis Rey River.

## 5.5 Coastal California Gnatcatcher and Critical Habitat

In general, the proposed actions are likely to result in adverse effects to the gnatcatcher through temporal and permanent removal of habitat and construction related noise. Vegetation clearing and grubbing associated with the project would occur outside of the gnatcatcher breeding season (February 15 through August 31) to avoid the potential for direct impacts to individual gnatcatchers.

### 5.5.1 Direct Impacts

The project would permanently impact approximately 37.64 acres and temporarily impact approximately 7.86 acres of gnatcatcher habitat within up to 3 territories (Tables 1-2). Disturbance would occur from project grading, pile driving, construction staging, equipment/materials storage, and vehicle access and parking.

### 5.5.2 Indirect Impacts

The proposed alignment may have approximately 48.82 acres of indirect effects on gnatcatcher habitat. For purposes of analysis, habitat within approximately 300 feet of the proposed alignment was assessed as being indirectly affected by noise, dust, increased artificial night lighting chemical and fuel leaks, soil erosion, increased non-native species plant intrusion, and excessive dust/noise levels could accidentally occur and reduce the quality of the native communities available to the gnatcatcher or cause harm/harassment to the species.

Noise and visual disturbance associated with construction activities may adversely affect gnatcatchers by disrupting breeding and foraging if activities occur during the breeding season. This could cause birds to frequently flush from the nest and endanger eggs, chicks, and adults. Flight from predators incurs an implicit cost in lost foraging time, where birds confronted with a predator at a nest face an explicit choice between loss of current reproduction versus total reproductive loss (Burhans and Thompson 2001). Noise from construction and road activities is a concern if it is at such a level that it masks intraspecific communication (Awbrey 1993, Awbrey *et al.* 1995). This level is generally accepted to be greater than 60 dBA hourly  $L_{eq}$ . Based on the noise analyses conducted (EDAW 2006), the project would have the net effect of increasing exposure to 60 dBA traffic noise across 32.29 acres of habitat suitable for the coastal California gnatcatcher.

### 5.5.3 Coastal California Gnatcatcher Critical Habitat

Approximately 162.53 acres of designated gnatcatcher critical habitat, including 94.32 acres of coastal sage scrub, would be affected directly or indirectly by the proposed project. This loss could reduce the amount of habitat available to gnatcatchers for breeding and foraging activities. The area to be directly disturbed as a result of the proposed action is approximately 0.17 percent (29.95 acres) of the approximately 17,325 acres of critical habitat unit 3 and approximately 0.38 percent (132.58 acres) of the approximately 34,705 acres within critical habitat unit 5.

Indirect effects, including increased invasive flora and fauna and increased human activity, are expected to occur to designated gnatcatcher critical habitat as a result of the proposed project. In some cases, exotic plants can out-compete and supplant native plants, changing the structure and floristics of the plant community upon which gnatcatchers depend. Furthermore, the increased irrigation required by many common landscaping species may provide suitable conditions for the establishment of introduced Argentine ants within the on-site and adjacent biological open space areas. In addition, human activity in the project area, during construction and throughout the life of the proposed project, may result in accumulation of trash and food, attracting predators that may prey on gnatcatchers, as well as increased frequency of intrusion into on-site and adjacent biological open space areas by humans and domestic animals. Habitat degradation, as described above, would reduce the quality of designated gnatcatcher critical habitat.

### 5.5.4 Conservation Measures to Offset Impacts to Gnatcatcher and its Critical Habitat

Compensation for permanent direct impacts to 24.36 acres of coastal sage scrub and 13.28 acres of disturbed coastal sage scrub would occur at a 2:1 ratio through preservation of 75.28 acres of coastal sage scrub. Permanent direct impacts to other native vegetation types (e.g., non-native grassland) within designated gnatcatcher critical habitat would be offset at the ratios specified in Tables 3-8. Potential indirect impacts to gnatcatcher habitat would be compensated at a 1:1 ratio through preservation of an additional 48.82 acres of coastal sage scrub. A total of approximately 124.10 acres of the approximately 180 acres of coastal sage scrub habitat at the Groves property would be preserved for this portion of the SR-76 realignment. The remaining approximately 55.9 acres of coastal sage on the Groves property would be available to offset impacts resulting from future projects (e.g., SR-76 East).

Temporary disturbance to potential gnatcatcher habitat would be offset through native revegetation of the area (1:1 ratio) upon completion of the project. All seeding/planting would occur on-site and involve replacement with in-kind/similar, native species, to the maximum extent practicable. Any graded habitat (e.g., slopes, ROW) adjacent to the wildlife corridor would be revegetated with an appropriate, native plant mix. The proposed seed mix would be reviewed and approved by a qualified biologist prior to application in the field. The best methods of revegetation would be determined during design and could include duff, hydroseeding, planting, and/or possibly irrigation.

All vegetation within the construction limits would be cleared outside the gnatcatcher breeding season (February 15 to August 31) to avoid/minimize impacts to breeding birds. If activities

occur during the breeding season, then a pre-construction survey would be conducted to ensure that no nesting birds are present within the proposed work area. Should a bird nest site be located, then appropriate measures may include (but are not limited to) monitoring during grading and construction to ensure no impacts to the occupied site, designation of the location as an ESA, and delaying/restricting project activities until nesting and fledging is complete. Pile driving would only be conducted between October 1 and February 14 to reduce noise affects to nesting/breeding birds within the project vicinity. During night construction, all project lighting would be directed onto the roadway or construction site and away from sensitive habitat. Light glare shield may also be used to reduce the extent of illumination into adjoining areas. Other direct and indirect impacts to gnatcatchers would be avoided and/or minimized through the implementation of conservation measures in this biological opinion.

#### 5.5.5 Summary of Impacts to the Gnatcatcher and its Critical Habitat

Permanent direct impacts to gnatcatcher would affect approximately 37.64 acres of suitable habitat with temporary impacts to 7.86 acres and indirect impacts to 48.82 acres of gnatcatcher breeding and foraging habitat. No direct impacts to individual gnatcatchers, their nests, eggs, or young are expected from activities associated with the proposed project. Direct and indirect effects would be avoided and/or minimized through implementation of the conservation measures this biological opinion. A total of up to 6 pairs of gnatcatcher may be harmed through direct and indirect affects to potentially suitable breeding, nesting and foraging habitat.

Impacts to designated gnatcatcher critical habitat would be off-set per the ratios set forth in the conservation measures and Tables 3-8 through the preservation of upland habitat at the Groves property. Therefore, the ecological function of unit 3 and unit 5 of designated gnatcatcher critical habitat is expected to continue to provide connectivity and genetic interchange between significant gnatcatcher populations at MCB Camp Pendleton (adjacent to Unit 5), MSCP reserve areas in unit 1, and populations in northern San Diego County.

### **5.6 San Diego Ambrosia**

#### 5.6.1 Direct

Direct effects would occur from the removal of ambrosia from Caltrans' Marron Mitigation site for transplantation onto the Morrison site. Approximately 20 percent (approximately 9,686 square feet) of the 48,430 square foot ambrosia population on Marron would be harvested and transplanted to the Morrison property. The plants would be transplanted into an area of the Morrison property that has been dethatched and that is currently unoccupied by ambrosia but has the appropriate ecological characteristics.

### 5.6.2 Indirect

No indirect effects are expected to occur.

### 5.6.3 Conservation Measures to Offset Impacts to San Diego Ambrosia

Impacts to ambrosia would be avoided and ESA fencing installed around the locations to further ensure avoidance of the plants.

The translocation and long term management of ambrosia from the Marron Mitigation site to the Morrison property would follow a Service-approved plan. The translocation effort is beneficial to the species as it would expand the number of occupied and preserved ambrosia locations.

### 5.6.4 Summary of Impacts to San Diego Ambrosia

Impacts to ambrosia from translocation efforts would result in a net benefit to species by expanding its distribution into currently vacant habitat. Ambrosia would otherwise not be affected by the proposed project.

## **6. 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 and, therefore, are not considered cumulative in the proposed project.

A wide range of activities, including urban development, flood control, highway, utility projects, and agricultural habitat conversions, will continue to affect the arroyo toad, vireo, flycatcher and gnatcatcher, and designated vireo, flycatcher, and gnatcatcher critical habitat in the future.

### **6.1 Illegal Grading**

In recent years, there have been several incidents of illegal grading of gnatcatcher and arroyo toad upland habitat within northern coastal San Diego County communities. Illegal grading is expected to continue to occur, thereby affecting species, such as the gnatcatcher and arroyo toad, residing in the area. Unauthorized grading and filling of habitat would continue to affect the long-term viability of the species consulted on in this opinion.

### **6.2 Homeless Encampments**

Human habitation is common in riparian areas, such as the San Luis Rey River, in urban and suburban San Diego County. As surrounding development and economic growth creates more demand for unskilled labor, it is anticipated that people who cannot afford conventional housing would continue to establish camps in native vegetation. This has the potential to impact arroyo

toads, vireo, flycatchers, gnatcatchers, and ambrosia through direct human disturbance, disturbance by pets, destruction of vegetation, attraction of scavengers that may prey on avian nests, and increased risk of fire.

### **6.3 San Luis Rey River Arson Fires**

Between January and July 2007, approximately 40 arson related fires were set along the San Luis Rey River corridor. The fires were in the Fallbrook/Bonsall area between Loretta Street and Canyon Drive. Though fire is part of the natural system, unnatural fires occurring just before and during of the breeding season could have adverse effects on all the species being consulted on in this Opinion. Subsequently, post-fire pioneer plant species observed in 2007 appear to be dominated by giant reed (Roblek, Service, *pers. obs.*).

## **7. CONCLUSION**

After reviewing the current status of the arroyo toad, flycatcher, vireo, gnatcatcher, and ambrosia, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the activities, as proposed, are not likely to jeopardize the continued existence or recovery of these species or result in the destruction or adverse modification of designated critical habitat for the gnatcatcher, vireo, or flycatcher for the following reasons.

### **7.1 Arroyo Toad**

1. The arroyo toads that are likely to be harmed by the proposed action represent a very small portion of the range-wide population of this species. The project would impact approximately one (1) percent of the 8,669 acres of habitat that occurs within excluded critical habitat unit 14. The loss of this small percentage of habitat is not expected to reduce the function or connectivity of this unit should it be reconsidered and designated in the future.
2. The permanent loss of suitable upland is not large relative to the extent of habitat remaining over the arroyo toad's range and is not expected to significantly decrease the long-term viability of the arroyo toad.
3. Impacts to the arroyo toad would be avoided and minimized through the implementation of the conservation measures, as described in the project description.

### **7.2 Least Bell's Vireo and Southwestern Willow Flycatcher**

1. The proposed action could harm up to 12 pairs and 12 individual vireos and 1 pair of flycatchers, a small portion of the range-wide populations of these species.

2. The permanent loss of 22.66 acres of vireo/flycatcher habitat is not large relative to the extent of habitat remaining over the vireo and flycatcher's range and is not expected to significantly decrease the long-term viability of the vireo and/or flycatcher.
3. Impacts to the vireo and flycatcher and their designated critical habitat would be minimized through the implementation of the conservation measures, as described in the project description.

### **7.3 Coastal California Gnatcatcher**

1. The proposed action could harm up to 3 pairs of gnatcatcher, a small portion of the range-wide populations of this species.
2. The permanent loss of 37.64 acres of gnatcatcher habitat is not large relative to the extent of habitat remaining over the gnatcatcher's range and is not expected to significantly decrease the long-term viability of the gnatcatcher.
3. Impacts to gnatcatcher critical habitat would be minimized through the implementation of the conservation measures, as described in the project description.

### **7.4 San Diego Ambrosia**

1. No more than 20 percent of the population at the Marron site would be harvested for transplantation to the Morrison site. Ambrosia at the Marron site has increased significantly since its transplantation.
2. Establishment of a new population on the Morrison property would increase the number of extant populations along the San Luis Rey River.
3. The Morrison property would be preserved and managed in perpetuity.

## **8. 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, collect, or to attempt to engage in any such conduct. Harm is further defined by the Service 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 by the Service 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), taking that is incidental to and not intended as

part of the agency 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 so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity that is covered by this incidental take statement. If Caltrans (1) fails to assume and implement the terms and conditions or (2) fails to require to adhere to the terms and conditions of this incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

### **8.1 Amount or Extent of Take**

The Service anticipates that it would be difficult to quantify the number of arroyo toads that would be affected by the proposed action for the following reasons:

1. The exact distribution and population size is difficult to estimate due to the dynamic conditions associated with their habitat. Suitable habitat may change during a given year or from year to year depending on climatic conditions, flooding, or other natural or human-related events (Service 1999a), which in turn influence female reproductive success and juvenile survival. Therefore, over the life of the project it is anticipated that the arroyo toad population subject to impacts from the proposed project would experience dynamic changes and population functions making it difficult to determine the number of arroyo toads that could be adversely affected at any given time.
2. Except during the early juvenile stage (first 4-5 weeks), arroyo toads forage at night and burrow during the day. Nocturnal activity is usually associated with rainfall and moderate temperatures and some nights of very high relative humidity (Service 1999a). Arroyo toads may be found in upland habitat up to 1 km (0.62 mi) from a known breeding area. Therefore, detection of arroyo toads outside of the breeding season is very difficult, with limited opportunities for anticipating when the species may be active. In addition, we currently do not have a reliable survey method for determining the locations or densities of arroyo toads that may be burrowed within upland habitat.
3. Finding dead or injured arroyo toads within the construction area is unlikely as the individuals may be underground during construction activities.

Nevertheless, we anticipate that no more than twenty (20) arroyo toads would be handled during translocation efforts and no more than five (5) arroyo toads taken as a result of project construction and operation. Due to the constraints described above, we acknowledge that the anticipated level of take in this biological opinion is not based on detailed arroyo toad population size/density information for the project area. However, we have identified this limit to provide for reinitiation of consultation per 50 CFR §402.16. The incidental take is expected to be in the

form of capture/collect for those found and relocated to outside of the project footprint and in the form of wound or kill (injury or death) for those that are not detected and remain in the project footprint.

The Service anticipates the following levels of take for the vireo and flycatcher could occur as a result of the proposed action:

Up to 12 pairs and 12 individual vireos and 1 pair of flycatcher likely would be harmed by permanent direct impacts to 22.66 acres of vireo/flycatcher habitat, temporary direct impacts to 15.87 acres of vireo/flycatcher habitat, and indirect impacts to 75.63 acres of vireo/flycatcher habitat. We expect a portion of those birds affected to expand into other areas while the others may perish.

The Fish and Wildlife Service would not refer the incidental take of any migratory bird or bald eagle for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. " 668-668d), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species. However, limited protection of listed plants from take is provided to the extent that the Act prohibits the removal and reduction to possession of Federally listed endangered plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of endangered plants on non-Federal areas in violation of State law or regulation or in the course of any violation of a State criminal trespass law.

The Service retains the right to access and inspect the project site for compliance with the proposed project description of this biological opinion. If any federally listed species is determined to be present within the proposed activities footprint once construction has commenced, results should be disclosed immediately to the Service for possible reinitiation of consultation. In addition, any habitat destroyed that is not in the identified project footprint should be disclosed immediately to the Service for possible reinitiation of consultation. Compensation for such habitat loss would be requested at a minimum ratio of 5:1.

## **8.2 Effect of the Take**

The Service anticipates that up to five arroyo toads, 12 pairs and 12 individual vireos, 1 pair of flycatchers, and 3 pairs of gnatcatchers could be taken as a result of the proposed action. In addition up to 20 arroyo toads could be handled/harassed during translocation efforts. In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the arroyo toad, vireo, flycatcher, gnatcatcher, or destruction or adverse modification of vireo, flycatcher, and gnatcatcher critical habitat. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. Caltrans must immediately provide an explanation of the causes of the taking and review with the Service the need for possible reinitiation of consultation.

### **8.3 Reasonable and Prudent Measures**

The following reasonable and prudent measure is necessary and appropriate to minimize take of arroyo toad, gnatcatcher, vireo, and flycatcher:

Take of arroyo toad, gnatcatcher, vireo, and flycatcher shall be avoided and minimized to the extent possible by project design and implementation of the conservation measures, as described in the project description of this biological opinion.

### **8.4 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 implements the reasonable and prudent measure described above. This term and condition is non-discretionary.

The following term and condition implements the reasonable and prudent measure:

Caltrans shall ensure implementation and compliance with all conservation measures described in this biological opinion, which are hereby incorporated as terms and conditions of this biological opinion.

### **8.5 Monitoring Requirements**

To be consistent with 50 CFR 402.14(i)3, Caltrans "...must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement." The reporting requirements are established in accordance with the conservation measures in the project description and 50 CFR 13.45 and 18.27. To receive coverage under this biological opinion, Caltrans must provide monthly reports and a project completion report of the estimated take that may have occurred in relation to the amount of take that is identified in this Incidental Take Statement. Annual reports are due prior to March 1<sup>st</sup> of each year for the duration of this project.

### **8.6 Reporting Requirements**

The Service's Carlsbad Fish and Wildlife Office is to be notified within three working days should any endangered or threatened species be found dead or injured during this project. Notification must include the date, time, and location of the carcass, and any other pertinent information. Dead animals may be marked in an appropriate manner, photographed, and left on site. Injured animals should be transported to a qualified veterinarian. Should any treated animals survive, the Service should be contacted regarding the final disposition of the animals. The Service contact persons are Kurt Roblek and Janet Stuckrath. They may be contacted at the letterhead address or at (760) 431-9440.

