

# **INFORMATION HANDOUT**

## **PERMITS**

CALIFORNIA  
DEPARTMENT OF FISH AND GAME,  
INCIDENTAL TAKE PERMIT NO. 2081-2007-020-04

## **MATERIALS INFORMATION**

UNITED STATES  
FISH AND WILDLIFE SERVICE  
(BIOLOGICAL OPINION)



<http://www.dfg.ca.gov>  
Central Region  
1234 East Shaw Avenue  
Fresno, California 93710  
(559) 243-4005



January 21, 2009

Chuck Cesena  
California Department of Transportation  
50 Higuera Street  
San Luis Obispo, California 93401

**Subject: Incidental Take Permit for Route 46 Corridor Improvement Project, San Luis Obispo County (2081-2007-020-04)**

Dear Mr. Cesena:

Enclosed you will find two originals of the incidental take permit for the above referenced Project, which have been signed by the Department. Please read the permit carefully, sign the acknowledgement on both copies of the permit, and return one original **no later than 30 days from Department signature**, and prior to initiation of ground-disturbing activities, to:

Department of Fish and Game  
Habitat Conservation Branch, CESA Permitting  
1416 Ninth Street, 12<sup>th</sup> Floor  
Sacramento, California 95814

You are advised to keep the other original signature permit in a secure location and distribute copies to appropriate project staff responsible for ensuring compliance with the conditions of approval of the permit. Note that you are required to comply with certain conditions of approval prior to initiation of ground-disturbing activities. Additionally, a copy of the permit must be maintained at the project work site and made available for inspection by Department staff when requested.

The permit will not take effect until the signed acknowledgement is received by the Department. If you wish to discuss these instructions or have questions regarding the permit, please contact Jennifer Deleon, Staff Environmental Scientist, at the Sacramento address provided above or by telephone at (916) 653-9779

Sincerely,

Jeffrey R. Single, Ph.D.  
Regional Manager  
Central Region

Enclosures (2)



California Department of Fish and Game  
Central Region  
1234 East Shaw Avenue  
Fresno, California 93710

California Endangered Species Act  
Incidental Take Permit No. 2081-2007-020-04

CALIFORNIA DEPARTMENT OF TRANSPORTATION  
ROUTE 46 CORRIDOR IMPROVEMENT PROJECT  
SAN LUIS OBISPO COUNTY

**Authority:** This California Endangered Species Act (CESA) Incidental Take Permit (ITP) is issued by the Department of Fish and Game (DFG) pursuant to Fish and Game Code sections 2081(b) and 2081(c), and California Code of Regulations, title 14, subdivision 3, chapter 6, article 1, commencing with section 783. CESA prohibits the take<sup>1</sup> of any species of wildlife designated as an endangered, threatened, or candidate species<sup>2</sup> by the Fish and Game Commission. DFG, however, may authorize the take of such species by permit if the conditions set forth in Fish and Game Code sections 2081(b) and 2081(c) are met. (See also Cal. Code Regs., tit. 14, § 783.4.)

<b>Permittee:</b>	<b>California Department of Transportation (Caltrans), District 5</b>
<b>Name and title of principal officer:</b>	<b>Mr. Chuck Cesena, Branch Chief, Central Coast Environmental Management</b>
<b>Contact person:</b>	<b>Ms. Cecilia Boudreau, Environmental Planner, (805) 549-3376 Central Coast Environmental Branch</b>
<b>Mailing address:</b>	<b>50 Higuera Street San Luis Obispo, California 93401</b>

**Effective Date and Expiration Date of the ITP:**

This ITP shall be executed in duplicate original form and shall become effective once a duplicate original is acknowledged by signature of the Permittee on the last page of the ITP and returned to DFG's Habitat Conservation Branch at the address listed in the Notices section of this ITP. Unless renewed by DFG, this ITP's authorization to take the Covered Species shall expire on **December 31, 2020**.

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<sup>1</sup>Pursuant to Fish and Game Code section 86, "Take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill."

<sup>2</sup>"Candidate species" are species of wildlife that have not yet been placed on the list of endangered species or the list of threatened species, but which are under formal consideration for listing pursuant to Fish and Game Code section 2074.2.

**Project Location:**

The project site is located along State Route (SR) 46 beginning on the east side of Huer Huero Creek Bridge within the City of Paso Robles and ending on the east side of Cholame Valley in the County of San Luis Obispo. (See Figure 1.)

**Project Description:**

The proposed project (Project) will widen SR 46 between Airport Road and the Cholame Valley from two lanes to four lanes by constructing two new eastbound lanes to the south of the current SR 46, which will become the two westbound lanes. There will be a 61-foot wide median, except between post mile (PM) 32.2 and PM 34.4 where it will be 46.3 feet wide to minimize environmental impacts. The shoulders will be widened and left-turn lanes added at all public road intersections, which will be constructed to Caltrans' full expressway standards. No median barriers will be constructed, and the existing k-rail west of Jack Ranch will be removed. The Project will be constructed in five phases. (See Table 1 below.) The Project will result in the permanent loss of 333.5 acres and temporary impacts to 280.1 acres of San Joaquin kit fox (*Vulpes macrotis mutica*) habitat. These activities and impacts are likely to result in the incidental take of individual kit fox, a species designated as threatened under CESA. (Cal. Code Regs., tit. 14, § 670.5, subd. (b)(6)(E).)