Due to recent concerns and outbreaks associated with West Nile Virus or avian influenza, we recommend the following (adapted from guidelines<sup>4</sup> developed in consultation with the Centers for Disease Control and Prevention): Field biologists handling wild birds should at a minimum wear protective clothing, including coveralls, rubber boots, and latex or rubber gloves that can be disinfected or disposed. Wash hands with soap and water often and disinfect work surfaces and equipment between sites. Do not eat, drink, or smoke while handling animals. We recommend minimizing exposure to mucosal membranes by wearing protective eyewear (i.e., goggles) and a particulate surgical mask (NIOSH N95 respirator/mask is preferable). Decontaminate and properly dispose of potentially infectious material including carcasses.

## 9. 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. The recommendations provided here do not necessarily represent complete fulfillment of the agency's 7(a)(1) responsibility for these species.

1. Provide informational signs to educate the public about conserving land for the arroyo toad, gnatcatcher, vireo, flycatcher, and ambrosia.
2. Provide bat roosting structure along other suitable structure in the Caltrans ROW within the San Luis Rey River floodplain.

For our office to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats, we request notification of the implementation of any conservation recommendations.

## 10. REINITIATION NOTICE

This concludes formal consultation on the SR-76 Melrose Drive to South Mission Highway Improvement project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat

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<sup>4</sup> These guidelines and recommendations are advisory in nature and intended to provide guidance for field biologists and others working with or handling wild birds with specific reference to highly pathogenic avian influenza. The guidance reflects information available as of August, 2005 and may be updated as more information becomes available. For more information, see USGS Field Guide to Wildlife Diseases: [http://www.nwhc.usgs.gov/publications/field\\_manual/chapter\\_4.pdf](http://www.nwhc.usgs.gov/publications/field_manual/chapter_4.pdf)

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.

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# California Regional Water Quality Control Board San Diego Region

Linda S. Adams  
Secretary for  
Environmental  
Protection

Over 50 Years Serving San Diego, Orange, and Riverside Counties  
Recipient of the 2004 Environmental Award for Outstanding Achievement from USEPA



Arnold  
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[http:// www.waterboards.ca.gov/sandiego](http://www.waterboards.ca.gov/sandiego)

May 12, 2009

In reply refer to: WPC:09C-015:cmeans

Mr. Mark Phelan  
Project Manager  
California Department of Transportation  
District 11, MS-242  
4050 Taylor Street  
San Diego, CA 92110-2737

WDID: 9000001896  
CIWQS:  
Party No. 7222  
Place No. 734024  
Reg. M. No. 361611

Dear Mr. Phelan:

**SUBJECT:** Action on Request for Clean Water Act Section 401 Water Quality Certification for State Route 76 – Melrose Drive to South Mission Road Highway Improvement Project, Project Number 09C-015.

Enclosed is the Clean Water Act Section 401 Water Quality Certification for the State Route 76 – Melrose Drive to South Mission Road Highway Improvement Project. A description of the project and project location can be found in the project information sheet, project location map, and project site maps which are included as Attachments 1 through 6. Any petition for reconsideration of this Certification must be filed with the State Water Resources Control Board within 30 days of certification action (23 CCR § 3867). If no petition is received, it will be expected that Caltrans has accepted and will comply with all conditions of the Certification. Failure to comply with all conditions of this Certification will result in enforcement actions against Caltrans.

The heading portion of this letter includes a Regional Board code number noted after "In reply refer to:" In order to assist us in the processing of your correspondence please include this code number in the heading or subject line portion of all correspondence and reports to the Regional Board pertaining to this matter.

If you have any questions regarding this notification, please contact Christopher Means directly at 858-637-5581 or by email via [cmeans@waterboards.ca.gov](mailto:cmeans@waterboards.ca.gov).

***California Environmental Protection Agency***

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at <http://www.swrcb.ca.gov>.*

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Mr. Mark Phelan, Caltrans District 11  
401 Certification 09C-015

- 2 -

5/12/09

Respectfully,

  
JOHN H. ROBERTUS  
Executive Officer

Enclosure:

Clean Water Act Section 401 Water Quality Certification No. 09C-014

cc: Refer to Attachment 2 of Certification 09C-015 for Distribution List.

*California Environmental Protection Agency*



Linda S. Adams  
Acting Secretary for  
Environmental  
Protection

# California Regional Water Quality Control Board San Diego Region

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<http://www.waterboards.ca.gov/sandiego>

## Action on Request for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Discharge of Dredged and/or Fill Materials

**PROJECT:** State Route 76 – Melrose Drive to South Mission Road Highway  
Improvement Project, Project Number 09C-015,  
WDID Number 9000001896

**APPLICANT:**

Mr. Mark Phelan  
Project Manager  
California Department of Transportation  
District 11, MS-242  
4050 Taylor Street  
San Diego, CA 92110-2737

CIWQS Reg. Mes. ID: 361611 Place ID: 734024 Party ID: 7549
---

**ACTION:**

<input type="checkbox"/> Order for Low Impact Certification	<input type="checkbox"/> Order for Denial of Certification
<input checked="" type="checkbox"/> Order for Technically-conditioned Certification	<input type="checkbox"/> Waiver of Waste Discharge Requirements
<input checked="" type="checkbox"/> Enrollment in SWRCB GWDR Order No. 2003-017 DWQ	<input type="checkbox"/> Enrollment in Isolated Waters Order No. 2004-004 DWQ

**PROJECT DESCRIPTION:**

The proposed project would expand about 5.8 miles of the existing two-lane conventional highway to four-lanes with right-of-way and grading to accommodate an ultimate six-lane facility. The existing San Luis Rey Bridge would remain for westbound only traffic post-construction and a new bridge would be built for eastbound only traffic. The existing Bonsall Creek box culvert would be lengthened to the south to accommodate the widened SR-76. The existing Ostrich Creek box culvert would be demolished and a new bridge would be constructed to accommodate the road widening and a wildlife corridor. The project would result in an additional 28.1 acre of new impervious surface, in addition to the already existing 44.1 acre of impervious surface.

**California Environmental Protection Agency**

*The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at <http://www.swrcb.ca.gov>.*

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**STANDARD CONDITIONS:**

The following three standard conditions apply to all Certification actions, except as noted under Condition 3 for denials (Action 3).

1. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to section 13330 of the California Water Code and section 3867 of Title 23 of the California Code of Regulations (23 CCR).
2. This Certification action is not intended and must not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent Certification application was filed pursuant to 23 CCR subsection 3855(b) and the application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.
3. The validity of any non-denial Certification action (Actions 1 and 2) must be conditioned upon total payment of the full fee required under 23 CCR section 3833, unless otherwise stated in writing by the certifying agency.

**ADDITIONAL CONDITIONS:**

In addition to the three standard conditions, Caltrans must satisfy the following:

**A. GENERAL CONDITIONS:**

1. Caltrans must, at all times, fully comply with the engineering plans, specifications and technical reports submitted to the California Regional Water Quality Control Board, San Diego Region (Regional Board), to support this 401 Water Quality Certification (Certification) and all subsequent submittals required as part of this Certification and as described in Attachments 1 and 5. The conditions within this Certification must supersede conflicting provisions within such plans submitted prior to the Certification action. Any modifications thereto, would require notification to the Regional Board and reevaluation for individual Waste Discharge Requirements and/or Certification amendment.
2. During construction, Caltrans must maintain a copy of this Certification at the project site so as to be available at all times to site personnel and agencies.

3. Caltrans must permit the Regional Board or its authorized representative at all times, upon presentation of credentials:
  - a. Entry onto project premises, including all areas on which wetland fill or wetland mitigation is located or in which records are kept.
  - b. Access to copy any records required to be kept under the terms and conditions of this Certification.
  - c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Certification.
  - d. Sampling of any discharge or surface water covered by this Order.
4. Caltrans must notify the Regional Board within 24 hours of any unauthorized discharge, including hazardous or toxic materials, to waters of the U.S. and/or State; measures that were implemented to stop and contain the discharge; measures implemented to clean-up the discharge; the volume and type of materials discharged and recovered; and additional best management practice (BMPs) or other measures that will be implemented to prevent future discharges.
5. Caltrans must, at all times, maintain appropriate types and sufficient quantities of materials onsite to contain any spill or inadvertent release of materials that may cause a condition of pollution or nuisance if the materials reach waters of the U.S. and/or State.
6. In the event of any violation or threatened violation of the conditions of this Certification, the violation or threatened violation must be subject to any remedies, penalties, process or sanctions as provided for under State law. For purposes of section 401(d) of the Clean Water Act, the applicability of any State law authorizing remedies, penalties, process or sanctions for the violation or threatened violation constitutes a limitation necessary to assure compliance with the water quality standards and other pertinent requirements incorporated into this Certification.
7. In response to a suspected violation of any condition of this Certification, the Regional Board may require the holder of any permit or license subject to this Certification to furnish, under penalty of perjury, any technical or monitoring reports the Regional Board deems appropriate, provided that the burden, including costs, of the reports must bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

8. In response to any violation of the conditions of this Certification, the Regional Board may add to or modify the conditions of this Certification as appropriate to ensure compliance.

**B. PROJECT CONDITIONS:**

1. Prior to the start of the project, and annually thereafter, Caltrans must educate all personnel on the requirements in this Certification, pollution prevention measures, spill response, and BMP implementation and maintenance.
2. Caltrans must comply with the requirements of State Water Resources Control Board Water Quality Order No. 2003-0017-DWQ, Statewide General Waste Discharge Requirements for discharges of dredged or fill materials that have received State Water Quality Certification. These General Waste Discharge Requirement are accessible at:  
[http://www.waterboards.ca.gov/cwa401/docs/generalorders/go\\_wdr401regulated\\_projects.pdf](http://www.waterboards.ca.gov/cwa401/docs/generalorders/go_wdr401regulated_projects.pdf).
3. Caltrans must notify the Regional Board in writing at least **10 days** prior to the actual commencement of dredge, fill, and discharge activities.
4. Caltrans must comply with the requirements of State Water Resources Control Board Water Quality Order No. 99-06-DWQ, NPDES No. CAS000003, the NPDES Permit for Statewide Storm Water Permit and Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation (Caltrans), July 1999.
5. The treatment, storage, and disposal of wastewater during the life of the project must be done in accordance with waste discharge requirements established by the Regional Board pursuant to CWC § 13260.
6. Discharges of concentrated flow during construction or after completion must not cause downstream erosion or damage to properties or stream habitat.
7. Water containing mud, silt, or other pollutants from equipment washing or other activities, must not be discharged to waters of the United States and/or the State or placed in locations that may be subjected to storm flows.

Pollutants discharged to areas within a stream diversion area must be removed at the end of each work day or sooner if rain is predicted.

8. All surface waters, including ponded waters, must be diverted away from areas undergoing grading, construction, excavation, vegetation removal, and/or any other activity which may result in a discharge to the receiving water. Diversion activities must not result in the degradation of beneficial uses or exceedance of water quality objectives of the receiving waters. Any temporary dam or other artificial obstruction constructed must only be built from materials such as clean gravel which will cause little or no siltation. Normal flows must be restored to the affected stream immediately upon completion of work at that location.
9. Substances hazardous to aquatic life including, but not limited to, petroleum products, raw cement/concrete, asphalt, and coating materials, must be prevented from contaminating the soil and/or entering waters of the United States and/or State. BMPs must be implemented to prevent such discharges during each project activity involving hazardous materials.

**C. CONSTRUCTION STORM WATER MANAGEMENT:**

1. A qualified biological monitor shall be present at all pre-construction and pre-grading meetings and shall be onsite during all vegetation removal, grading, or filling of any drainage on the project site. Furthermore, the biological monitor shall be present when grading is conducted within 100 feet of any drainage on the property.
2. Construction monitoring reports shall be submitted quarterly during all grading activities associated with the proposed project. Construction monitoring reports shall include, but not be limited to the following:
  - a. Names, qualifications, and affiliations of the persons contributing to the report;
  - b. Summary of construction activities that include general locations of active construction areas, types and location of sediment and erosion control BMPs being implemented, approximate acreage of disturbed areas;
  - c. Quantification of impacts to waters of the U.S. authorized under this Order;
  - d. Summary of any problems, resolution, and discharge notifications that occurred during this monitoring period; and
  - e. Photo-documentation of construction activities, and erosion and sediment control BMP implementation.

**D. POST CONSTRUCTION STORM WATER MANAGEMENT:**

1. All storm drain inlet structures within the project boundaries must be stamped and/or stenciled (or equivalent) with appropriate language prohibiting non-storm water discharges.
2. The post-construction structural treatment BMPs that will be implemented to treat and control storm water runoff from the project shall include a treatment train of vegetated Biofiltration strips and vegetated Biofiltration swales, as proposed in the April 2009 *Storm Water Data Report for State Route 76 Melrose Dr to South Mission Rd Highway Improvement Project*. Structural treatment BMPs will treat no less than 63 percent of the total proposed roadway upon completion.
3. Structural treatment BMPs shall be sized in accordance with the design specifications contained in the May 2007 *Caltrans Project Planning and Design Guide*.
4. Structural treatment BMPs shall be constructed as soon as is feasible during project construction. Biofiltration Swales and Biofiltration Strips must be vegetated with appropriate sod immediately upon finished construction of the BMPs.
5. Preventive and corrective maintenance procedures for Biofiltration Strips and Swales will be performed as outlined in Appendix C, Section C.23.1 of the May 2003, *Caltrans Stormwater Quality Handbook: Maintenance Staff Guide* (Caltrans Document CTSW-RT-02-057).
6. Records must be kept regarding inspections and maintenance in order to assess the performance of the systems and determine whether adaptations are necessary to protect receiving waters.
7. If, during the course of design and construction of the project, additional right-of-way is acquired which would allow for the incorporation of additional Caltrans stormwater treatment BMPs into the project, Caltrans shall design and implement additional treatment BMPs, and provide notification to the Regional Board of any additional BMP location and design.

**E. C OMPENSATORY MITIGATION FOR LOSS OF WATERS OF THE U.S./STATE:**

1. Permanent Impacts to jurisdictional waters of the U.S. subject to this certification shall not exceed the following:

<b>Jurisdictional Area</b>	<b>Acres</b>
OHWM *	0.06
Unvegetated Waters	0.42
Wetlands	1.35
<b>Total</b>	<b>1.83</b>

\*Ordinary high water mark areas include drainages that fall within riparian and wetland habitats, but do not meet the criteria of the other wetlands.

2. Mitigation for permanent impacts to 1.83 acres of Waters of the U.S. have been mitigated in advance at a 1:1 ratio by the deduction 1.83 acres of excess riparian mitigation credits at the Pilgrim Creek Mitigation Bank in accordance with Option B, contained in the October 2008 *Wetland Mitigation Plan for the State Route 76 Highway Improvement Project*.
3. Temporary Impacts to jurisdictional waters of the U.S. shall not exceed the following:

<b>Jurisdictional Area</b>	<b>Acres</b>
OHWM *	0.04
Unvegetated Waters	0.45
Wetlands	3.82
<b>Total</b>	<b>4.31</b>

4. Caltrans must restore all areas of temporary impacts and all other areas of temporary disturbance which could result in a discharge or a threatened discharge to waters of the United States/State. Restoration must include grading of disturbed areas to pre-project contours and revegetation with native species. Restored areas of temporary impacts shall provide similar or better functions as the habitat impacted.
5. Caltrans will provide a revegetation plan for temporary impacts for review by the Regional Board prior to initiation of construction activities.
6. 23.25 acres of permanent and 18.63 acres of temporary impacts to Waters of the State, under the jurisdiction of the California Department of Fish and Game will be mitigated by Caltrans in accordance with the mitigation ratios included under Option B, contained in the October 2008 *Wetland Mitigation*

*Plan for the State Route 76 Highway Improvement Project, and as documented in Attachment 5 of this certification.*

7. Caltrans must notify the Regional Board in writing at least **10 days** prior to the actual commencement of mitigation installation, and completion of mitigation installation.
8. Throughout the mitigation monitoring program mitigation areas must be maintained free of perennial exotic plant species including, but not limited to, pampas grass, giant reed, tamarisk, sweet fennel, tree tobacco, castor bean, and pepper tree. Annual exotic plant species must not occupy more than 5 percent of the onsite or offsite mitigation areas.
9. If at any time during the implementation and establishment of the mitigation area(s), and prior to verification of meeting success criteria, a catastrophic natural event (e.g., fire, flood) occurs and impacts the mitigation area, Caltrans is responsible for repair and replanting of the damaged area(s).
10. Mitigation monitoring reports must be submitted annually until mitigation has been deemed successful. Annual monitoring reports must be submitted prior to **January 1** of each year. Monitoring reports must include, but not be limited to, the following:
  - a. Names, qualifications, and affiliations of the persons contributing to the report;
  - b. Tables presenting the raw data collected in the field as well as analyses of the physical and biological data, including at a minimum;
  - c. Topographic complexity characteristics at each mitigation site;
  - d. Upstream and downstream habitat and hydrologic connectivity;
  - e. Source of hydrology;
  - f. Width of native vegetation buffer around the entire mitigation site;
  - g. Qualitative and quantitative comparisons of current mitigation conditions with pre-construction conditions and previous mitigation monitoring results;
  - h. Photodocumentation from established reference points;
  - i. A Survey report documenting boundaries of mitigation area; and
  - j. Other items specified in the final October 2008 *Wetland Mitigation and Monitoring Plan for the State Route 76 Melrose to Mission Highway Improvement Project*

11. For purposes of this Certification, establishment is defined as the creation of vegetated or unvegetated waters of the U.S./State where the resource has never previously existed (e.g. conversion of nonnative grassland to a freshwater marsh). Restoration is divided into two activities, re-establishment and rehabilitation. Re-establishment is defined as the return of natural/historic functions to a site where vegetated or unvegetated waters of the U.S./State previously existed (e.g., removal of fill material to restore a drainage). Rehabilitation is defined as the improvement of the general suite of functions of degraded vegetated or unvegetated waters of the U.S./State (e.g., removal of a heavy infestation or monoculture of exotic plant species from jurisdictional areas and replacing with native species). Enhancement is defined as the improvement to one or two functions of existing vegetated or unvegetated waters of the U.S./State (e.g., removal of small patches of exotic plant species from an area containing predominantly natural plant species). Preservation is defined as the acquisition and legal protection from future impacts in perpetuity of existing vegetated or unvegetated waters of the U.S./State (e.g., conservation easement).

**F. STREAM PHOTO DOCUMENTATION PROCEDURE:**

1. Caltrans must conduct photo documentation of the project site, including all areas of permanent and temporary impact, prior to and after project construction, and mitigation areas, including all areas of permanent and temporary impact, prior to and after project construction. Monthly aerial photo documentation of the project will be conducted in accordance with Caltrans approved protocols. Site specific photo documentation must be conducted in accordance with the State Water Resources Control Board Standard Operating Procedure 4.2.1.4: Stream Photo Documentation Procedure, included as Attachment Number 6. In addition, photo documentation must include Geographic Positioning System (GPS) coordinates for each of the photo points referenced. Caltrans shall submit this information in a photo documentation report to the Regional Board with the Mitigation Maintenance and Monitoring reports. The report must include a compact disc that contains digital files of all the photos (jpeg file type or similar).

**G. GEOGRAPHIC INFORMATION SYSTEM REPORTING:**

1. Caltrans must submit Geographic Information System (GIS) shape files of the impact areas within 90 days of project impacts and of the mitigation area within 90 days of mitigation installation. All impact and mitigation areas shapefiles must be polygons. Two GPS readings (points) must be taken on each line of the polygon and the polygon must have a minimum of 10 points. GIS metadata must also be submitted.

**H. REPORTING:**

1. All information requested in this Certification is pursuant to California Water Code (CWC) section 13267. Civil liability may be administratively imposed by the Regional Board for failure to furnish requested information pursuant to CWC section 13268.
2. All reports and information submitted to the Regional Board must be submitted in both hardcopy and electronic format. The preferred electronic format for each report submission is one file in PDF format that is also Optical Character Recognition (OCR) capable.
3. All applications, reports, or information submitted to the Regional Board must be signed and certified as follows:
  - a. For a corporation, by a responsible corporate officer of at least the level of vice president.
  - b. For a partnership or sole proprietorship, by a general partner or proprietor, respectively.
  - c. For a municipality, or a state, federal, or other public agency, by either a principal executive officer or ranking elected official.
4. A duly authorized representative of a person designated in Items 3.a. through 3.c. above may sign documents if:
  - a. The authorization is made in writing by a person described in Items 3.a. through 3.c. above.
  - b. The authorization specifies either an individual or position having responsibility for the overall operation of the regulated activity.
  - c. The written authorization is submitted to the Regional Board Executive Officer.
5. All applications, reports, or information submitted to the Regional Board must be signed and certified as follows:

*"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."*
6. Caltrans must submit reports required under this Certification, or other information required by the Regional Board, to:

Executive Officer  
 California Regional Water Quality Control Board  
 San Diego Region  
 Attn: 401 Certification; Project No. 09-015  
 9174 Sky Park Court, Suite 100  
 San Diego, California 92123

6. Required Reports: The following list summarizes the reports, excluding spill notifications and emergency situations, required per the conditions of this Certification to be submitted to the Regional Board.

Report Topic	Certification Condition	Due Date(s)
Commencement of Discharge Notification	B.3	10 days prior to initiation of discharge
Construction Monitoring Report	C.2	Quarterly until project completion
Mitigation Initiation notification	E.7	10 days prior to initiation of Mitigation Construction
Annual Mitigation Monitoring Report	E.10	December 1, Annually
Stream Photodocumentation	F.1	December 1, Annually with Mitigation Monitoring Report
GIS Reporting	G.1	Within 90 days of impacts, and within 90 days of mitigation installation

**PUBLIC NOTIFICATION OF PROJECT APPLICATION:**

On February 25, 2009 receipt of the project application was posted on the Regional Board web site to serve as appropriate notification to the public.

**REGIONAL WATER QUALITY CONTROL BOARD CONTACT PERSON:**

Christopher Means  
 California Regional Water Quality Control Board, San Diego Region  
 9174 Sky Park Court, Suite 100  
 San Diego, CA 92123  
 858-637-5581  
[cmeans@waterboards.ca.gov](mailto:cmeans@waterboards.ca.gov)

**WATER QUALITY CERTIFICATION:**

I hereby certify that the proposed discharge from the State Route 76 – Melrose Drive to South Mission Road Highway Improvement Project (Project No. 09C-015) will comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ("Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act. This discharge is also regulated under State Water Board Order No. 2003-0017-DWQ, "Statewide General Waste Discharge Requirements for Dredged or Fill Discharges that have Received State Water Quality Certification (General WDRs)," which requires compliance with all conditions of this Water Quality Certification. Please note that enrollment under Order No. 2003-017 DWQ is conditional and, should new information come to our attention that indicates a water quality problem, the Regional Board may issue waste discharge requirements at that time

Except insofar as may be modified by any preceding conditions, all Certification actions are contingent on (a) the discharge being limited and all proposed mitigation being completed in strict compliance with the applicants' project description and/or on the attached Project Information Sheet, and (b) on compliance with all applicable requirements of the Regional Board's Water Quality Control Plan (Basin Plan).

  
\_\_\_\_\_  
JOHN H. ROBERTUS  
Executive Officer  
Regional Water Quality Control Board

5/12/2009  
Date

- Attachments:
1. Project Information
  2. Distribution List
  3. Location Map
  4. Site Diagrams
  5. Mitigation & Impacts table
  6. Stream Photodocumentation Procedure

**ATTACHMENT 1  
PROJECT INFORMATION**

Applicant: ✓ California Department of Transportation  
Attention: Mr. Mark Phelan, Project Manager  
District 11, MS-122  
4050 Taylor Street  
San Diego, CA 92110-2737

✓ Email: [Mark\\_Phelan@dot.ca.gov](mailto:Mark_Phelan@dot.ca.gov)  
Phone: (619) 688-6803

Applicant  
Representatives: ✓ California Department of Transportation  
Attention: Mr. Bruce April, Chief Environmental Stewardship  
District 11, MS-122  
4050 Taylor Street  
San Diego, CA 92110-2737

✓ Email: [Bruce\\_April@dot.ca.gov](mailto:Bruce_April@dot.ca.gov)  
Phone: (619) 688-6998

Project Name: ✓ State Route 76 – Melrose Drive To South Mission Road

Project Location: ✓ The project area is located on State Route 76 starting in the City of Oceanside at post mile 7.6 and ending in the community of Bonsall at post mile 13.1.

Type of Project: ✓ Highway widening project

Need for Project: ✓ The project will improve mobility, and reduce current congestion along the SR-76 Corridor consistent with the goals of the SANDAG 2030 Regional Transportation Plan.

Project Description: ✓ The proposed project would expand about 5.8 miles of the existing two-lane conventional highway to four-lanes with right-of-way and grading to accommodate an ultimate six-lane facility. The existing San Luis Rey Bridge would remain for westbound only traffic post-construction and a new bridge would be built for eastbound only traffic. The existing Bonsall Creek box culvert would be lengthened to the south to accommodate the widened SR-76. The existing Ostrich Creek box culvert would be demolished and a new bridge would be constructed to accommodate the road widening and a wildlife corridor. The project would result in an additional 28.1 acre of new impervious surface, in addition to the already existing 44.1 acre of impervious surface.

Federal Agency/Permit: ✓ U.S. Army Corps of Engineers §404 (Individual), File No. SPL-2005-2063, Phoung H. Trinh

Other Required Regulatory Approvals: California Department of Fish and Game Section 1602 Streambed Alteration Agreement, Pam Beare

California Environmental Quality Act (CEQA) Compliance: SR-76 Melrose to South Mission Final Environmental Impact Report, November 2008, SCH# 2005101140, Lead Agency - Caltrans

Receiving Water: San Luis Rey River  
Vista Creek  
Bonsall Creek  
Ostrich Farm Creek  
Un-named tributaries to San Luis Rey

Affected Waters of the United States:

Temporary:	
Wetland:	3.82
Riparian:	0
Streambed:	0.04
Lake	0.45
Permanent:	
Wetland:	1.35
Riparian	0
Streambed:	0.06
Lake	0.42

Affected Waters of the State:

Temporary:	
Wetland:	0
Riparian:	11.4
Streambed:	0
Lake	0
Permanent:	
Wetland	0
Riparian:	20.83
Streambed	0
Lake	0

Dredge Volume: n/a

Related Projects Implemented/to be Implemented by the Applicant(s): Caltrans and SANDAG are in the environmental review process for the next phase of the SR-76 widening project which will widen State Route 76 from Mission Road to Interstate 15.

Compensatory Mitigation: Compensatory mitigation for permanent impacts to waters of the US have been mitigated with existing credits from the Pilgrim Creek Mitigation Bank. Mitigation for impacts to Waters of the State not under Federal Jurisdiction will be in accordance with the ratios set forth in attachment 5 of this certification.

**Best Management Practices (BMPs):**

Construction based best management practices will be employed during construction in accordance with Caltrans Statewide Stormwater permit requirements.

✓ Post construction structural treatment BMPs will be implemented in accordance with the April 2009 *Stormwater Data Report for State Route 76 Melrose Dr. to South Mission Road Highway Improvement Project*. Storm water will be treated by a treatment train of BMPs consisting of vegetated Biostrips receiving sheet flow from the roadway and Bioswales. These treatment BMPs will treat 63% of the projects total impervious surface.

**Public Notice:**

✓ On February 25, 2009, receipt of the project application was posted on the SDRWQCB web site to serve as appropriate notification to the public.

**Fees:**

Total Due: \$34,451.00

✓ Total Paid: \$34,451.00 (Check No. 082-294133, 082-308952 )

**CIWQS:**

Regulatory Measure ID: 361611

✓ Place ID: 734024

Party ID: 7549

**ATTACHMENT 2  
DISTRIBUTION LIST****Electronic Distribution via Email:**

Mr. Bruce April, Chief  
Environmental Stewardship  
Caltrans District 11, MS-242  
4050 Taylor Street  
San Diego, CA 92110  
[bruce\\_april@dot.ca.gov](mailto:bruce_april@dot.ca.gov)

Ms. Pam Beare  
California Department of Fish and Game  
South Coast Region  
4949 Viewridge Avenue  
San Diego, CA 92123  
[pbeare@dfg.ca.gov](mailto:pbeare@dfg.ca.gov)

State Water Resources Control Board  
Division of Water Quality  
401 Water Quality Certification and Wetlands Unit  
P.O. Box 100  
Sacramento, CA 95812-0100  
[Stateboard401@waterboards.ca.gov](mailto:Stateboard401@waterboards.ca.gov)

Ms. Phoung H. Trinh  
U.S. Army Corps of Engineers, Regulatory Branch  
P.O. Box 532711  
Los Angeles, CA 90053-2325  
[phuong.h.trinh@usace.army.mil](mailto:phuong.h.trinh@usace.army.mil)

Mr. Dave Smith  
Wetlands Regulatory Office  
U.S. Environmental Protection Agency, Region 9  
75 Hawthorne Street  
San Francisco, CA 94105  
[R9-WTR8-Mailbox@epa.gov](mailto:R9-WTR8-Mailbox@epa.gov)

**ATTACHMENT 3  
PROJECT LOCATION**

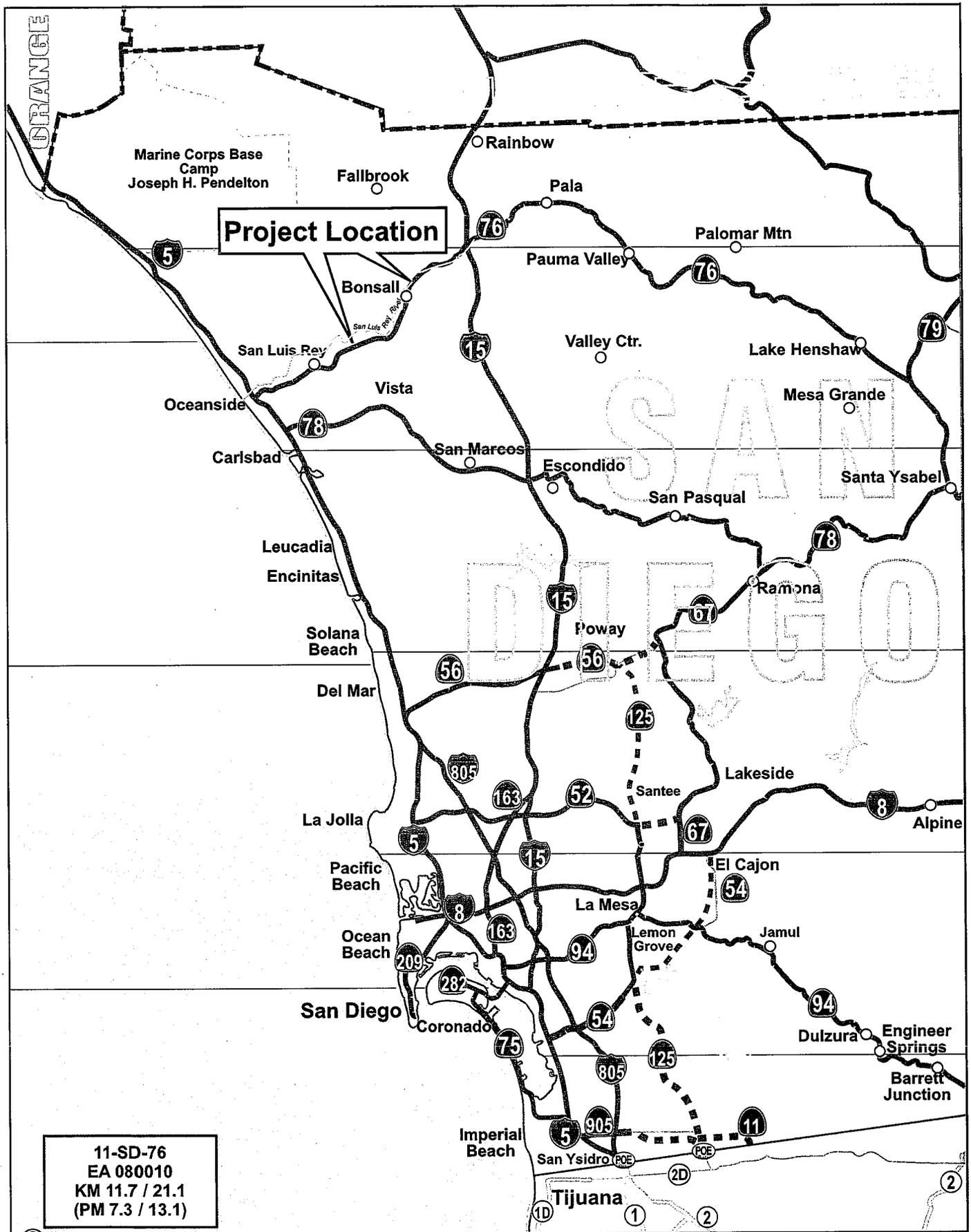
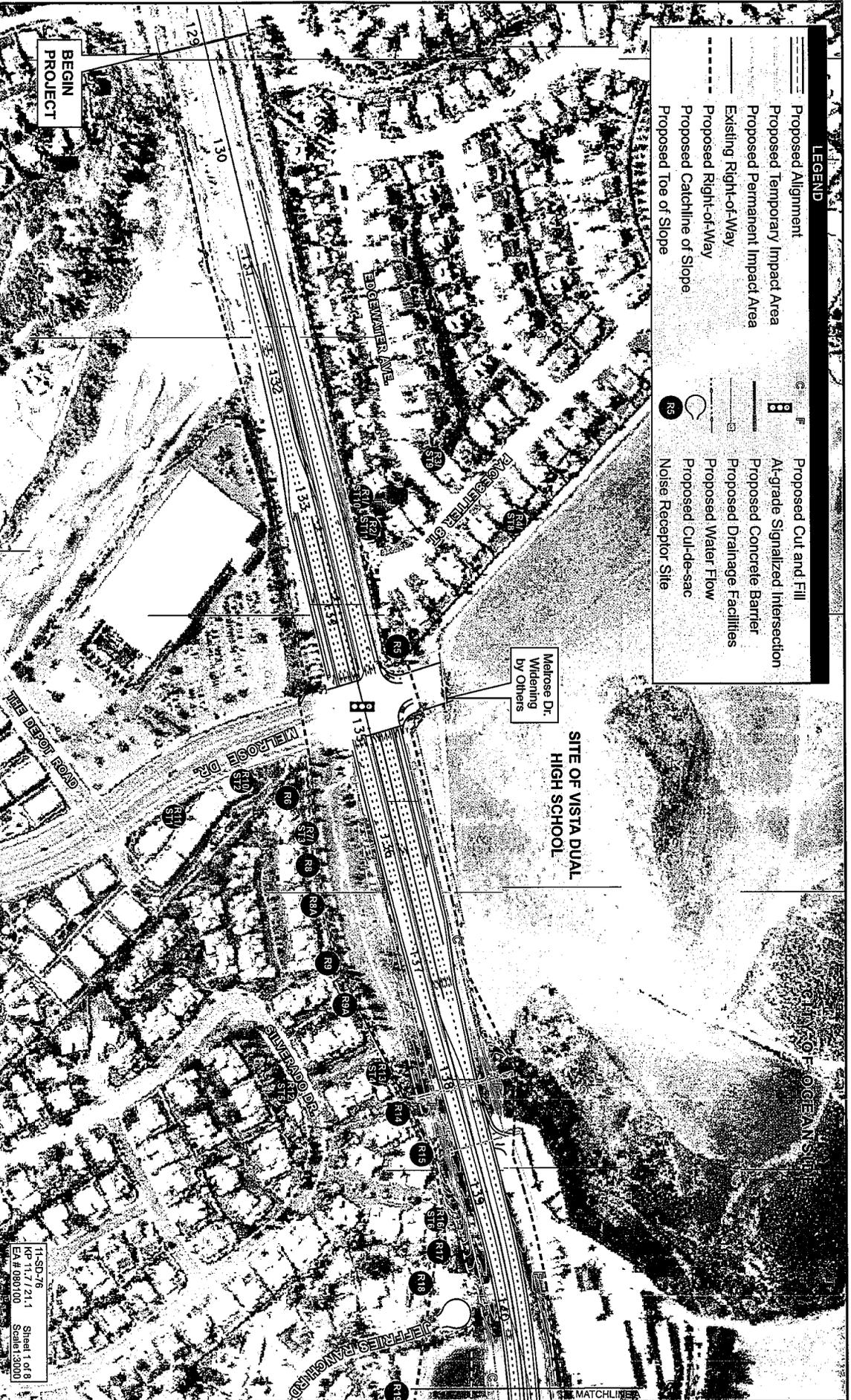