**Table 1:**

Phase	Approximate Location	Schedule
1 - Union	Airport Road (PM 32.2) to Geneseo Road (PM 37.2)	April 2008
2 - Whitley	Geneseo Road through Whitley Gardens (PM 41.2)	July 2010
3 - Shandon	East of Whitley Gardens through Shandon Rest Area (PM 50.2)	2013 (no funding yet)
4 - Cholame	East of Shandon Rest Area to Jack Ranch Café (PM 54.8)	2016 (no funding yet)
5 - Wye	Jack Ranch Café through Cholame Valley (PM 56.3)	2018 (no funding yet)

**Covered Species Subject to the Take Authorization Provided by this ITP:**

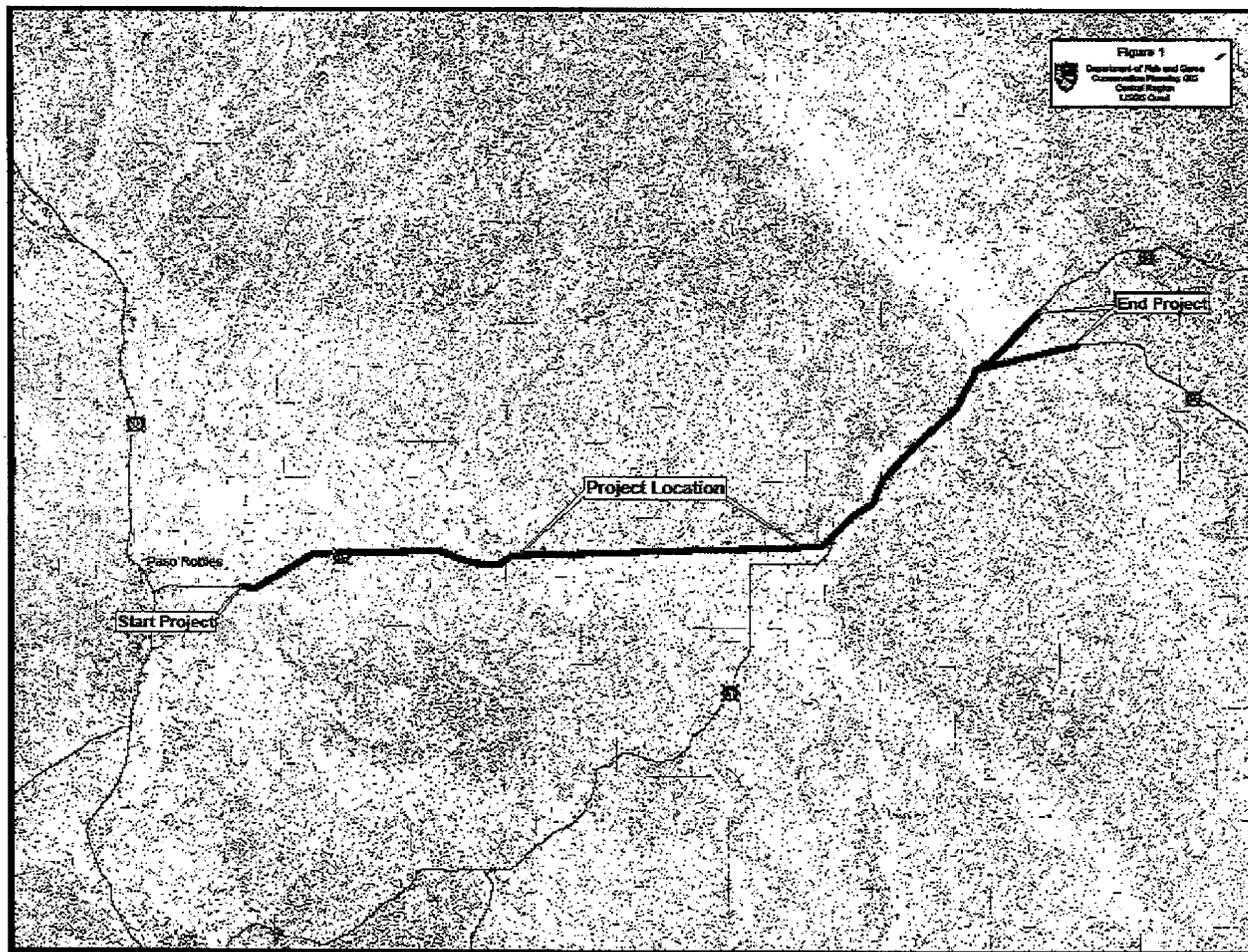
This ITP covers the following species:

Name	CESA Status <sup>3</sup>
San Joaquin kit fox ( <i>Vulpes macrotis mutica</i> )	Threatened

This species, and only this species, is hereinafter referred to as the "Covered Species."

<sup>3</sup>Under CESA, a species may be on the list of endangered species, the list of threatened species, or the list of candidate species. All other species are "unlisted."