Figure 1.1-1  
Project Location Map

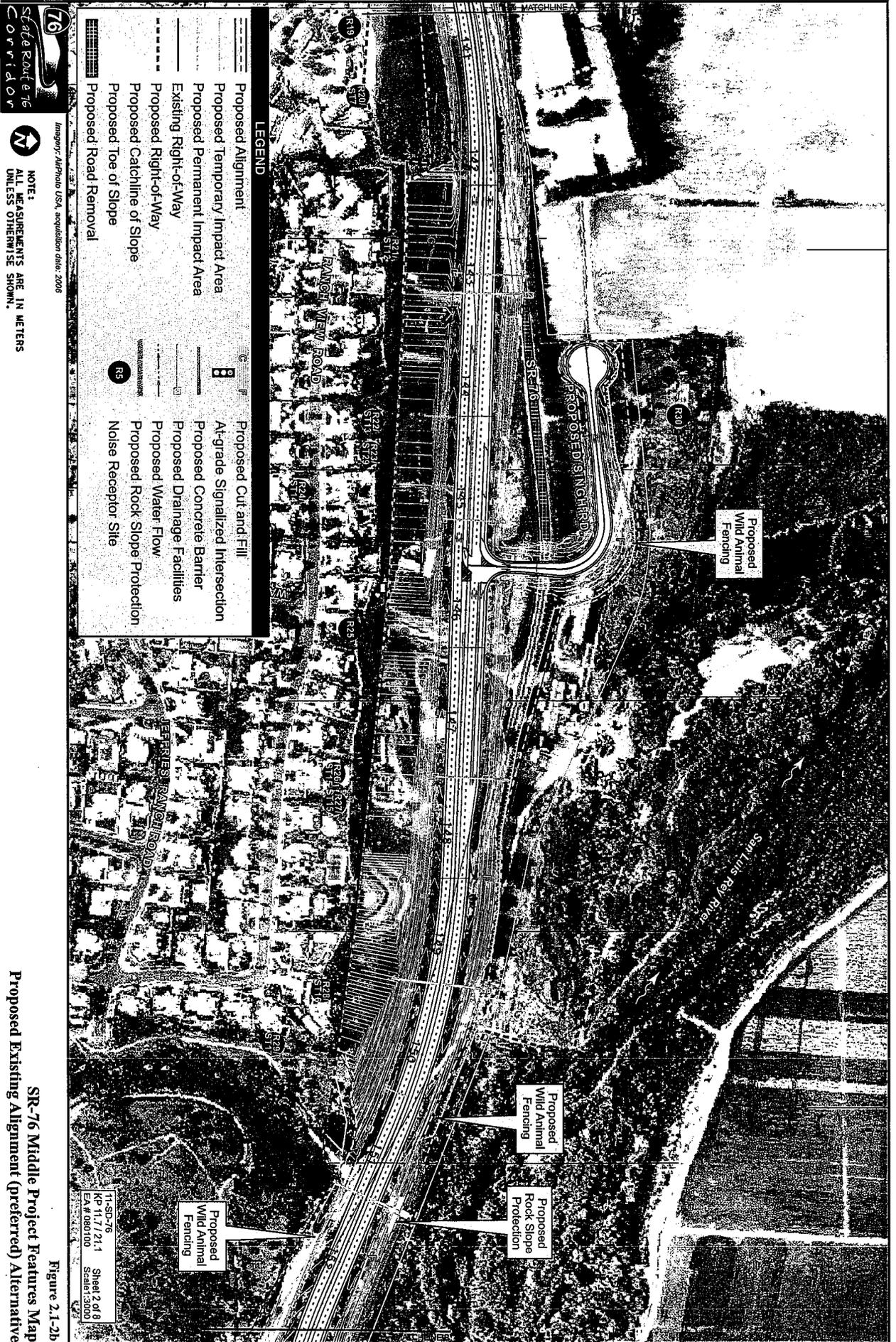
**ATTACHMENT 4  
PROJECT ALIGNMENT EXHIBITS**



11-SD-76  
KP 11.7/21.4 Sheet 1 of 8  
EA # 080100 Scale: 3:000

SR-76 Middle Project Features Map  
Proposed Existing Alignment (preferred) Alternative

Figure 2.1-2a




  
**State Route 76**
  
**Corridor**



NOTE:
   
 ALL MEASUREMENTS ARE IN METERS
   
 UNLESS OTHERWISE SHOWN.

Imagery: Alpha USA, acquisition date: 2006

SR-76 Middle Project Features Map
   
 Proposed Existing Alignment (preferred) Alternative
   
 Figure 2.1-2b

11-SD-76
   
 KP 11.1/21.1
   
 EAT 080700
   
 Sheet 2 of 8
   
 Scale: 1:3000



Figure 2.1-2c  
SR-76 Middle Project Features Map  
Proposed Existing Alignment (Preferred) Alternative





Imagery: AirPhoto USA, acquisition date: 2008

NOTE:  
ALL MEASUREMENTS ARE IN METERS  
UNLESS OTHERWISE SHOWN.

LEGEND	
	Proposed Alignment
	Proposed Temporary Impact Area
	Proposed Permanent Impact Area
	Existing Right-of-Way
	Proposed Right-of-Way
	Proposed Catchline of Slope
	Proposed Toe of Slope
	Proposed Cut and Fill
	At-grade Signalized Intersection
	Proposed Concrete Barrier
	Proposed Drainage Facilities
	Proposed Water Flow
	Proposed Rock Slope Protection
	Proposed Cul-de-sac
	Noise Receptor Site

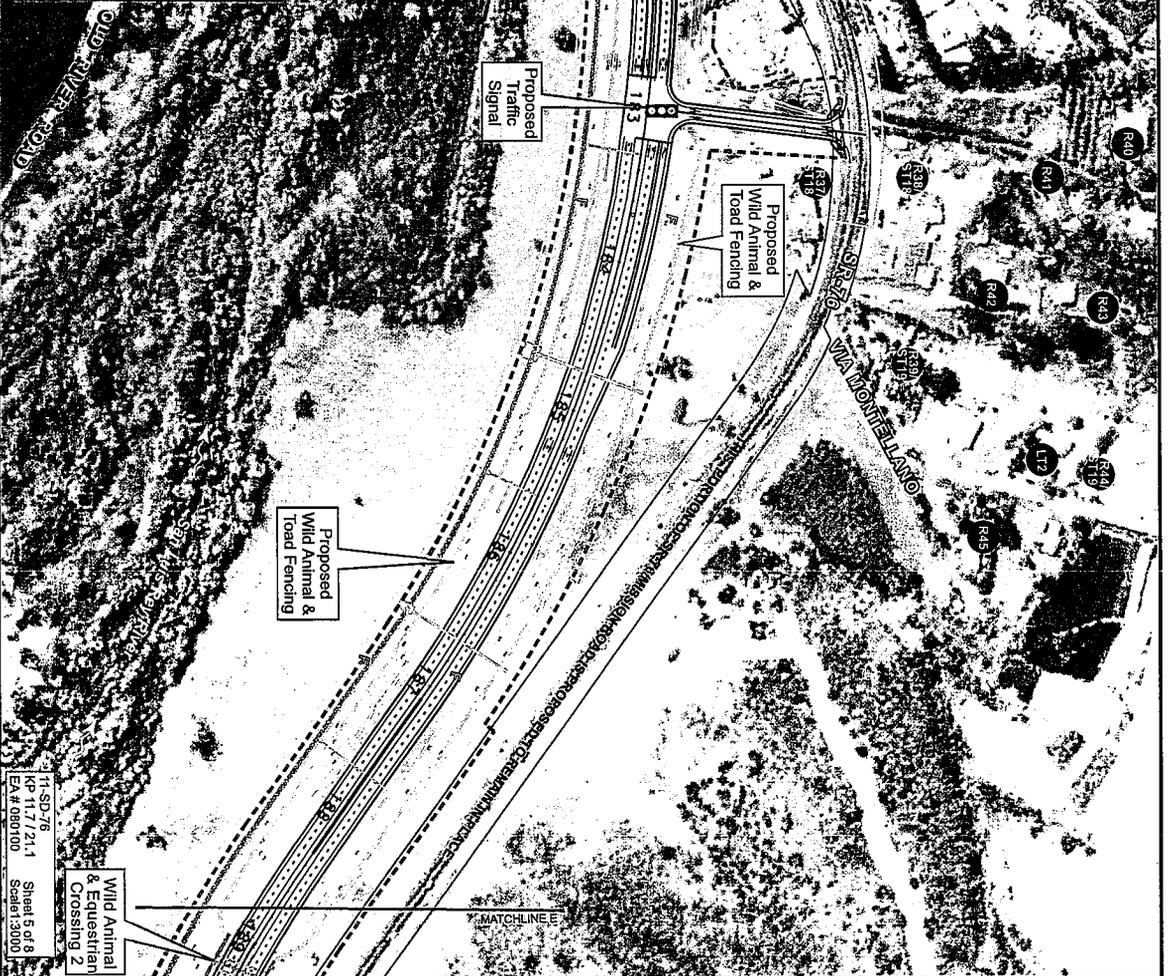
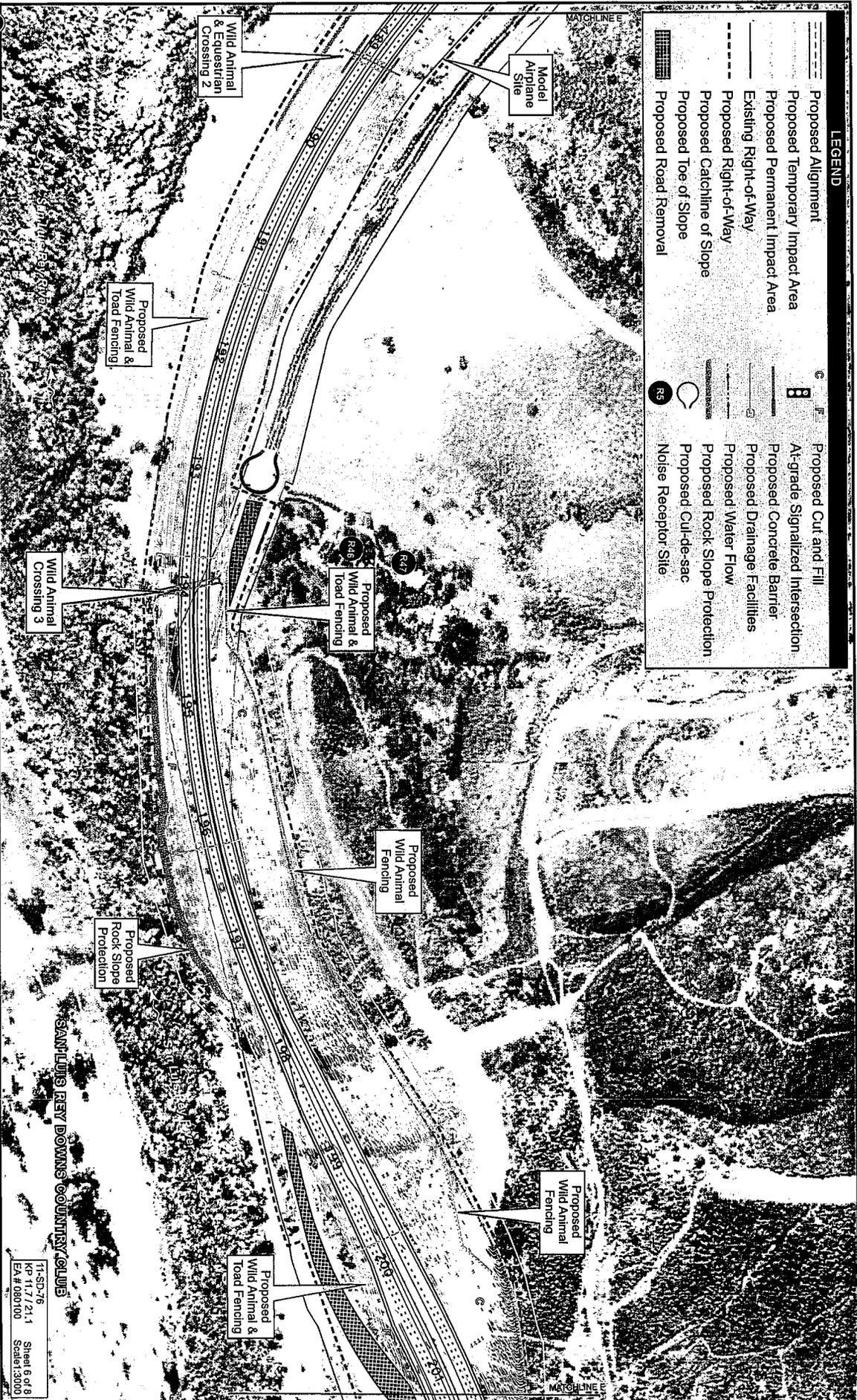


Figure 2.1-2e  
SR-76 Middle Project Features Map  
Proposed Existing Alignment (Preferred) Alternative

Imagery: AirPhoto USA, acquisition date: 2006  
NOTE: ALL MEASUREMENTS ARE IN METERS UNLESS OTHERWISE SHOWN.



**LEGEND**

	Proposed Alignment		Proposed Cut and Fill
	Proposed Temporary Impact Area		At-grade Signalized Intersection
	Proposed Permanent Impact Area		Proposed Concrete Barrier
	Existing Right-of-Way		Proposed Drainage Facilities
	Proposed Right-of-Way		Proposed Water Flow
	Proposed Catchline of Slope		Proposed Rock Slope Protection
	Proposed Toe of Slope		Proposed Cul-de-sac
	Proposed Road Removal		Noise Receiver Site
	Model Airplane Site		
	Proposed Wild Animal Fencing		
	Proposed Wild Animal & Toad Fencing		
	Proposed Wild Animal & Equestrian Crossing 2		
	Proposed Wild Animal & Toad Fencing		
	Proposed Wild Animal Crossing 3		
	Proposed Rock Slope Protection		

Figure 2.1-2f  
SR-76 Middle Project Features Map  
Proposed Existing Alignment (Preferred) Alternative

11-SD-76  
KP 11.7/21.1  
EA # 080100  
Scale: 1:3000  
Sheet 6 of 8



Image: AirPhoto USA, acquisition date: 2006

NOTE:  
ALL MEASUREMENTS ARE IN METERS  
UNLESS OTHERWISE SHOWN.