Figure 1. Project Location



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**Impacts to Covered Species:**

The Project will result in permanent impacts to 333.5 acres and temporary impacts to 280.1 acres of Covered Species habitat. (See Table 2) Incidental take of individuals of the Covered Species may occur as a result of mortality due to development activities, Project-related traffic on and off the Project site, and direct loss of habitat caused by the Project. Impacts of the taking on the Covered Species also includes increased incidence of vehicle strikes after construction, temporal losses of habitat, increased habitat fragmentation and edge effects, and the Project's incremental contribution to cumulative impacts on the Covered Species (indirect impacts). Impacts of the taking also include temporary impacts to the Covered Species associated with Project-related temporary ground disturbance within the construction boundary, including storage and staging areas and temporary roads, which may also cause additional incidental take of Covered Species.

**Table 2:**

San Joaquin kit fox habitat	Permanent Impacts			Temporary Impacts			Total
	# of acres Impacted	Mitigation Ratio	Compensation (acres)	# of acres Impacted	Mitigation Ratio	Compensation (acres)	Compensation (acres)
Airport Road to Jardin Road	23.03	3:1	69.09	25.48	1/3:1	8.49	77.58
Jardin Road to Post Mile 37.6	33.66	2:1	67.32	30.26	1/3:1	10.09	77.41
<b>Total for Phase 1</b>	56.69		136.41	55.74		18.58	154.99
<b>Phase 2</b> starting at PM 37.6	50.36	4:1	201.44	36.50	1/3:1	12.17	213.61
<b>Phase 3</b>	91.46	4:1	365.84	108.20	1/3:1	36.07	401.91
<b>Phase 4</b>	68.59	4:1	274.36	35.04	1/3:1	11.68	286.04
<b>Phase 5</b>	66.40	4:1	265.60	44.62	1/3:1	14.87	280.47
<b>Total for all Phases</b>	<b>333.50</b>		<b>1,243.65</b>	<b>280.10</b>		<b>93.37</b>	<b>1,337.02</b>

**Other Species Not Subject to the Take Authorization Provided by this ITP:**

**Fully Protected Species:**

This ITP does not authorize the take of any fully protected species. (See Fish & G. Code, §§ 3511, 4700, 5050, 5515.) DFG believes Caltrans can implement the Project as described in this ITP in a manner consistent with the Fish and Game Code provisions governing fully protected species. DFG's determination regarding Project consistency with Fish and Game Code provisions governing fully protected species is based, in part, on the Permittee's commitment independent of this ITP to implement and adhere to the following general avoidance and minimization measures during Project implementation related to blunt-nosed

leopard lizard (*Crotaphytus wislizenii silus*), a fully protected and CESA designated endangered species (*id.*, § 5050, subd. (b)(1); Cal. Code Regs., tit. 14, § 670.5, subd. (a)(4)(B)):

- Permittee commits to perform a protocol-level survey within the construction boundary for each phase of the Project as designated above in Table 2. DFG's Approved Survey Methodology for blunt-nosed leopard lizard is included with this ITP as Attachment 1.
- If the results of any protocol-level survey detect the presence of blunt-nosed leopard lizard within the construction boundary of any phase of the Project, Permittee commits to notify and consult with DFG prior to any activity that could result in the take of blunt-nosed leopard lizard in order to develop and implement measures acceptable to DFG that will avoid take of individuals of the species.

**Giant Kangaroo Rat:**

This ITP does not authorize take of giant kangaroo rat (*Dipodomys ingens*), a species designated as endangered under CESA. (Cal. Code Regs., tit. 14, § 670.5, subd. (a)(6)(C).) Phase 4 of the Project (between PM 50.2 and PM 54.8) is the only area of the Project site that contains potential habitat for giant kangaroo rats. No giant kangaroo rats were found within the Project area during prior biological surveys. Implementation of the Project is not expected to result in the take of giant kangaroo rat as a result.

DFG and the Permittee acknowledge that, due to the extended time line for the Project, with construction occurring in multiple separate phases, there is a possibility giant kangaroo rat could establish new populations in the Project area during and prior to completion of Project construction. Because of this possibility, the Permittee has committed to take the following actions to avoid unauthorized incidental take of giant kangaroo rat during Phase 4 of the Project:

- Permittee commits to conduct a survey for giant kangaroo rat a maximum of 30 days prior to initiating ground- or vegetation-disturbing activities in the Cholame Valley between PM 50.2 and PM 54.8. These surveys shall be conducted by a biologist, approved by DFG, with knowledge of and experience in the biology and natural history of the giant kangaroo rat. The biologist approved by DFG to conduct the survey shall hold or acquire prior to the survey a scientific collecting permit from DFG for giant kangaroo rat.
- Permittee commits to immediately notify DFG if the survey conducted by the approved biologist prior to any ground- or vegetation- disturbing activities associated with Phase 4 of the Project identifies any potential signs of giant kangaroo rat, including burrows, scat, or tail drag marks.

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**Incidental Take Authorization of Covered Species:**

This ITP authorizes incidental take of the Covered Species and only the Covered Species. With respect to incidental take of the Covered Species, DFG authorizes the Permittee, its employees, contractors, and agents to take the Covered Species incidentally in carrying out the Project, subject to the limitations described in this section and the Conditions of Approval identified below. This ITP does not authorize: take of Covered Species from activities outside the scope of the Project as described above, take of Covered Species resulting from violation of this ITP, or intentional take of Covered Species except for capture and relocation of Covered Species as authorized by this ITP. In addition, as set forth above, this ITP does not authorize take of any species designated as fully protected under the Fish and Game Code or giant kangaroo rat.