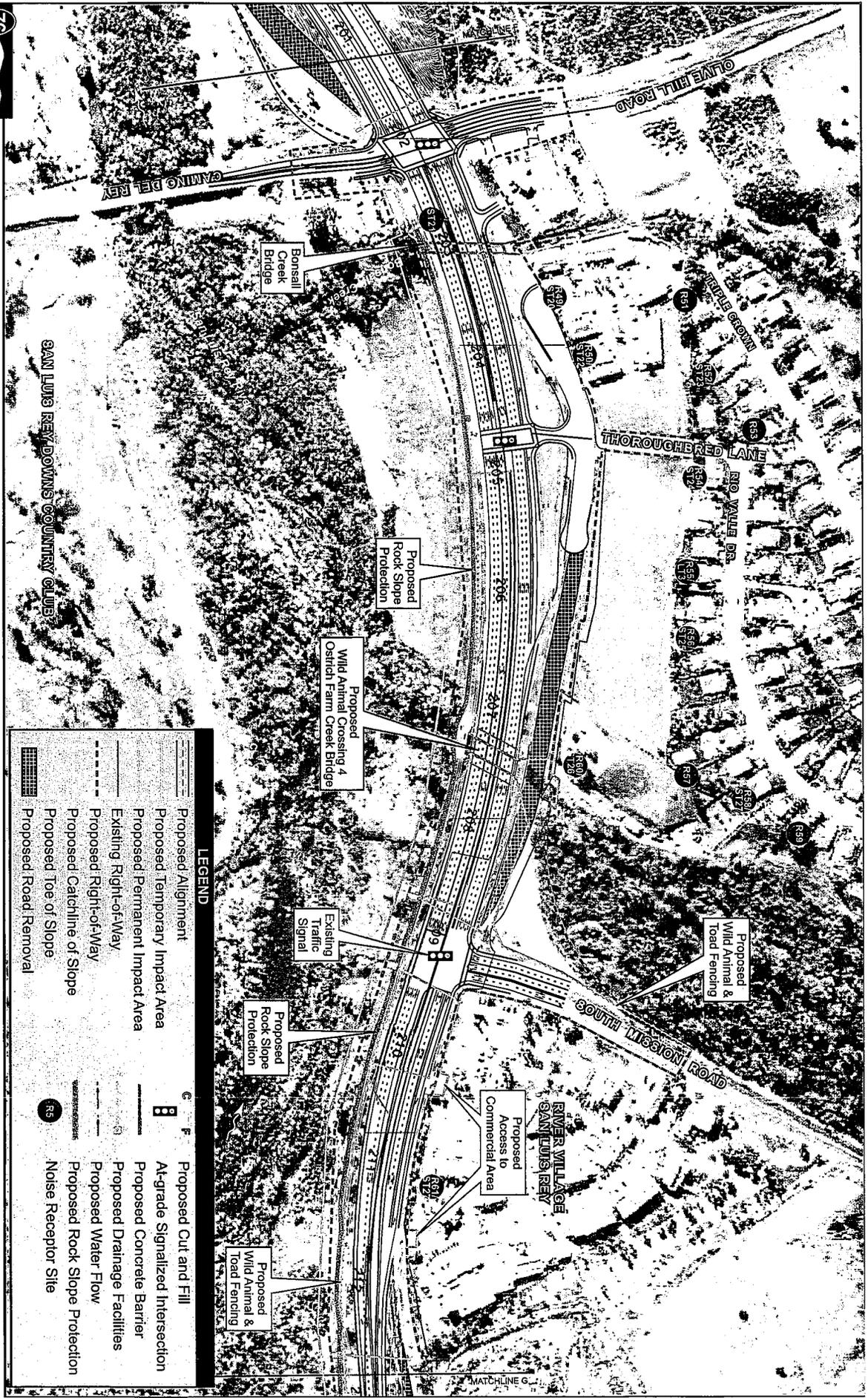
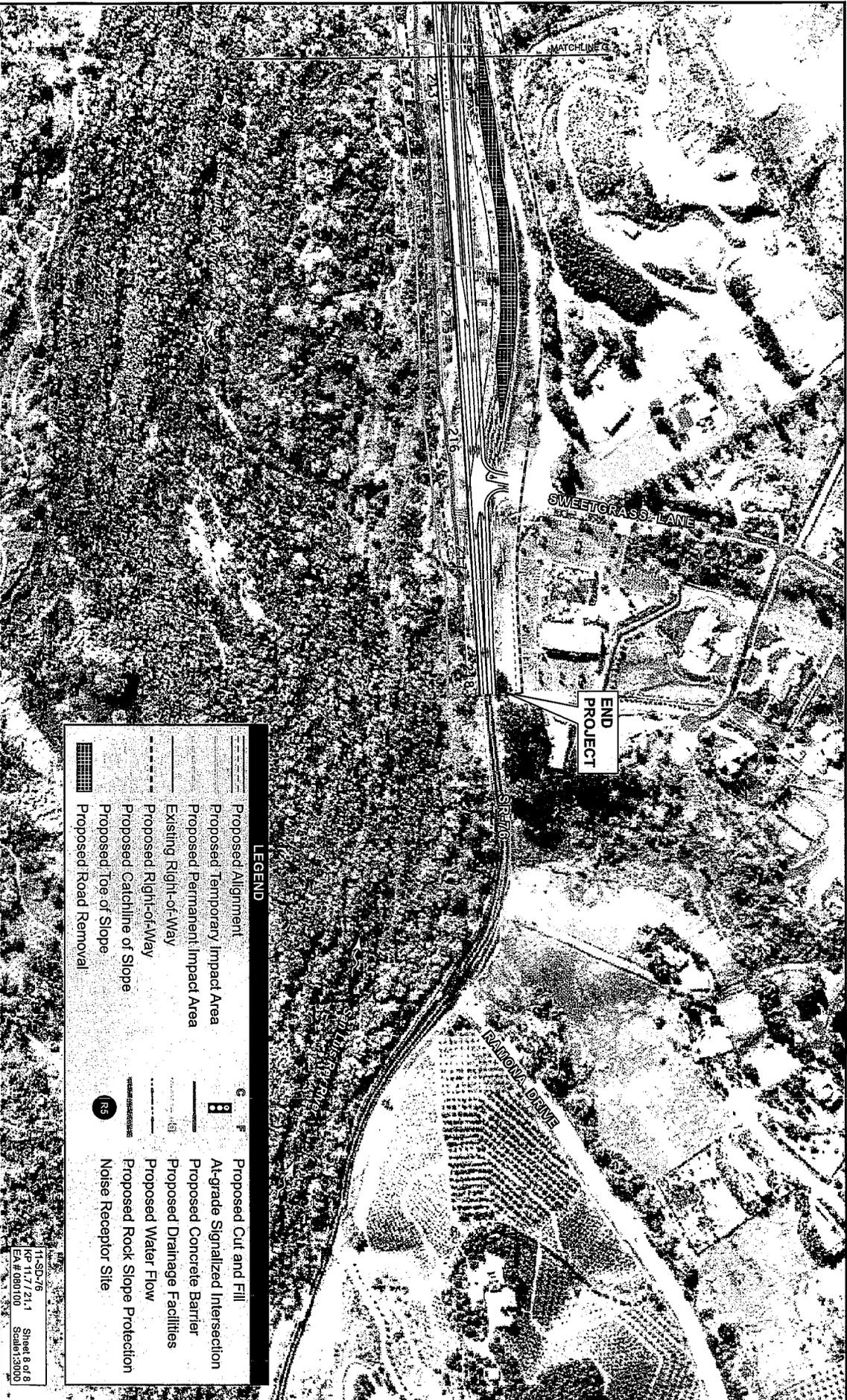


Figure 2.1-2g  
SR-76 Middle Project Features Map  
Proposed Existing Alignment (preferred) Alternative



**LEGEND**

	Proposed Alignment		Proposed Catchline of Slope
	Proposed Temporary Impact Area		Proposed Toe of Slope
	Proposed Permanent Impact Area		Proposed Road Removal
	Existing Right-of-Way		Proposed Cut and Fill
	Proposed Right-of-Way		At-grade Signalized Intersection
	Proposed Catchline of Slope		Proposed Concrete Barrier
	Proposed Toe of Slope		Proposed Drainage Facilities
	Proposed Road Removal		Proposed Water Flow
			Proposed Rock Slope Protection
			Noise Receptor Site

Figure 2.1-2h  
 SR-76 Middle Project Features Map  
 Proposed Existing Alignment (preferred) Alternative

11-SD-76  
 KC 11/7/21  
 EA # 000100  
 Scale: 1:3000  
 Sheet 8 of 8

**ATTACHMENT 5  
IMPACTS AND MITIGATION TABLE**

Option B: Mitigation Proposal for Permanent Impacts

Habitat Type	Permanent Impacts (Acres)	Mitigation Ratio	Total Compensation	Mitigation Location	Available acres remaining after mitigation
<b>Riparian and Wetlands</b>					
Malefic Scrub	1.11	5:1	5.55	5:1 restoration at Morrison = 148.28 - 5.55	Morrison* = 142.73 RSRF restoration; Zweirstra = 34 RSRF creation; 3.3 RSRF Pilgrim = 4.94 riparian credits.
Southern Willow Scrub	0.13	5:1	0.65	5:1 restoration at Morrison = 142.73 - 0.65 ac	Morrison = 142.08 RFRS restoration acres; Zweirstra = 3.4 RSRF creation; 3.3 RSRF Pilgrim = 4.94 riparian credits.
Disturbed Wetland	0.003	1:1	0.003	1:1 restoration at Morrison = 142.08 - 0.003 ac	Morrison = 142.07 RFRS restoration acres; Zweirstra = 3.4 RSRF creation; 3.3 RSRF Pilgrim = 4.94 riparian credits.
Southern Cottonwood Willow Riparian Forest	1.83 (for USACE jurisdictional impacts)* 3.11	1:1	4.94	1:1 creation at Pilgrim = 4.94 - 4.94	Morrison = 142.07 RFRS restoration acres; Zweirstra = 3.4 RSRF creation; 3.3 RSRF Pilgrim = 0 riparian credits.
Southern Cottonwood Willow Riparian Forest	3.4	3:1	10.2	1:1 creation at Zweirstra = 3.4 - 3.4 2:1 restoration at Zweirstra = 3.3 - 3.3 2:1 restoration at Morrison = 142.07 - 3.5	Morrison = 138.58 RSRF restoration acres; Zweirstra = 0 RSRF creation; 0 RSRF Pilgrim = 0 riparian credits.
Southern Cottonwood Willow Riparian Forest	9.99	5:1	49.95	5:1 restoration at Morrison = 138.58 - 49.95	Morrison = 88.63 RFRS restoration acres; Zweirstra = 0 RSRF creation; 0 RSRF Pilgrim = 0 riparian credits.
Southern Coast Live Oak Riparian Forest	3.09	5:1	15.45	5:1 restoration at Morrison = 88.63 - 15.45	Morrison = 72.18 RFRS restoration acres; Zweirstra = 0 RSRF creation; 0 RSRF Pilgrim = 0 riparian credits.
<b>Uplands</b>					
Coastal Sage Scrub	24.36	2:1	48.72	Groves preservation CSS = 180 - 48.72	Groves = 131.28 CSS preservation; Zweirstra 7.0 upland creation
Disturbed Coastal Sage Scrub	13.28	2:1	26.56	Groves preservation CSS = 131.28 - 26.56	Groves = 104.72 CSS preservation; Zweirstra 7.0 upland creation
Coast live oak woodland	0.72	3:1	2.16	Groves preservation CLOW = 11 - 2.16	Groves = 8.84 CLOW preservation; Zweirstra 7.0 upland creation
Non-native grassland	43.17 total = 30.72 load habitat; 12.45 other	1:1 load habitat; 0.5:1 other	1:1 = 30.72; 0.5:1 = 6.23	Groves preservation NNG = 50 - 36.95	Groves = 13.05 NNG preservation; Zweirstra 7.0 upland creation

\*Permitting agencies allowed compensation for wetlands, OHWM, and unvegetated waters to occur at a 1:1 ratio using riparian forest habitat creation credit at the Pilgrim Creek mitigation site. 1.83 acres of the 4.94 mitigation credit was used for this purpose; the remainder was used for riparian forest impacts.

## ATTACHMENT 6 STREAM PHOTO DOCUMENTATION PROCEDURES

### Standard Operating Procedure (SOP)

#### Stream Photo Documentation Procedure

(CARCD 2001, Written by TAC Visual Assessments work group)

#### Introduction:

Photographs provide a qualitative, and potentially semi-quantitative, record of conditions in a watershed or on a water body. Photographs can be used to document general conditions on a reach of a stream during a stream walk, pollution events or other impacts, assess resource conditions over time, or can be used to document temporal progress for restoration efforts or other projects designed to benefit water quality. Photographic technology is available to anyone and it does not require a large degree of training or expensive equipment. Photos can be used in reports, presentations, or uploaded onto a computer website or GIS program. This approach is useful in providing a visual portrait of water resources to those who may never have the opportunity to actually visit a monitoring site.

#### Equipment:

Use the same camera to the extent possible for each photo throughout the duration of the project. Either 35 mm color or digital color cameras are recommended, accompanied by a telephoto lens. If you must change cameras during the program, replace the original camera with a similar one comparable in terms of media (digital vs. 35 mm) and other characteristics. A complete equipment list is suggested as follows:

#### Required:

- Camera and backup camera
- Folder with copies of previous photos (do not carry original photos in the field)
- Topographic and/or road map
- Aerial photos if available
- Compass
- Timepiece
- Extra film or digital disk capacity (whichever is applicable)
- Extra batteries for camera (if applicable)
- Photo-log data sheets or, alternatively, a bound notebook dedicated to the project
- Yellow photo sign form and black marker, or, alternatively, a small black board and chalk

#### Optional:

- GPS unit
- Stadia rod (for scale on landscape shots)
- Ruler (for scale on close up views of streams and vegetation)
- Steel fence posts for dedicating fixed photo points in the absence of available fixed landmarks

### **How to Access Aerial Photographs:**

Aerial Photos can be obtained from the following federal agencies:

USGS Earth Science Information Center  
 507 National Center  
 12201 Sunrise Valley Drive  
 Reston, VA 22092  
 800-USA-MAPS

USDA Consolidated Farm Service Agencies  
 Aerial Photography Field Office  
 222 West 2300 South  
 P.O. Box 30010  
 Salt Lake City, UT 84103-0010  
 801-524-5856

Cartographic and Architectural Branch  
 National Archives and Records Administration  
 8601 Adelphi Road  
 College park, MD 20740-6001  
 301-713-7040

### **Roles and Duties of Team:**

The team should be comprised of a minimum of two people, and preferably three people for restoration or other water quality improvement projects, as follows:

1. Primary Photographer
2. Subject, target for centering the photo and providing scale
3. Person responsible for determining geographic position and holding the photo sign forms or blackboard.

One of these people is also responsible for taking field notes to describe and record photos and photo points.

### **Safety Concerns:**

Persons involved in photo monitoring should **ALWAYS** put safety first. For safety reasons, always have at least two 2 volunteers for the survey. Make

sure that the area(s) you are surveying either are accessible to the public or that you have obtained permission from the landowner prior to the survey.

Some safety concerns that may be encountered during the survey include, but are not limited to:

- Inclement weather
- Flood conditions, fast flowing water, or very cold water
- Poisonous plants (e.g.: poison oak)
- Dangerous insects and animals (e.g.: bees, rattlesnakes, range animals such as cattle, etc.)
- Harmful or hazardous trash (e.g.: broken glass, hypodermic needles, human feces)

We recommend that the volunteer coordinator or leader discuss the potential hazards with all volunteers prior to any fieldwork.

### **General Instructions:**

From the inception of any photo documentation project until it is completed, always take each photo from the same position (photo point), and at the same bearing and vertical angle at that photo point. Photo point positions should be thoroughly documented, including photographs taken of the photo point. Refer to copies of previous photos when arriving at the photo point. Try to maintain a level (horizontal) camera view unless the terrain is sloped. (If the photo can not be horizontal due to the slope, then record the angle for that photo.) When photo points are first being selected, consider the type of project (meadow or stream restoration, vegetation management for fire control, ambient or event monitoring as part of a stream walk, etc.) and refer to the guidance listed on *Suggestions for Photo Points by Type of Project*.

When taking photographs, try to include landscape features that are unlikely to change over several years (buildings, other structures, and landscape features such as peaks, rock outcrops, large trees, etc.) so that repeat photos will be easy to position. Lighting is, of course, a key ingredient so give consideration to the angle of light, cloud cover, background, shadows, and contrasts. Close view photographs taken from the north (i.e., facing south) will minimize shadows. Medium and long view photos are best shot with the sun at the photographer's back. Some artistic expression is encouraged as some photos may be used on websites and in slide shows (early morning and late evening shots may be useful for this purpose). Seasonal changes can be used to advantage as foliage, stream flow, cloud cover, and site access fluctuate. It is often important to include a ruler, stadia rod, person, farm animal, or automobile in photos to convey the scale of the image. Of particular concern is the

angle from which the photo is taken. Oftentimes an overhead or elevated shot from a bridge, cliff, peak, tree, etc. will be instrumental in conveying the full dimensions of the project. Of most importance overall, however, is being aware of the goal(s) of the project and capturing images that clearly demonstrate progress towards achieving those goal(s). Again, reference to *Suggestions for Photo Points by Type of Project* may be helpful.

If possible, try to include a black board or yellow photo sign in the view, marked at a minimum with the location, subject, time and date of the photograph. A blank photo sign form is included in this document.

### **Recording Information:**

Use a systematic method of recording information about each project, photo point, and photo. The following information should be entered on the photo-log forms (blank form included in this document) or in a dedicated notebook:

- Project or group name, and contract number (if applicable, e.g., for funded restoration projects)
- General location (stream, beach, city, etc.), and short narrative description of project's habitat type, goals, etc.
- Photographer and other team members
- Photo number
- Date
- Time (for each photograph)
- Photo point information, including:
  - Name or other unique identifier (abbreviated name and/or ID number)
  - Narrative description of location including proximity to and direction from notable landscape features like roads, fence lines, creeks, rock outcrops, large trees, buildings, previous photo points, etc. – sufficient for future photographers who have never visited the project to locate the photo point
  - Latitude, longitude, and altitude from map or GPS unit
- Magnetic compass bearing from the photo point to the subject
- Specific information about the subject of the photo
- Optional additional information: a true compass bearing (corrected for declination) from photo point to subject, time of sunrise and sunset (check newspaper or almanac), and cloud cover.

For ambient monitoring, the stream and shore walk form should be attached or referenced in the photo-log.

When monitoring the implementation of restoration, fuel reduction, or Best Management Practices (BMP) projects, include or attach to the photo-log a narrative description of observable progress in achieving

the goals of the project. Provide supplementary information along with the photo, such as noticeable changes in habitat, wildlife, and water quality and quantity.

Archive all photos, along with the associated photo-log information, in a protected environment.

### **The Photo Point: Establishing Position of Photographer:**

1. Have available a variety of methods for establishing position: maps, aerial photos, GPS, permanent markers and landmarks, etc. If the primary method fails (e.g., a GPS or lost marker post) then have an alternate method (map, aerial photo, copy of an original photograph of the photo-point, etc).
2. Select an existing structure or landmark (mailbox, telephone pole, benchmark, large rock, etc.), identify its latitude and longitude, and choose (and record for future use) the permanent position of the photographer relative to that landmark. Alternatively, choose the procedure described in *Monitoring California's Annual Rangeland Vegetation* (UC/DANR Leaflet 21486, Dec. 1990). This procedure involves placing a permanently marked steel fence post to establish the position of the photographer.
3. For restoration, fuel reduction, and BMP projects, photograph the photo-points and carry copies of those photographs on subsequent field visits.