**Conditions of Approval:**

Unless specified otherwise, the following measures shall pertain to all ground- or vegetation-disturbing activities within the Project construction boundaries, including areas used for ingress and egress routes during construction. DFG's issuance of this ITP and Permittee's authorization to take the Covered Species are subject to Permittee's compliance with and implementation of the following conditions of approval:

1. Permittee shall comply with all applicable State, federal, and local laws in existence on the effective date of this ITP or adopted thereafter.
2. Permittee shall implement and adhere to the mitigation measures related to the Covered Species in the Biological Resources section of the Environmental Assessment/Final Environmental Impact Report (SCH Number: 2000011033) adopted by the Permittee as lead agency for the Project under the California Environmental Quality Act (CEQA) on May 10, 2006. Permittee shall also implement and adhere to all conservation measures, terms and conditions related to the Covered Species in the December 2005 Biological Opinion, Biological Opinion for State Route 46 Corridor Improvement Project"" (Number 1-8-03-F59) issued to the Permittee for the Project by the United States Fish and Wildlife Service (USFWS).
3. Permittee shall fully implement and adhere to the conditions of this ITP within the time frames set forth below and as set forth in the Mitigation Monitoring and Reporting Program (MMRP), which is included as Attachment 2 to this ITP.

**4. General Provisions:**

- 4.1 Before initiating ground- or vegetation-disturbing activities, Permittee shall designate a representative (Designated Representative) responsible for communications with DFG and for overseeing compliance with this ITP. The Permittee shall notify DFG in writing prior to commencement of ground- or vegetation-disturbing activities of the

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Designated Representative's name, business address and contact information, and shall notify DFG in writing if a substitute Designated Representative is selected or identified at any time during the term of this ITP.

- 4.2 At least 30 days before initiating ground- or vegetation-disturbing activities, Permittee shall submit to DFG in writing the name, qualifications, business address, and contact information for a biological monitor (Designated Biologist). The Designated Biologist shall be knowledgeable and experienced in the biology and natural history of the Covered Species. The Designated Biologist will be responsible for monitoring construction and/or ground- or vegetation-disturbing activities in areas of Covered Species' habitat to help minimize or avoid the incidental take of individual Covered Species and to minimize disturbance of Covered Species' habitat. Permittee shall obtain DFG approval of the Designated Biologist prior to the commencement of Project-related activities that may result in the incidental take of the Covered Species.
- 4.3 To ensure compliance with the Conditions of Approval of this ITP, the Designated Biologist shall have authority to immediately stop any activity that is not in compliance with this ITP and/or to order any reasonable measure to avoid the take of an individual of the Covered Species or any fully protected species. Neither the Authorized Biologist(s) nor DFG shall be liable for any costs incurred in complying with the management measures, including cease-work orders.
- 4.4 Permittee shall conduct an education program for all persons employed or otherwise working on the Project site prior to performing any work on-site. Instruction shall consist of a presentation by the Designated Biologist that includes a discussion of the biology and general behavior of the Covered Species, information about the distribution and habitat needs of the Covered Species, sensitivity of the Covered Species to human activities, its status under CESA including legal protection, recovery efforts, penalties for violations, and Project-specific protective management measures provided in this ITP. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers prior to on-site Project activity. Copies of this ITP shall be maintained at the worksite. Permittee shall prepare and distribute wallet-sized cards or a fact sheet handout containing this information for workers to carry on-site. Upon completion of the program, employees shall sign an affidavit stating they attended the program and understand all protection measures. These forms shall be filed at the worksite offices and be available to DFG upon request.
- 4.5 Permittee shall initiate a trash abatement program during pre-construction phases of the Project and continue the program throughout the duration of the Project. Trash and food items shall be contained in closed (raven-proof) containers and removed regularly (at least once a week) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.

- 4.6 Permittee shall implement dust control measures during Project activities to facilitate visibility for monitoring of the Covered Species by the Designated Biologist.
- 4.7 Permittee shall prohibit firearms and domestic dogs from the Project site and site access routes during construction and development of the Project, except those in the possession of authorized security personnel or local, State, or Federal law enforcement officials.
- 4.8 Permittee shall clearly delineate property boundaries of the Project site with fencing, stakes, or flags and shall similarly delineate the limits of construction areas.
- 4.9 Permittee shall clearly delineate habitat of the Covered Species on the Project site with posted signs, posting stakes, flags, and/or rope or cord, and place Environmentally Sensitive Area (ESA) fencing as necessary to minimize disturbance of Covered Species' habitat.
- 4.10 Project-related personnel shall access the Project site during construction and development activities using existing routes and shall not cross Covered Species' habitat outside of and in route to the Project site. Project-related vehicle traffic shall be restricted to established roads, staging and parking areas. Vehicle speeds shall not exceed 20 miles per hour, except when traveling on existing highway, in order to avoid Covered Species on or traversing the roads. If the Permittee determines construction of off-site routes for travel are necessary, Permittee shall contact DFG prior to carrying out any such an activity. DFG may require an amendment to this ITP if additional take of Covered Species may result from Project modification.
- 4.11 Permittee shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the Project site using, to the extent possible, previously disturbed areas. Additionally, Permittee shall not use or cross Covered Species' habitat outside of the marked Project boundaries unless specifically provided for in this ITP.
- 4.12 Permittee shall immediately stop/repair any fuel or hazardous waste leaks or spills on the Project site during construction and development activities and immediately clean up such spills at the time of occurrence. Permittee shall exclude the storage and handling of hazardous materials from the construction zone and shall properly contain and dispose of any unused or leftover hazardous products off-site.
- 4.13 Permittee shall provide DFG staff with reasonable access to the Project site and mitigation lands under Permittee control, and shall otherwise fully cooperate with DFG efforts to verify compliance with or effectiveness of mitigation measures set forth in the ITP. Neither the Designated Biologist nor DFG shall be liable for any costs incurred in complying with the Conditions of Approval, including cease-work orders issued by DFG.

4.14 Upon completion of Project construction, Permittee shall remove from the Project site and properly dispose of all construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.

4.15 Notwithstanding any expiration date on the take authorization provided by this ITP, Permittee's obligations under this ITP do not end until DFG accepts as complete the Permittee's Final Mitigation Report required by Condition 5.9 of this ITP.

## **5. Notification, Reporting and Monitoring:**

5.1 Permittee shall provide DFG with written detailed construction plans, including engineering drawings, a minimum of 30 days prior to ground- or vegetation-disturbing activities authorized by this ITP. These plans as provided to DFG by the Permittee shall include the protection and restoration features and techniques made part of the Permittee's construction contract for the Project, including the features and techniques and any other modifications to the Project made since the Permittee submitted its application to DFG for this ITP.

5.2 Permittee shall notify DFG 14 calendar days before initiating ground- or vegetation-disturbing activities for each phase of the Project and document compliance with all pre-Project Conditions of Approval before initiating ground- or vegetation-disturbing activities.

5.3 Permittee shall immediately notify DFG in writing if it determines that it is not in compliance with any Conditions of Approval of this ITP, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods indicated in this ITP and MMRP. Permittee shall report any non-compliance with the ITP during the construction phase of the Project to DFG within 24 hours.

5.4 Monthly Report: The Designated Biologist shall be on-site daily while construction and/or surface-disturbing activities are taking place to minimize take of the Covered Species; to ensure compliance with all mitigation and avoidance measures; to check all exclusion zones; and to ensure that signs, stakes, and fencing are intact, and that human activities are restricted to outside of these protective zones. Weekly compliance inspections shall be conducted after clearing, grubbing, and grading are completed. These inspections shall be compiled into Monthly Compliance Reports along with a copy of the MMRP table with notes showing the current implementation status of each mitigation measure. Monthly Compliance Reports shall be submitted to DFG's Regional Office at the address listed in the Notices section of this ITP or via e-mail to DFG's Regional Representative. At the time of this ITP's approval, the DFG Regional Representative is Laura Peterson-Diaz (e-mail address [lpdiaz@dfg.ca.gov](mailto:lpdiaz@dfg.ca.gov)). DFG may

at any time increase the timing and number of compliance inspections and reports required under this provision depending upon the results of previous compliance inspections (see Condition 5.5).

5.5 All observations of Covered Species and their sign, oversight activities, verifications, compliance inspections, surveys, monitoring, and records required by this ITP shall be reported in writing to DFG by the Designated Representative or Designated Biologist. Permittee shall submit reports of these activities to DFG in the next Monthly Compliance Report.

5.6 All Covered Species sightings confirmed by the Designated Biologist shall include the following documented information: the date, time, and location of each occurrence using GPS technology, the name of the party that actually identified the animal, circumstances of the incident, the general condition and health of each individual, any diagnostic markings, sex, age (juvenile or adult), and actions undertaken and habitat description. The Permittee shall submit this information to the California Natural Diversity Database (CNDDDB).

5.7 Annual Report: Permittee shall provide DFG with an Annual Status Report (ASR) no later than January 31 of every year beginning with the issuance of the ITP and continuing until DFG accepts the Final Mitigation Report identified below. Each ASR shall include, at a minimum: 1) a general description of the status of the Project site and construction activities, including actual or projected completion dates, if known; 2) a copy of the table in the MMRP with notes showing the current implementation status of each mitigation measure; 3) a copy of the Monthly Compliance Reports from the previous year; and 4) a description of any site-specific avoidance and minimization measures that were employed and an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for Project impacts.

5.8 Restoration of Project lands where temporary impacts occur shall be monitored and the status of the restoration included in the Annual Reports beginning after completion of Phase I of the Project. Restoration of all areas subject to temporary ground- or vegetation disturbance shall be recontoured, as necessary, covered with stockpiled top-soil, and seeded with native species. Monitoring for 2 years post-construction of each Phase shall insure that noxious weeds do not become dominant in the restored area and that native species found in the vicinity are successfully reintroduced. If the temporary impact lands have not returned to pre-Project conditions two years after completion of each Phase, additional mitigation and an amendment to this ITP might be required.