### **Determining the Compass Bearing:**

1. Select and record the permanent magnetic bearing of the photo center view. You can also record the true compass bearing (corrected for declination) but do not substitute this for the magnetic bearing. Include a prominent landmark in a set position within the view. If possible, have an assistant stand at a fixed distance from both the photographer and the center of the view, holding a stadia rod if available, within the view of the camera; preferably position the stadia rod on one established, consistent side of the view for each photo (right or left side).
2. Alternatively, use the procedure described in *Monitoring California's Annual Rangeland Vegetation* (UC/DANR Leaflet 21486, Dec. 1990). This procedure involves placing a permanently marked steel fence post to establish the position of the focal point (photo center).
3. When performing ambient or event photo monitoring, and when a compass is not available, then refer to a map and record the approximate bearing as north, south, east or west.

## **Suggestions for Photo Points by Type of Project:**

### **Ambient or Event Monitoring, Including Photography Associated with Narrative Visual Assessments:**

1. When first beginning an ambient monitoring program take representative long and/or medium view photos of stream reaches and segments of shoreline being monitored. Show the positions of these photos on a map, preferably on the stream/shore walk form. Subjects to be photographed include a representative view of the stream or shore condition at the beginning and ending positions of the segment being monitored, storm drain outfalls, confluence of tributaries, structures (e.g., bridges, dams, pipelines, etc.).
2. If possible, take a close view photograph of the substrate (streambed), algae, or submerged aquatic vegetation.
3. Time series: Photographs of these subjects at the same photo points should be repeated annually during the same season or month if possible.
4. Event monitoring refers to any unusual or sporadic conditions encountered during a stream or shore walk, such as trash dumps, turbidity events, oil spills, etc. Photograph and record information on your photo-log and on your Stream and Shore Walk Visual Assessment form. Report pollution events to the Regional Board. Report trash dumps to local authorities.

### **All Restoration and Fuel Reduction Projects – Time Series:**

Take photos immediately before and after construction, planting, or vegetation removal. Long term monitoring should allow for at least annual photography for a minimum of three years after the project, and thereafter at 5 years and ten years.

#### **Meadow Restoration:**

1. Aerial view (satellite or airplane photography) if available.
2. In the absence of an aerial view, a landscape, long view showing an overlapping sequence of photos illustrating a long reach of stream and meadow (satellite photos, or hill close by, fly-over, etc.)
3. Long view up or down the longitudinal dimension of the creek showing riparian vegetation growth bounded on each side by grasses, sedges, or whatever that is lower in height

4. Long view of conversion of sage and other upland species back to meadow vegetation
5. Long view and medium view of streambed changes (straightened back to meandering, sediment back to gravel, etc.)
6. Medium and close views of structures, plantings, etc. intended to induce these changes

**Stream Restoration/stabilization:**

1. Aerial view (satellite or airplane photography) if available.
2. In the absence of an aerial view, a landscape, long-view showing all or representative sections of the project (bluff, bridge, etc.)
3. Long view up or down the stream (from stream level) showing changes in the stream bank, vegetation, etc.
4. Long view and medium view of streambed changes (thalweg, gravel, meanders, etc.)
5. Medium and close views of structures, plantings, etc. intended to induce these changes.
6. Optional: Use a tape set perpendicular across the stream channel at fixed points and include this tape in your photos described in 3 and 4 above. For specific procedures refer to Harrelson, Cheryl C., C.L. Rawlins, and John P. Potyondy, *Stream Channel Reference Sites: An Illustrated Guide to Field Techniques*, United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, General Technical Report RM-245.

**Vegetation Management for Fire Prevention ("fuel reduction"):**

1. Aerial view (satellite or airplane photography) if available.
2. In the absence of an aerial view, a landscape, long view showing all or representative sections of the project (bluff, bridge, etc.)
3. Long view (wide angle if possible) showing the project area or areas. Preferably these long views should be from an elevated vantage point.

4. Medium view photos showing examples of vegetation changes, and plantings if included in the project. It is recommended that a person (preferably holding a stadia rod) be included in the view for scale
5. To the extent possible include medium and long view photos that include adjacent stream channels.

**Stream Sediment Load or Erosion Monitoring:**

1. Long views from bridge or other elevated position.
2. Medium views of bars and banks, with a person (preferably holding a stadia rod) in view for scale.
3. Close views of streambed with ruler or other common object in the view for scale.
4. Time series: Photograph during the dry season (low flow) once per year or after a significant flood event when streambed is visible. The flood events may be episodic in the south and seasonal in the north.
5. Optional: Use a tape set perpendicular across the stream channel at fixed points and include this tape in your photos described in 1 and 2 above. For specific procedures refer to Harrelson, Cheryl C., C.L. Rawlins, and John P. Potyondy, *Stream Channel Reference Sites: An Illustrated Guide to Field Techniques*, United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, General Technical Report RM-245.



PHOTO SIGN FORM: Print this form on yellow paper. Complete the following information for each photograph. Include in the photographic view so that it will be legible in the finished photo.

Location:

Subject Description:

Date:

Time:



**DEPARTMENT OF FISH AND GAME**

South Coast Region  
4949 Viewridge Avenue  
San Diego, CA 92123  
(858) 467-4201



April 28, 2009

Mark Phelan  
California Department of Transportation, District 11  
4050 Taylor Street  
San Diego, CA 92110

Dear Mr. Phelan:

Enclosed is Lake or Streambed Alteration Agreement # 1600-2009-0043-R5, that authorizes work on the State Route 76 - Melrose Drive to South Mission Road project impacting San Luis Rey River, Vista Creek, Bonsall Creek, Ostrich Farm Creek and 8 unnamed creeks in the City of Oceanside and the community of Bonsall in San Diego County. This action is authorized under Section 1602 of the Fish and Game Code and has been approved by the California Department of Fish and Game. Pursuant to the requirements of the California Environmental Quality Act (CEQA), the Department filed a Notice of Determination (NOD) on the project on April 28, 2009. Under CEQA regulations, the project has a 30-day statute of limitations on court challenges of the Department's approval.

The Department believes that the project fully meets the requirements of the Fish and Game Code and CEQA. However, if court challenges on the NOD are received during the 30-day period, then an additional review or even modification of the project may be required. If no comments are received during the 30-day period, then any subsequent comments need not be responded to. This information is provided to you so that if you choose to undertake the project prior to the close of the 30-day period, you do so with the knowledge that additional actions may be required based on the results of any court challenges that are filed during that period.

Please contact Pam Beare at (760) 788-6760 if you have any questions regarding the Lake or Streambed Alteration Agreement.

Sincerely,



Stephen M. Juarez  
Environmental Program Manager

Enclosure

Revised 11/05



**CALIFORNIA DEPARTMENT OF FISH AND GAME**  
**South Coast Region**  
4949 Viewridge Avenue  
San Diego, California 92123

Notification No. 1600-2009-0043-R5

## AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and the State of California, Department of Transportation (Point of Contact: Mr. Mark Phelan), District 11, 4050 Taylor Street, San Diego, CA 92110, hereinafter called the Applicant, is as follows:

### RECITALS

WHEREAS, pursuant to Section 1602 of California Fish and Game Code, the Applicant, on the 19th day of February, 2009, notified the Department that they intend to divert or obstruct the natural flow of, or change the bed, channel, or bank of, or use material from the streambed(s) of, the following water(s): San Luis Rey River, Vista Creek, Bonsall Creek, Ostrich Farm Creek and 8 un-named creeks in the City of Oceanside and the community of Bonsall, San Diego County, California, (Section 1/Township 11S/Range 4W, Section 6/Township 11S/Range 3W, Sections 31,30,29,20/Township 10S/Range 3W, Bonsall Quadrangle).

WHEREAS, the Department (represented by Pam Beare through a site visit on the 4<sup>th</sup> day of February, 2009) has determined that such operations may substantially adversely affect those existing fish and wildlife resources within the San Luis Rey River, Vista Creek, Bonsall Creek, Ostrich Farm Creek and 8 un-named creeks within the project limits, specifically identified as follows: **Amphibians:** arroyo toad (*Bufo californicus*), western toad (*Bufo boreas*), Pacific tree frog (*Pseudacris regilla*), **Reptiles:** western fence lizard (*Sceloporus occidentalis*), common side-blotched lizard (*Uta stansburiana*), orange-throated whiptail (*Cnemidophorus hyperythrus*), southern alligator lizard (*Elgaria multicarinata*), western rattlesnake (*Crotalus viridis*); **Birds:** great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), cattle egret (*Bubulcus ibis*), green heron (*Butorides virescens*), black-crowned night heron (*Nycticorax nycticorax*), turkey vulture (*Cathartes aura*), white-tailed kite (*Elanus leucurus majusculus*), northern harrier (*Circus cyaneus*), sharp-shinned hawk (*Accipiter striatus*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), California quail (*Callipepla californica*), common moorhen (*Gallinula chloropus*), killdeer (*Charadrius vociferous*), black-necked stilt (*Himantopus mexicanus*), American avocet (*Recurvirostra americana*), ring-billed gull (*Larus delawarensis*), California gull (*Larus californicus*), mourning dove (*Zenaida macroura*), barn owl (*Tyto alba*), great horned owl (*Bubo virginianus*), lesser highhawk (*Chordeiles acutipennis*), common poorwill (*Phalaenoptilus nuttallii*), black-chinned hummingbird (*Archilochus alexandri*), Anna's hummingbird (*Calypte anna*), Costa's hummingbird (*Calypte costae*), acorn woodpecker (*Melanerpes formicivorus*), Nuttall's woodpecker (*Picoides nuttallii*), southwestern willow flycatcher (*Empidonax traillii extimus*), Pacific slope flycatcher (*Empidonax difficilis*), black phoebe (*Sayornis nigricans*), Say's phoebe (*Sayornis saya*), Cassin's kingbird (*Tyrannus vociferans*), western kingbird (*Tyrannus verticalis*), violet-green swallow (*Tachycineta thalassina*), northern rough-winged swallow (*Stelgidopteryx serripennis*), cliff swallow (*Petrochelidon pyrrhonota*), western scrub jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), bush tit (*Psaltriparus minimus*), canyon wren (*Catherpes mexicanus*), Bewick's wren (*Thryomanes bewickii*), house wren (*Troglodytes aedon*), marsh wren (*Cistothorus palustris*), western bluebird (*Sialia mexicana*), American robin (*Turdus migratorius*), northern mockingbird (*Mimus polyglottus*), California thrasher (*Toxostoma redivivum*), phainopepla (*Phainopepla nitens*), least Bell's vireo (*Vireo belli pusillus*), Hutton's vireo (*Vireo huttoni*), yellow-rumped warbler (*Dendroica coronata*), common yellowthroat (*Geothlypis trichas*), Wilson's warbler (*Wilsonia pusilla*), yellow-breasted chat (*Icteria virens*), western tanager (*Piranga ludoviciana*), black-headed grosbeak (*Pheucticus melanocephalus*), lazuli bunting (*Passerina amoena*), spotted towhee (*Pipilo maculatus*), California towhee (*Pipilo crissalis*), rufous-crowned sparrow (*Aimophila ruficeps canescens*), lark sparrow (*Chondestes grammacus*), song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), hooded oriole (*Icterus cucullatus*), lesser goldfinch (*Carduelis psaltria*), American goldfinch (*Carduelis tristis*); **Mammals:** Virginia opossum (*Didelphis virginiana*), brush rabbit (*Sylvilagus bachmani*), desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), mountain lion (*Puma concolor*), bobcat (*Lynx rufus*), mule deer (*Odocoileus hemionus*), and all other aquatic and wildlife resources, including the riparian vegetation, such as mulefat (*Baccharis salicifolia*), coast live oak (*Quercus agrifolia* var. *agrifolia*), western sycamore (*Platanus racemosa*), Fremont cottonwood (*Populus fremontii* ssp.

*fremontii*), Gooding's black willow (*Salix gooddingii*), narrow-leaf willow (*Salix exigua*), shining willow (*Salix lucida* ssp. *lasiandra*), arroyo willow (*Salix lasiolepis*), cattail (*Typha* sp.), rush (*Scirpus* sp.), etc. which provides habitat for those species.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife resources during the Applicant's work. The Applicant hereby agrees to accept the following measures/conditions as part of the proposed work.

If the Applicant's work changes from that stated in the notification specified above, this Agreement is no longer valid and a new notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this Agreement and with other pertinent code sections, including but not limited to Fish and Game Code Sections 5650, 5652, 5901, 5931, 5937, and 5948, may result in prosecution.

Nothing in this Agreement authorizes the Applicant to trespass on any land or property, nor does it relieve the Applicant of responsibility for compliance with applicable federal, state, or local laws or ordinances. A consummated Agreement does not constitute Department of Fish and Game endorsement of the proposed operation, or assure the Department's concurrence with permits required from other agencies.

#### Term and Effective Date

This Agreement becomes effective the date of Department's signature and terminates April 30, 2014 for project construction only. This Agreement shall remain in effect for that time necessary to satisfy the terms/conditions of this Agreement.

#### Extensions

Pursuant to Section 1600 *et seq.*, the Applicant may request one extension of this Agreement; the Applicant shall request extension of the Agreement prior to its termination. The one extension may be granted for up to five years from the date of termination of the Agreement and is subject to Department approval. The extension request and fees shall be submitted to the Department's South Coast Region at the above address. If the Applicant fails to request the extension prior to the Agreement's termination, then the Applicant shall submit a new notification with fees and required information to the Department. Any construction/impacts that occur under an expired Agreement are a violation of Fish and Game Code 1600 *et seq.*

#### Suspension and Revocation

The Department reserves the right to cancel this Agreement, after giving notice to the Applicant, if the Department determines that the Applicant has breached any of the terms or conditions of the Agreement.

The Department reserves the right to suspend or cancel this Agreement for other reasons, including but not limited to the following:

- a) The Department determines that the information provided by the Applicant in support of the Notification/Agreement is incomplete or inaccurate;
- b) The Department obtains new information that was not known to it in preparing the terms and conditions of the Agreement;
- c) The project or project activities as described in the Notification/Agreement have changed;
- d) The conditions affecting fish and wildlife resources change or the Department determines that project activities will result in a substantial adverse effect on the environment.

Before any suspension or cancellation of the Agreement, the Department will notify the Applicant in writing of the circumstances which the Department believes warrant suspension or cancellation. The Applicant will have seven (7) working days from the date of receipt of this notification to respond in writing to the circumstances described in the Department's notification. During the seven (7) day response period, the Applicant shall immediately cease any project activities which the Department

specified in its notification. The Applicant shall not continue the specified activities until that time when the Department notifies the Applicant in writing that adequate methods and/or measures have been identified and agreed upon to mitigate or eliminate the significant adverse effect.

#### Amendment

This Agreement may be amended at any time by mutual agreement of the parties. Any amendments to this Agreement shall be made in a separate writing, signed by the parties, and attached to this Agreement. Any approved amendments shall become part of this Agreement.

#### Liability

The Applicant agrees that it shall be responsible for any violations of this Agreement, whether committed by the Applicant or any person acting on behalf of the Applicant, including its agents, officers, and employees, representatives, or contractors and subcontractors. This Agreement does not constitute the Department's endorsement of the authorized Project Activity.

It is understood the Department has entered into this Agreement for purposes of establishing protective features for fish and wildlife. The decision to proceed with the project is the sole responsibility of the Applicant, and is not required by this Agreement. It is further agreed that all liability and/or incurred cost related to or arising from the Applicant's project and the implementation of the fish and wildlife protective conditions of this Agreement remain the sole responsibility of the Applicant. The Applicant agrees to hold harmless the State of California and the Department against any related claim made by any party or parties for personal injury or any other damages.

#### Enforcement

The Department reserves the right to enter the project site at any time to ensure compliance with the terms/conditions of this Agreement.

#### Project Location and Description

The project is located on State Route 76, adjacent to and within the San Luis Rey River and its floodplain, between Melrose Drive in the City of Oceanside and South Mission Road in the community of Bonsall (SR-76 Post Mile 7.3-13.1). The Applicant proposes to alter the stream by widening approximately 5.8 miles of SR-76 from the existing two-lane highway to four lanes, with grading to accommodate a future six-lane facility. The project includes crossings of the San Luis Rey River, Vista Creek, Bonsall Creek, Ostrich Farm Creek and 8 un-named creeks. The San Luis Rey River crossing will require construction of a new bridge which will be adjacent to the existing one. The project will be constructed in four phases beginning in January 2010 and is projected to be completed in summer 2012. The purpose of the project is to maintain or improve existing and future traffic operations.

#### **CONDITIONS**

The following provisions constitute the limit of activities agreed to and resolved by this Agreement. The signing of this Agreement does not imply that the Applicant is precluded from doing other activities at the site. However, activities not specifically agreed to and resolved by this Agreement shall be subject to separate notification pursuant to Fish and Game Code Sections 1600 *et seq.*

#### General

1. The agreed work includes activities associated with the Project Location and Description that is provided above. Specific work areas and mitigation measures are described on/in the plans and documents submitted by the Applicant, including the *Natural Environment Study, State Route 76 Melrose to South Mission Highway Improvement Project in San Diego County, California* (EDAW Inc., September 2007), *State Route 76 Middle Segment Improvement Project Jurisdictional Delineation*

*Report for Waters of the U.S. and State of California* (EDAW Inc., January 2008), *Revisions to SR-76 Middle Segment Jurisdictional Delineation* (EDAW Inc., January 25, 2008), *Wetland Mitigation Plan for the State Route 76 Melrose to Mission Highway Improvement Project* (California Department of Transportation, October 2008), *Biological Opinion, State Route 76 Melrose Drive to South Mission Highway Improvement Project* (U.S. Fish and Wildlife Service, October 1, 2008), *Final Environmental Impact Report/Environmental Impact Statement, State Route 76 Melrose to South Mission* (Department of Transportation, November 2008), *Project Plans for Construction on State Highway 76 in San Diego County in and near Oceanside from 0.8 km West of Melrose Drive to 1.0 km East of South Mission Road D1-34 and San Luis Rey River Bridge Foundation Plan 1-4* (Department of Transportation, September 29, 2008), *Location Hydraulic Study, San Luis Rey River from Melrose Dr. to Mission Rd.* (Department of Transportation, February 15, 2006), and *Memorandum: Site Assessment, Hazardous Waste Issues/Materials, Route 76 Middle, Melrose Drive to East Vista Way* (Department of Transportation, October 25, 2006); the project shall be implemented as proposed unless directed differently by this agreement.