5.9 Final Mitigation Report: No later than 60 days after completion of the Project, including completion of all mitigation measures, Permittee shall provide DFG with a Final

Mitigation Report. The Final Mitigation Report shall be prepared by the Designated Biologist and shall include, at a minimum: 1) a copy of the table in the MMRP with notes showing when each of the mitigation measures was implemented; 2) all available information about Project-related incidental take of the Covered Species; 3) information about other Project impacts on the Covered Species; 4) construction dates; 5) an assessment of the effectiveness of the ITP's Conditions of Approval in minimizing and compensating for Project impacts; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the Covered Species; and 7) any other pertinent information, including the level of take of the Covered Species associated with the Project.

5.10 If a Covered Species is killed by a Project-related activity during construction of the Project or if a Covered Species is otherwise found dead, the Designated Biologist shall be immediately notified and initial notification shall be made to the Sacramento Office of the USFWS at (916) 414-6620, and DFG by calling the DFG Regional Office at (559) 243-4017. The initial notification to the USFWS and DFG shall include information regarding the location, species, number of animals injured or killed, and the DFG ITP Number. Following initial notification, Permittee shall send DFG a written report within 2 calendar days. The report shall include the date and time of the finding or incident, location of the carcass, and if possible provide a photograph, explanation as to cause of death, and any other pertinent information. The Designated Biologist shall collect the carcass, place it in plastic, and keep it on ice or in a freezer until a DFG representative can either collect the specimen or issue alternative instructions.

**6. Take Minimization Measures:**

Take avoidance of Covered Species is the first priority of this ITP. Relocation of Covered Species discovered within the work area prior to ground- or vegetation-disturbing activities, as well as during Project construction, is the second priority of this ITP. Permittee shall implement and adhere to the following conditions to avoid or minimize take of Covered Species.

6.1 Workers shall inspect for Covered Species under vehicles and equipment before vehicles and equipment are moved. If a Covered Species is present, the worker shall wait for the Covered Species to move on its own to a safe location.

6.2 If a Covered Species is injured as a result of Project-related activities, it shall be immediately taken to a DFG-approved wildlife rehabilitation or veterinary facility. The Permittee shall identify the facility prior to the start of ground- or vegetation-disturbing activities. Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. Permittee shall notify the USFWS and DFG immediately unless the incident occurs outside of normal business hours. In that event the USFWS and DFG shall be notified no later than noon on the next business day. Notification to DFG shall be via telephone or e-mail, followed by a written incident report. Notification

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shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.

- 6.3 The Designated Biologist shall perform a pre-construction survey for Covered Species no more than 30 days prior to ground- or vegetation-disturbing activities for each Phase of the Project. Surveys shall cover the proposed construction right-of-way (ROW) with a 200-foot buffer for all areas along the Project length with habitat to support Covered Species. A report documenting the results of the pre-construction surveys shall be submitted to DFG within 30 days after performing any such survey.
- 6.4 If a potential Covered Species den (one that shows evidence of current use or was used in the past) is discovered or a Covered Species is found in an "atypical" den (e.g., a pipe or culvert), a 50-foot buffer shall be established using flagging. If a known Covered Species den is discovered, a buffer of at least 100 feet shall be established using fencing. If a natal den (den in which Covered Species young are reared) is discovered, a buffer of at least 200 feet shall be established using fencing. Buffer zones shall have restricted entry. Permittee shall notify the USFWS and DFG's Regional Representative immediately via telephone or email if any Covered Species dens, natal dens or atypical dens are discovered.
- 6.5 For dens found within the portion of the Project area to be disturbed, natal dens shall not be excavated until the pups and adults have vacated and then only after consultation with the USFWS and DFG. If, after 4 consecutive days of monitoring with tracking medium or infrared camera the Designated Biologist has determined that a Covered Species is not currently present, known dens may be destroyed. Potential dens (any hole 3 inches or larger) may be excavated without monitoring if a take permit has been obtained from the USFWS, but if the process reveals evidence of use inside then destruction shall cease and the USFWS and DFG shall be notified immediately.
- 6.6 Destruction of Covered Species dens shall be accomplished by careful excavation until it is certain no Covered Species are inside. The den should be fully excavated, filled with dirt and compacted to ensure that Covered Species cannot reenter or use the den during the construction period. If at any point during excavation a Covered Species is discovered inside the den, excavation shall cease immediately and monitoring of the den as described above shall be resumed. Destruction of the den shall only be completed when, in the judgment of the Designated Biologist, the animal has escaped from or otherwise vacated the partially destroyed den.
- 6.7 Any Covered Species' den that must be destroyed shall be replaced with an artificial den. This will compensate for the loss of important shelter used by Covered Species for protection, reproduction, and escape from predators. Den design and placement should be determined on a site-specific basis in consultation with the USFWS and DFG.

6.8 All open holes and trenches within the Project construction boundary shall be inspected at the beginning of the day, middle of the day, and end of the day for trapped animals. To prevent inadvertent entrapment of Covered Species or any other animals during the construction phase of the Project, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured Covered Species is discovered, the USFWS and DFG will be notified within one (1) working day of the incident.

6.9 All construction pipe, culverts, or similar structures with a diameter of 7.6 centimeters (3 inches) or greater that are stored at the construction site for one or more overnight periods will be thoroughly inspected for Covered Species before the pipe is subsequently moved, buried, or capped. If a Covered Species is discovered inside a pipe during inspection, that section of pipe shall not be moved until the animal has escaped on its own.

**7. Mitigation Measures/Compensation for Take:**

DFG has determined that permanent protection of compensatory habitat is necessary and required under CESA to fully mitigate the impacts of the taking on the Covered Species that will result with implementation of the Project.

7.1 Permittee shall acquire and permanently preserve 1,337.02 acres as total compensation for the loss of Covered Species' habitat for the entire Project. The required acreage is based on factors including an assessment of the quality of the habitat at the Project site and DFG's estimate of the acreage required to provide for adequate biological carrying capacity at a replacement location.

7.2 Permittee has identified five Phases of the Project. (See Table 1.) Permittee shall complete all compensatory mitigation requirements separately and in their entirety for each Phase of the Project in sequential order prior to commencing ground- or vegetation-disturbing activities for the next Project Phase. As described in Table 2 of this ITP, the required compensation for each Phase of the Project is as follows: Phase 1 is 154.99 acres, Phase 2 is 213.61 acres, Phase 3 is 401.91 acres, Phase 4 is 286.04 acres, and Phase 5 is 280.47 acres; for a total of 1,337.02 acres.

7.3 For Project Phases 1 through 3, Permittee intends to mitigate at the Palo Prieto Conservation Bank, which approved DFG on February 26, 2008, as authorized to sell habitat mitigation credits for the Covered Species. Permittee is not authorized to commence ground- or vegetation-disturbing activities associated with the Project until this ITP is effective and the Permittee has complied with ITP Condition of Approval 5.2,

including providing written documentation to DFG that Permittee has purchased the required habitat mitigation credits.

7.4 For Project Phases 4 and 5, the Permittee shall purchase credits at the Palo Prieto Conservation Bank or another conservation bank approved by DFG in San Luis Obispo County that is authorized to sell habitat mitigation credits for the Covered Species. Permittee shall not commence ground- or vegetation-disturbing activities associated with Project Phases 4 and 5 until the Permittee has complied with ITP Condition of Approval 5.2, including providing written documentation to DFG that Permittee has purchased the required habitat mitigation credits.

**Amendment:**

This ITP may be amended without the concurrence of the Permittee if DFG determines that continued implementation of the Project under existing ITP conditions would jeopardize the continued existence of the Covered Species or that Project changes or changed biological conditions necessitate an ITP amendment to ensure that impacts to the Covered Species are minimized and fully mitigated. DFG may also amend the ITP at any time without the concurrence of the Permittee as required by law.

**Stop-Work Order:**

DFG may issue Permittee a written stop-work order to suspend any activity covered by this ITP for an initial period of up to 25 days to prevent or remedy a violation of ITP conditions (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species. Permittee shall comply with the stop-work order immediately upon receipt thereof. DFG may extend a stop-work order under this provision for a period not to exceed 25 additional days, upon written notice to the Permittee. DFG shall commence the formal suspension process, pursuant to California Code of Regulations, Title 14, section 783.7, within five working days of issuing a stop-work order.

**Compliance with Other Laws:**

This ITP contains DFG's requirements for the Project pursuant to CESA. This ITP does not necessarily create an entitlement to proceed with the Project. Permittee is responsible for complying with all other applicable State, federal, and local laws.

**Notices:**

The Permittee shall deliver the fully executed duplicate original ITP by first class mail or overnight delivery to the following address:

Habitat Conservation Planning Branch  
Attention: CESA Permitting Program  
1416 Ninth Street, Suite 1260  
Sacramento, California 95814

Incidental Take Permit  
No. 2081-2007-020-04  
CALIFORNIA DEPARTMENT OF TRANSPORTATION  
ROUTE 46 CORRIDOR IMPROVEMENT PROJECT

Written notices, reports, and other communications relating to this ITP shall be delivered to DFG by first-class mail at the following addresses or at addresses DFG may subsequently provide the Permittee. Notices, reports, and other communications shall reference the Project name, Permittee, and ITP Number (2081-2007-020-04) in a cover letter and on any other associated documents.

Original cover with attachment(s) to:

Jeffrey R. Single, Ph.D., Regional Manager  
1234 East Shaw Avenue  
Fresno, California 93710  
Phone (559) 243-4005, Fax (559) 243-4026

Copy of cover without attachment(s) to:

Office of the General Counsel  
California Department of Fish and Game  
1416 Ninth Street, 12th Floor  
Sacramento, California 95814

And:

Habitat Conservation Planning Branch  
California Department of Fish and Game  
1416 Ninth Street, Suite 1260  
Sacramento, California 95814

Unless Permittee is notified otherwise, DFG's Regional Representative for purposes of addressing issues that arise during implementation of the ITP is:

Ms. Laura Peterson-Diaz  
1234 East Shaw Avenue  
Fresno, California 93710  
Phone (559) 243-4017, extension 225, Fax (559) 243-4020