2. The Applicant shall provide a copy of this Agreement to all contractors, subcontractors, and project supervisors. The Applicant shall ensure that all project personnel abide by all terms and conditions of this agreement. Copies of the Agreement shall be readily available at work sites at all times during periods of active work and must be presented to any Department personnel, or personnel from another agency, upon demand.

3. The Applicant shall notify the Department, in writing, at least five (5) days prior to initiation of construction (project) activities and at least five (5) days prior to completion of construction (project) activities. Notification shall be sent to the Department's South Coast Office at the address above, ATTN: Streambed Alteration Program – SAA # 1600-2009-0043-R5.

### **Impacts**

4. The Applicant shall not permanently impact more than 23.08 acre of streambed, consisting of 22.66 acres of vegetated streambed (1.11 acres of mulefat scrub, 0.13 acre of southern willow scrub, 18.33 acres of southern cottonwood willow riparian forest, 3.09 acres of southern coast live oak riparian forest), and 0.42 acre of open water and unvegetated streambed.

5. Temporary impacts shall not exceed 16.32 acres, which consists of 15.83 acres of vegetated streambed (primarily southern cottonwood willow riparian forest and southern coast live oak riparian forest) and 0.49 acre of open water and unvegetated streambed.

6. Indirect impacts to stream habitats were assumed to occur in areas within 300 feet of the widened roadway and/or with traffic noise impacts greater than 60 dBA. Indirect impacts shall not exceed 75.63 acres, which includes 62.84 acres of southern cottonwood willow riparian forest, 6.57 acres of southern coast live oak riparian forest, 1.25 acres of southern willow scrub, 0.07 acre of coastal and valley freshwater marsh, and 4.9 acres of disturbed wetlands.

### **Compensatory Mitigation**

7. The Applicant shall compensate for the permanent loss of 23.08 acres of stream habitats, and reduced habitat values on an additional 75.63 acres with 172.6 acres at the following three sites: the Pilgrim Creek Mitigation Bank, and the Zweirstra and Morrison properties. The approximately 100-acre Pilgrim Mitigation Bank site includes about 50 acres of riparian habitats that were restored starting in 1996. The remaining 4.94 acres of credits will be purchased from this bank, which is now owned and managed by the Department. The Zwierstra property is located on the San Luis Rey River adjacent to the project. A dairy and residence formerly occupied this 19.38-acre site, which is now highly disturbed except for 4 acres of riparian forest. There is potential for about 6.7 acres of riparian and 7 acres of upland habitat creation/restoration. The Morrison property is also located on the San Luis Rey River,

but is upstream of the project. This 148.28-acre site has been used for sand mining in the past, and although it currently supports native vegetation, 27% is covered with invasive exotic species (arundo and tamarisk) that will likely spread over time. Mitigation at Zwierstra and Morrison includes acquisition, removal of debris, toxic waste and invasive exotic plants, revegetation in appropriate areas, access control, and conservation of the mitigation lands and their habitat values in perpetuity. The Applicant shall ensure conservation in perpetuity by providing a legal mechanism that will prevent the mitigation lands from being used for any purpose other than native habitat; this mechanism shall be approved by the Department and shall be finalized prior to transfer of the land. The Applicant shall ensure the target habitat values are maintained in perpetuity by developing a Habitat Management Plan (HMP) for all mitigation sites. The HMP(s), which shall include an endowment adequate to ensure its implementation, shall be submitted to the Department for review and approval within 1 year of initiation of restoration at each site; the endowment shall be in place within 90 days of the HMP being finalized, and the HMP shall take effect as soon as each site has met its restoration success criteria. The Applicant shall be responsible for implementation of the HMP in perpetuity.

8. A habitat mitigation and monitoring plan, or plans, for all mitigation of permanent impacts shall be submitted to the Department for review and approval by October 1, 2009. The plan(s) shall be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. The plan(s) shall include, at a minimum: (a) the location of the mitigation site, topography, grading plans if applicable, and erosion control measures; (b) the plant species to be used, container sizes, and seeding rates; (c) a schematic depicting the restoration and planting plan; (d) planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed maintenance and monitoring program; (i) contingency measures should the success criteria not be met; (j) identification of the party responsible for meeting the success criteria; and (k) the method that will be used to provide for conservation of the mitigation site and its habitats in perpetuity. Only locally endemic species shall be used in the planting plan.

9. The Applicant shall mitigate for temporary impacts by restoring these areas to the pre-project habitat type, except for areas which were highly disturbed or those that supported exotic species, which shall be restored with the most appropriate native habitat for each location.

10. The Applicant shall submit plans for the restoration of all temporary impacts to the Department for review and approval at least 90 days prior to the scheduled commencement of the restoration work. Revegetation plans shall be prepared by persons with expertise in southern California ecosystems and native plant revegetation techniques. The plan shall include, at a minimum: (a) the location of each restoration site, topography, grading plans if applicable, and erosion control measures; (b) the plant species to be used, container sizes, and seeding rates; (c) a schematic depicting the restoration and planting plan; (d) planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed maintenance and monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria. Only locally endemic species shall be used in the planting plan.

11. All mitigation for temporary impacts shall be installed as soon as construction at that location has been completed. All mitigation for permanent impacts shall be installed within one year of the initiation of project impacts. Any delay in the installation of mitigation will require an amendment to this Agreement, and may result in the application of higher mitigation ratios than currently required by this Agreement to offset the additional temporal loss of habitat function.

12. Disturbance or removal of vegetation shall not exceed the limits approved by the Department. The Applicant shall mitigate at a minimum 5:1 ratio for impacts beyond those authorized in this Agreement. In the event that additional mitigation is required, the type and location of mitigation must be approved by the Department.

13. For each mitigation and restoration site, the Applicant shall submit a report to the Department, within 60 days after completion of site preparation and planting, acknowledging the completion of the installation phase of the mitigation, and documenting its as-built status. The report shall include a plan or diagram showing the mitigation area and the final as-built locations of plantings, irrigation, and other installations. Photographs from representative vantage points shall also be included to document the as-built conditions.

14. The goal of the restoration shall be creation of self sustaining habitats with species composition and plant densities similar to nearby natural habitats. The Applicant shall ensure that those planting and maintaining the sites have demonstrated success in native habitat restoration, and an understanding of the function of the target vegetation communities. Any irrigation of the mitigation/restoration areas shall be done in a manner that promotes establishment of the desired habitat type, without creating a plant community that will not function well, or persist, once irrigation is removed. An annual report documenting the status of the habitat restoration areas shall be submitted to the Department by Dec. 1 of each year for 5 years after planting, or until the success criteria have been met, whichever is longer. The report shall include, at a minimum, a description of the methods used (methods must be appropriate for evaluating the site relative to the success criteria), the number of plants replaced by species along with the date of replacement, an evaluation of the revegetation effort, a description of any remedial actions that are needed along with a schedule for accomplishing those actions, and photos from designated photo stations. The Applicant is responsible for replacement planting, maintenance and monitoring until the success criteria are met; maintenance and monitoring shall continue for 5 years after the last replacement planting is done. In addition to meeting the success criteria, the mitigation/restoration sites shall not receive any supplemental irrigation for the final two (2) consecutive years, there shall be no non-native perennial plants and non-native annuals shall not make up more than 5% of the entire cover of the site, no more than 5% of the site shall consist of unplanned bare ground, and the site shall be completely free of those species on List A of the California Invasive Plant Council's most recent list of "Exotic Pest Plants of Greatest Ecological Concern in California." If any invasive exotic plants are allowed to shed seed within any mitigation/restoration site, the Applicant shall add an additional 5 years of maintenance and monitoring over the entire site.

15. If any sensitive species are observed in project or monitoring surveys, the Applicant shall submit a California Native Species Field Survey Form and survey map to the Natural Diversity Database (NDDDB) within ten working days of the sightings. The form and instructions for completing the form are available on-line at <http://www.dfg.ca.gov/biogeodata/cnnddb/>. The form and survey map shall be sent to the Department of Fish and Game, California Natural Diversity Database, 1807 13<sup>th</sup> Street, Suite 202, Sacramento, CA 95814, with copies sent to the Department's South Coast Office at the address above, ATTN: Streambed Alteration Program – SAA #1600-2009-0043-R5.

16. Maintenance and monitoring of all mitigation sites shall continue until the Applicant has requested and received written concurrence from the Department that the success criteria have been met.

### **Resource Protection**

17. The Applicant shall have a qualified biologist onsite as needed to ensure that no impacts occur to the adjacent habitats and species. The biological monitor shall submit monthly reports to the Department during initial clearing and grading, and when construction occurs near sensitive biological resources. The reports should be sent electronically to [pbeare@dfg.ca.gov](mailto:pbeare@dfg.ca.gov).

18. All stream and riparian habitats outside of the project footprint shall be designated as an Environmentally Sensitive Area (ESA) and depicted as such on project plans. Prior to any vegetation clearing, grading or construction activities within the project limits or mitigation areas, the Applicant shall install temporary construction fencing to identify the agreed limits of disturbance and prevent damage to adjacent habitat. The biological monitor shall be onsite during installation of the temporary construction

fencing. Except for the biological monitor, no personnel, vehicles, equipment or any project related activities or disturbance shall be allowed within the ESA at any time. All temporary fences, barriers, and/or flagging shall be completely removed from the project site and properly disposed of upon completion of project activities.

19. The Applicant shall not remove vegetation within or adjacent to the stream or riparian habitats from February 15 to September 15 to avoid impacts to nesting birds. However, the Applicant may remove vegetation during this time if a qualified biologist conducts a survey for nesting birds within one week prior to vegetation removal, both within the area of vegetation clearing and in adjacent habitats that may be impacted by this activity. If an active nest is found, the nest and an appropriate buffer shall be designated as an ESA, and no work shall occur within this area until the young have fledged and will no longer be impacted by the project. The buffer area shall be determined in consultation with the Department.

20. Pile driving associated with construction of the San Luis Rey River Bridge shall only be conducted between September 16 and February 14 to reduce noise affects to nesting birds in the vicinity.

21. Except for pile driving, once construction at a specific location has started, and it continues without interruption, work may occur from February 15 to September 15, if a qualified biologist has evaluated all stream and riparian habitats within 200 feet of the construction limits and determined that no nesting sensitive bird species will be impacted. If nesting birds will likely be impacted, work shall cease in the area until the young have fledged and will no longer be impacted by the project, or appropriate measures are taken to avoid such impacts. For the purpose of this condition, sensitive bird species include those listed pursuant to the Endangered Species Act, the California Endangered Species Act, and California Department of Fish and Game Fully Protected Species and Species of Special Concern.

22. The Applicant shall ensure that wildlife cannot become trapped in construction areas. All debris piles shall be removed before they become inhabited. Steep-walled trenches shall not be left open when not being worked on and shall be checked for trapped wildlife before work resumes. The Applicant shall take appropriate measures to prevent wildlife from inhabiting stockpiled materials, such as pipe, and these shall be checked before being moved. The biological monitor shall be called to remove any wildlife that cannot escape on its own.

23. The San Luis Rey River bridge shall include design features that provide potential day/night roosting sites for bats.

24. During any nighttime construction adjacent to stream and riparian habitats, all project lighting shall be directed away from sensitive habitats, at the work area only, and be the minimum needed to ensure safety. During the nesting season, light glare shields shall also be used to reduce the extent of illumination into adjoining stream and riparian habitat areas.

25. In the vicinity of the stream and riparian habitats, project related permanent lighting shall be minimized to the extent possible to limit increasing illumination within these areas. All necessary lighting shall be directed away and shielded from all stream and riparian habitats.

26. Any materials used for erosion control measures during or after construction, within or adjacent to the stream or riparian habitats, shall consist only of materials that are free from toxic chemicals, are biodegradable, and cannot ensnare fish or wildlife.

27. All project and project related activities shall be conducted in a manner that will not adversely affect water quality within any stream, or stream or riparian habitats outside of the project footprint.

28. Any necessary flow diversions shall be done in a manner that will prevent pollution and/or siltation and which will provide flows to downstream reaches. Flows to downstream reaches shall be provided

during all times that the natural flow would have supported aquatic life. The quality and quantity of the natural flow shall not be adversely impacted by the project or project related activities. Diversions shall be engineered, installed, and maintained to avoid washout and erosion of the streambed and banks. Normal flow shall be restored to the effected stream immediately upon completion of work at that location.

29. All flow diversions, temporary fills, dewatering plans, and other project details that include placement of fill within the channel or water displacement shall be provided to the Department at least 30 days prior to that activity, and must be approved by the Department before commencement of that activity.

30. The Department recommends the use of native plants to the greatest extent feasible in the landscape areas adjacent and/or near the mitigation/open space and wetland/riparian areas. The Applicant shall not plant, seed or otherwise introduce invasive exotic plant species to the landscaped areas adjacent and/or near the mitigation/open space and wetland/riparian areas. Exotic plant species not to be used include those species listed on the California Invasive Plant Council's *Invasive Plant Inventory*, available through their web site at <http://www.cal-ipc.org/ip/inventory/index.php>. This list includes such species as: pepper trees, pampas grass, fountain grass, ice plant, myoporum, tree of heaven, black locust, capweed, periwinkle, sweet alyssum, English ivy, French broom, Scotch broom, and Spanish broom.

31. Fencing that is adequate to direct wildlife to appropriate undercrossings shall be provided on both sides of the project to prevent roadkill. The functionality of all wildlife fencing shall be maintained at all times, for the life of the project. A method to track and report roadkill shall be developed and submitted to the Department for review and approval before any of the new roadway is opened to traffic. This method shall be used to track the effectiveness of the fencing and to adapt the fencing and undercrossings as needed, if determined necessary at any future time by the Department.

32. The work area and/or mitigation site(s) shall be secured from trespass when, as determined by the Department, fish or wildlife resources are vulnerable to damage from public access.

### **Equipment and Access**

33. Access to the work site shall be via existing roads and access ramps.

34. Staging and storage areas for equipment and materials shall be located within the project footprint and as far as possible from stream and riparian habitats.

35. No equipment maintenance shall occur within or near any stream channel or riparian areas, or where petroleum products or other pollutants could enter these areas under any flow.

36. Vehicles and equipment shall not be driven, operated or parked in water covered portions of a stream or lake, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed.

37. Any vehicles or equipment driven, operated or parked within the project footprint adjacent to the stream or riparian/wetland habitats, shall be checked and maintained daily to prevent leaks of materials that if introduced to water could be harmful to aquatic life.

38. Stationary equipment such as cranes, motors, pumps, generators, and welders, etc. which are located within or adjacent to the stream or riparian/wetland habitats shall be positioned over drip pans, or other appropriate means, to contain any toxic materials that may drip or spill from such equipment.

39. The clean-up of any spills shall begin immediately after the spill occurs. The Department shall be notified immediately by the Applicant of any spills.

### **Structures**

40. This Agreement does not authorize the construction of any temporary or permanent dam, structure, flow restriction or fill except as described in the Applicant's Notification. Plans for any structure or fill not specifically described in the Applicant's Notification must be submitted to the Department for review and approval at least 30 days prior to initiating that activity. All such activities shall be the least environmentally damaging.

41. Bridges, culverts, and other structures shall be installed in a manner that does not impair water flow or wildlife movement.

42. Poured concrete shall be isolated from the flowing stream for a period of at least 30 days after it is poured. During that time, any runoff from the concrete shall not be allowed to enter the stream.

43. Any temporary dam or other artificial obstruction that is constructed shall only be built from materials such as clean gravel which will cause little or no siltation, and shall be approved by the Department prior to construction. All temporary structures shall be removed as soon as they are no longer needed.

44. Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.

### **Pollution, Sedimentation, and Litter**

45. If the stream's bed or banks have been altered, these shall be returned as nearly as possible to their original configuration and width, without creating additional or future erosion problems.

46. Water containing mud, silt or other materials or pollutants from the project or project related activities shall not be allowed to enter a lake, stream, or riparian/wetland habitats, be placed in locations where they may be washed into a lake, stream, or riparian/wetland habitats, or be placed in locations that may be subjected to high storm flows.

47. Silty/turbid water shall not be discharged into the stream. Erosion/silt control measures shall be utilized throughout all phases of operation where silt laden water from exposed slopes or disturbed areas could enter waters of the state. Any silt settling basins shall be located away from the stream to prevent discolored, silt-bearing water from reaching the stream during any flow level. Erosion control measures shall be monitored during and after each storm event. Modification, repairs, and improvement to erosion control measures shall be made as needed to maintain function. Upon Department determination that turbidity/siltation levels resulting from project related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation shall be halted until effective Department-approved control devices are installed.

48. Spoil sites shall not be located within a stream/lake, where spoil may be washed back into a stream/lake, or where it will cover aquatic or riparian vegetation.

49. No debris, soil, silt, sand, bark, slash, sawdust, rubbish, construction waste, cement or concrete or washings thereof, asphalt, paint, oil or petroleum products or other materials from any construction, or project related activity of any nature, shall be allowed to contaminate the soil or enter into or be placed where it may be washed by rainfall or runoff into a stream, lake or riparian habitat. When operations are completed, any excess materials or debris shall be removed.

50. Upon Department determination that turbidity/siltation/pollution levels resulting from any project-related activities constitute a threat to aquatic life, those activities shall be halted until effective

Department-approved control measures are installed, and any necessary abatement procedures are initiated.

51. The Applicant shall keep the project site free of litter and waste that could attract predators, and shall comply with all litter and pollution laws. All contractors, subcontractors, and employees shall also obey these laws and it shall be the responsibility of the Applicant to ensure compliance.

**CONCURRENCE**

**CALIFORNIA DEPARTMENT OF TRANSPORTATION**

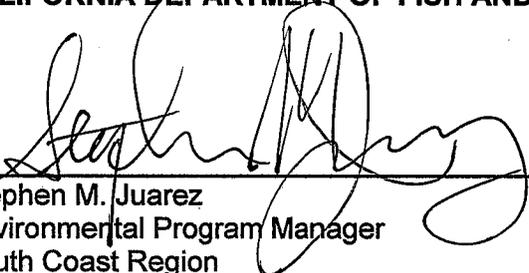
  
\_\_\_\_\_  
Name (signature)

Date: 04-22-09

MARK PHELAN  
Name (printed)

PROJECT MANAGER  
Title

**CALIFORNIA DEPARTMENT OF FISH AND GAME**

  
\_\_\_\_\_  
Stephen M. Juarez  
Environmental Program Manager  
South Coast Region

Date: 28 April 09



**CITY OF OCEANSIDE**  
WATER UTILITIES DEPARTMENT

June 6, 2014

Stephen P. Warren  
Project Landscape Architect  
Department of Transportation  
District 11  
4050 Taylor Street

RE: Irrigation Meters from Approximately Melrose Drive to Olive Hill Road

Dear Mr. Warren:

We have received your letter of May 28, 2014 regarding the available water supply from the City of Oceanside Water Utilities to serve the Landscape, Irrigation, and Plant Establishment project in San Diego County. The City of Oceanside currently has adequate potable water supply to meet the approximate annual demand of 23,505 HCF (54 acre-ft) required during the landscape construction and plant establishment period of 3 years after construction is completed.

Although the City of Oceanside is supportive of this beautification project and is committed to supplying the water, the City reserves the right to uphold the requirements of the drought response levels established by the City Council and implemented based on California's latest drought situation.

It is our understanding that construction is anticipated to start October 2014 and that water demands will decrease significantly after the plant establishment period.

For budgeting purposes, the buy-in costs for new irrigation meters are as follows:

2" Irrigation meter = \$63,533  
1" Irrigation meter = \$19,609

If you have any questions, please contact me at (760) 435-5811.

Sincerely,

*P.p. Mabel Uyeda For*

Jason Dafforn, P.E.  
Water Utilities Division Manager

Cc: Cari Dale, Water Utilities Director  
Mabel Uyeda, Assistant Engineer



March 27, 2014

PN: 200748/201260

Stephen Warren  
Caltrans District 11  
4050 Taylor Street, M.S. 120  
San Diego, CA 92110

RE: Water Availability for State Route 76 Landscape, Middle and East Segments

Rainbow Municipal Water District (District) is in receipt of your letters dated March 26, 2014 regarding a landscape, irrigation and plant establishment project for the SR 76 middle and east segments. Total annual water usage for both segments is anticipated to be 539 acre feet. The District will be able to provide the requested amount of water for the existing water meters installed for the Middle Segment. Water meters for the East Segment have not been purchased or installed, but once installed we will be able to provide the estimated water required for the project.

If you have any questions, feel free to contact Sherry Rebueno at (760) 728-1125 x1187.

Sincerely,

A handwritten signature in blue ink that reads "Kirsten Plonka".

Kirsten Plonka  
District Engineer

3707 Old Highway 395 • Fallbrook, CA 92028-2500  
Phone: (760) 728-1178 • Fax: (760) 728-2575 • www.rainbowmwd.com

## LIST OF AUTHORIZED MATERIALS USED IN THE CITY WATER SYSTEM

All brass products up to and including 2-inch, that may come in contact with any potable water meant for human consumption, shall conform to California AB 1953 low-lead law. Currently Irrigation only and Reclaimed Water systems are exempt from this law.

### A. Fire Hydrants (Oceanside Standard Drawing W-1):

1. Fire hydrants shall be type James Jones J-4040 or AVK-2470 for residential and James Jones J-4060 or AVK-2490 or commercial and industrial.
2. Hydrants shall be Ductile Iron cast and the flange drilling shall have 6 holes.
3. The hydrant outlet valves shall have a 1½-inch operating nut.
4. Hydrant shall be primed and painted Fire Hydrant Yellow with Pro-Line 1000 marine enamel.

### B. Blow-off Valves (Oceanside Standard Drawing W-2):

1. 6 inch (6") shall be the standard size.
2. The head will be a James Jones J-344 H.P. with a 4 inch threaded inlet and a 2½ inch fire hose thread outlet.
3. All aboveground pipe and appurtenances shall be primed and painted Fire Hydrant Yellow with Pro-Line 1000 marine enamel.

### C. Air Release Valves (Oceanside Standard Drawing W-3):

1. All air release valves are to be a minimum of 2 inches (2").
2. Approved 2" model is Vent-O-Mat Model 050RBX2521CS4.

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3. Valves are to have stainless steel trim.
4. Valves shall be epoxy-coated inside and outside. Epoxy Coating shall be approved and applied by the valve manufacturer.
5. Three inch (3") and larger air release valves will be submitted to the Water Utilities Department for approval.

### D. Pipe, Fitting, Valve, and Nut and Bolt Material and Protection:

1. Fire Hydrant base and Blow-off companion flange Nuts and Bolts: Bolts are to be cadmium plated break-off bolts with non-oxide grease applied to the threads on the bolt and nut per Oceanside Standard Drawing W-1 and W-2.

#### 2. Flange Nuts and Bolts:

- a. Bolts and nuts for above ground installation shall be cadmium-plated carbon steel ASTM A307, Grade "B" or equal.
- b. All Nuts, Bolts, Screws & Washers for buried services shall be Type 316 Stainless Steel.
- c. Install all Nuts and Bolts to the proper torque requirements of the manufacturer.

- d. Non-oxide grease will be applied to the threads of the plated nuts and bolts and anti-seize will be applied to the threads of the Stainless Steel nuts and bolts prior to installation in the flange.

#### 3. Flange Coatings:

- a. Primer: All buried service fittings, flanges, valve flanges, and valve bonnet nut and bolt surfaces shall be primed, coated with a paste-like consistency. Primer shall be Trenton Wax-Tape Primer or equal.
- b. Wax-Tape: Cover flange, all irregular surfaces, and metallic pipe to 6-inches from backside of flange. Wax-Tape shall be Trenton #1 Wax-Tape or equal.
- c. Outer covering: After applying the primer and wax-tape, cover the

flange with Trenton Poly-Ply or equal.

#### 4. Polyethylene Encasement:

a. All Ductile Iron Pipe, fittings and valves are to be encased with two (2) layers of 8-mil thick clear or black polyethylene (PE) sleeve in accordance with SSPWC (Greenbook) Section 207-9.2.6.

b. All buried copper pipes shall be encased in one layer of Polywrap-C (6 mil) as manufactured by Northtown products. See Std. Drawing W-3, W-4, W-5, W-8, and W-12.

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5. All valves and fittings shall be encased with 6 inches of neutral sand or approved equivalent material by the Water Utilities Department.

E. Hydraulic Valves: Cal-Val with factory fuse coated epoxy coating inside and outside of the body with stainless steel trim:

1. Standard Check Valve per Oceanside Standard Drawing W-15.

2. Standard Relief Valve per Oceanside Standard Drawing W-16.

3. Standard Pressure Reducing Valve per Oceanside Drawing W-17.

F. Water Services to House or Commercial Connections:

1. ¾ Inch and 1 inch: Type "K" seamless soft copper tubing with no joints from corporation stop to curb stop per Oceanside Standard Drawing W-4.

2. 1½ Inch through 2 inch: Type "K" rigid copper pipe with all joints silver soldered per Oceanside Standard Drawing W-5.

3. 3 inch and larger per Oceanside Standard Drawing W-7.

4. Silver solder shall be type 1/8 inch x 36 inch, Wolverine "Silvaloy O".

5. All buried copper pipes shall be encased in one layer of Polywrap-C (6 mil) as manufactured by Northtown products.

6. All water services will be encased with a minimum of 6" neutral sand or approved equivalent material by the Water Utilities Department.

G. Service Saddles:

1. All ¾ inch and 1 inch service saddles are to have AWWA tapered thread taps (CC thread).

2. All 1-1/2 inch and 2 inch service saddles are to have iron pipe taps (IP thread).

3. For PVC C-900 use James Jones J-996 (4"-12"), James Jones J-969 (14"-16"); or Ford S-912 (4"-8"), Ford 202-BS (10"-30").

4. For DIP use James Jones J979 (4"-16"), Ford 202-B (4"-30"), or Apac Products No. 113 (14"-30").

5. Threads on nuts and bolts must be coated with non-oxide grease or antiseize before installation Section 2.12.D.

6. Saddle must be completely encased in neutral sand or approved equivalent by the Water Utilities Department before backfilling.

H. Ductile Iron Pipe (DIP) Water Mains:

1. Conform to AWWA C-151 and shall conform to Section 207-9 of the Standard Specifications for Public Works Construction (Greenbook), latest revision.

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2. All ductile iron pipe shall be double lined inside with cement mortar, per AWWA C-104.

3. All ductile iron pipe shall be encased in two (2) layers of 8-mil polyethylene, per AWWA C-105. See Section 2.12.D.4 – Polyethylene Encasement.

4. Pipe class shall be shown on the plans and is subject to the approval of the Water Utilities Director.

5. The maximum deflection for DIP shall be 2-½ degrees per joint (4 inch through 12 inch).

6. 3-inch minimum width color coded detector tape marked "WATER" in 1 ½ inch black letters shall be placed on the compacted and graded sand bedding one foot above and centered over the DIP water main prior to backfilling the trench.

I. Polyvinyl Chloride pipe (PVC) Water Mains:

1. Shall conform to AWWA C-900, C-905, CL-150 and CL-200 pipe with rubber ring bell end, or plain end with rubber ring coupling. Solvent welded joints are not permitted.

2. Provide pipe with ductile iron equivalent outside diameter (OD) and class 150 minimum, or pressure rating as required.

3. For 4 inch through 12 inch PVC, deflections at the joints shall not be permitted. Curves and deflections shall be made only with the use of high deflection C-900 PVC couplings or the approved ductile iron fittings. A maximum of 5 degrees per coupling shall be permitted. The improvement plans shall clearly indicate the location of the couplings and the pipe lengths.

4. Minimum allowable radius for PVC pipe, using deflector couplings shall be as follows: (Less than 10 foot pipe length shall not be permitted):

Pipe Length Minimum Allowable Radius

20 Feet 250 Feet

10 Feet 125 Feet

5. 3-inch minimum width color coded detector tape marked "WATER" in 1 ½ inch black letters shall be placed on the compacted and graded sand bedding one foot above and centered over the PVC water main prior to backfilling the trench.

6. Tracer wire shall be as follows:

All non-metallic pipelines, including water service laterals, shall be provided with a No. 10 AWG insulated copper wire laid along the top of the pipe and held in place with ties or hitches. The ties or hitches shall be spaced not more than 10 feet apart. The copper wire is to be used in the future as a means of locating the pipe with an electronic-type pipe locator.

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J. Bedding and Backfill:

1. Pipe bedding and trench backfill shall conform to San Diego Regional Standard Drawing W-21, except that compaction in the pipe zone, middle zone, and upper zone shall be 95%.

2. Where neutral materials, sand or native materials are specified, they shall meet the testing specification requirements of the "Construction Guidelines and Requirements" section of the Oceanside Water, Sewer and Reclaimed Water Design & Construction Manual.

K. Valves under 14 inch:

1. ¾ inch and 1 inch Corporation Stops for meter service saddles will be AWWA taper thread (CC thread) by flare: James Jones E-1930 or Ford FB600-3-NL or FB600-4-NL per Oceanside Standard Drawing W-4.

2. ¾ inch and 1 inch Meter Angle Stops (Street side of meter): James Jones E-1964W, Ford ¾ inch BA23-332W-NL or Ford 1 inch BA23-444W-NL. The

center flow line is to be 10 inches below the finished grade per Oceanside Standard Drawing W-4.

3. ¾ inch and 1 inch Meter Service Valve (house side of meter): James Jones E-1908W Ball Valve or Ford B-13-232W-HB-34S-L or B-13-444W.-HB-34SNL To be furnished and installed by City forces when meter is set at contractor's expense.

4. 1½ inch and 2 inch Ball Valves for meter service saddles and 2 inch Ball Valves for 2 inch air release saddles will be male iron pipe (MIP) thread inlet by female iron pipe (FIP) thread outlet with 2 inch gate valve operating nut adapter: James Jones E-1945 with 281-NB or Ford B-81-777-NL with QT67.

5. 1½ inch and 2 inch Meter Service Valves (street-side meter): James Jones E-1912W or Ford BF-13-777W. The center of the flow line shall be 10 inches below finished grade per Oceanside Standard Drawing W-5.

6. 1½ inch and 2 inch Meter Service Valves (house-side of meter): James Jones E-1912W or Ford BF-13-666W-NL, BF13-777W-NL. To be furnished and installed by City forces when meter is set at contractor's expense.

7. 2 inch Ball Valve just under air release valve inside release valve cover: James Jones E-1900 or Ford B11-777-NL per Oceanside Standard Drawing W-3.

8. The use of threaded bushings and reducers on water service lines is not allowed.

9. 3 inch to 12 inch Gate Valves will be: Clow, Mueller, or American Flow Control Series 2500 resilient wedge gate valve per AWWA C509 with a fully encapsulated gate, low zinc stem, and factory fused epoxy coating inside and outside. All nuts and bolts shall be Type 316 Stainless Steel.

10. Coat, wrap, and encase all buried gate valves per Section 2.12.

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L. Butterfly Valves (BFV):

1. Valves 14 inch or larger will be Butterfly Valves. The only acceptable butterfly valve shall be a Pratt Groundhog Valve, which has been tested and certified, per all of the AWWA standards, with the valve actuator installed.

2. Butterfly Valves, including operators, shall be protectively coated. Exterior surfaces shall be coated for buried service in accordance with Section 4.2 of AWWA C-504.

3. All interior ferrous surfaces, or butterfly valves, including contiguous flange faces shall be protectively coated with Keysite No. 750, a product of the Soc-Co Plastic Coating Company of Rancho Cucamonga, California, 3-M Company No. 302, or equal. Said coating shall be applied in not less than three (3) coats to a dry-film thickness of not less than ten (10) or more than twelve (12) mils and shall be "holiday" free.

4. All surfaces to receive epoxy coating shall be thoroughly cleaned of all contaminants, i.e., oil, grease, wax, etc., by solvent washing or steam cleaning. Surface projections shall be removed and sharp edges rounded to assure proper application of the epoxy coatings. Immediately prior to applying epoxy coating, surfaces to receive this coating shall be blast cleaned to white metal in accordance with Steel Structures Painting Council Surface Preparation Specifications, No. 5 White Metal Blast Cleaning (SSPC – SP5-63).

5. Coat, wrap, and encase all buried butterfly valves per Section 2.12.

6. To assure a thorough “Keysite” or “3-M” coating, epoxy paste-type filler shall be used to fill any crevices and to modify any sharp inside corners. Said epoxy filler shall be “Keysite No. 742, A and B Epoxy Filler No. 2098”, as manufactured by Wyndham Chemical, Inc., Santa Fe Springs, California; or an approved equal.

7. During application of “Keysite” coating the seating surfaces shall be masked. However, the coating shall cover all junctions between dissimilar metals.

8. If any epoxy coating material, other than Keysite No. 750, or 3-M Company 320 is proposed to be used to coat the valves furnished here under, the epoxy coating material shall be submitted to the Water Utilities Department for review and approval.

9. The valve manufacturer shall apply all epoxy lining.

M. Standard Vault (Oceanside Standard Drawing W-19):

1. All vaults, manholes, pits, etc. shall be designed per all current applicable codes and regulations: Title 8, CALIFORNIA CODE OF REGULATIONS, Cal/OSHA, ANSI, etc. for “Confined Space” and “Fall Protection”.

2. The Design Engineer shall certify that all vaults, manholes, pits, etc. meet all current applicable codes and regulations for “Confined Space” and “Fall Protection” at the time of construction.

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N. Vault Lids (Oceanside Standard Drawing W-20):

1. Aluminum Bilco or USF frame and cover appropriately sized for each vault, shall be rate for H-20 loading, and shall provide a full wall-to-wall opening.

O. Valve Box, Cover, and Can (Oceanside Standard Drawing W-23):

1. Potable water manufactured by South Bay Foundry, San Diego, California, No. GV-8 (Model SBF 1208N) with “Oceanside Water” stamped on the cover. Private line covers shall be stamped “Private Water”.

2. Valve Can: 6 Inch SDR-35 PVC, one-piece gravity sewer pipe centered over valve operating nut and set plumb.

P. Valve Stem Extension (Oceanside Standard Drawing W-24):

1. Provide a stainless steel valve stem extension where the depth from the finish surface to the top of valve operating nut exceeds nine (9) feet.

Q. Fittings – Ductile Iron Only – Cast Iron Not Permitted:

1. Use ductile iron Tyler Grip-Tite or Nappco push-on fittings conforming to AWWA C-110 or C-153 with a minimum rated working pressure of 250 PSI.

2. Provide fittings with bells and rubber O-ring gaskets specifically designed for ductile iron equivalent outside diameter PVC pipe.

3. Mechanical joint fittings not permitted. Use of flex couplings is not allowed.

4. Polyethylene wrap and encase in 6 inches of neutral sand per Section 2.12.

R. Flanges:

1. Flanges on ductile iron pipe and fittings shall conform to AWWA C-115 or ANSI B16.1 Class-250. Protect buried service flanges per Section 2.12.

S. Flange Gaskets:

1. Full face, cloth-inserted rubber, 1/8-inch thick, conforming to AWWA Standard C-111.