**Compliance with the California Environmental Quality Act (CEQA):**

DFG's issuance of the ITP is subject to CEQA. DFG is a responsible agency under CEQA with respect to the ITP because of prior environmental review of the Project by the Permittee as lead agency. (See generally Pub. Resources Code, §§ 21067, 21069.) The Permittee's prior legal agency review of the Project is set forth in the State Route 46 Corridor Improvement Environmental Assessment with Finding of No Significant Impact/Final Environmental Impact Report (EIR) (SCH No. 2000011033), as approved on May 10, 2006. At the time that Permittee certified the EIR as lead agency and approved the Project, it also

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adopted all mitigation measures described in the EIR as conditions of Project approval. In fulfilling its obligations as a responsible agency, DFG's obligations under CEQA are more limited than the lead agency. (CEQA Guidelines, § 15096, subds. (a), (f).)<sup>5</sup> DFG, in particular, is responsible for considering only the effects of those activities involved in the Project which it is required by law to carry out or approve and mitigating or avoiding only the direct or indirect environmental effects of those parts of the Project which it decides to carry out, finance, or approve. (Pub. Resources Code, § 21002.1, subd. (d); CEQA Guidelines, §§ 15041, subd. (b), 15096, subds. (f), (g).) Accordingly, because DFG's exercise of discretion is limited to issuance of the ITP, DFG is responsible for considering only the environmental effects that fall within its permitting authority under CESA.

This ITP, along with DFG's CEQA findings for the ITP and Project, which are available as a separate document, provides evidence of DFG's consideration of the lead agency's EIR for the Project and the environmental effects related to issuance of the ITP. (CEQA Guidelines, § 15096, subd. (f).) DFG finds that issuance of the ITP will not result in any previously undisclosed potentially significant effects on the environment or a substantial increase in the severity of any potentially significant environmental effects previously disclosed by the lead agency. Furthermore, to the extent the potential for such effects exists, DFG finds adherence to and implementation of the lead agency's conditions of approval as well as adherence to and implementation of the Conditions of Approval of the ITP will avoid or reduce to below a level of significance any such potential effects. DFG consequently finds that issuance of the ITP will not result in any significant, adverse impacts on the environment.

**Findings Under CESA:**

These findings are intended to document DFG's compliance with the specific findings requirements set forth in CESA and related regulations. (Fish & G. Code, 2081, subs. (b)-(c); Cal. Code Regs., tit. 14, §§ 783.4, subds. (a)-(b), 783.5, subd. (c)(2).)

DFG finds that the issuance of this ITP complies and is consistent with the criteria governing the issuance of ITPs under CESA:

- (1) Take of Covered Species, as defined in the ITP, will be incidental to the otherwise lawful activities covered under the ITP;
- (2) Impacts of the taking of the Covered Species will be minimized and fully mitigated through the implementation of measures required by this ITP, as described in the MMRP. Measures include: 1) permanent habitat protection; 2) measures to avoid take of the Covered Species during Project activities; 3) worker education; and 4) Monthly Compliance Reports. DFG evaluated the quality of the habitat on the

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<sup>5</sup>The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Project site, the scope and extent of direct impacts, the scope and extent of indirect impacts, and other relevant information available to DFG or provided by the Permittee. Based on this evaluation, DFG determined that the protection and management in perpetuity of 1,337.02 acres of compensatory habitat that is contiguous with other protected Covered Species habitat and/or is of higher quality than the habitat being destroyed by the Project, along with the minimization, monitoring, reporting, and funding requirements of this ITP, meet the CESA issuance criteria.

- (3) The take avoidance and mitigation measures required pursuant to the conditions of this ITP and its attachments are roughly proportional to the impacts of the taking authorized by this ITP;
- (4) The measures required by this ITP maintain Permittee's objectives to the greatest extent possible;
- (5) All required measures are capable of successful implementation;
- (6) The ITP is consistent with any regulations adopted, pursuant to Fish and Game Code sections 2112 and 2114;
- (7) Permittee has ensured adequate funding to implement the measures required by the ITP as well as for monitoring compliance with and the effectiveness of those measures for the Project; and
- (8) Issuance of the ITP will not jeopardize the continued existence of the Covered Species based on the best scientific and other information reasonably available, and this finding includes consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (a) known population trends; (b) known threats to the species; and (c) reasonably foreseeable impacts on the species from other related projects and activities. Moreover, DFG's finding is based, in part, on DFG's express authority to amend the terms and conditions of the ITP without concurrence of the Permittee as necessary to avoid jeopardy and as required by law.

**Attachments:**

ATTACHMENT 1  
ATTACHMENT 2

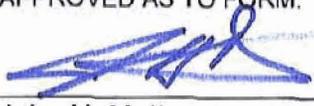
Approved Survey Methods for Blunt-Nosed Leopard Lizard  
Mitigation Monitoring and Reporting Program

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ROUTE 46 CORRIDOR IMPROVEMENT PROJECT

ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME

on 1-27-09.

  
\_\_\_\_\_  
JEFFREY R. SINGLE, PH.D.,  
Regional Manager  
CENTRAL REGION

APPROVED AS TO FORM:  
  
\_\_\_\_\_  
John H. Mattox  
Senior Staff Counsel  
Lead Counsel for CESA Permitting

**ACKNOWLEDGMENT**

The undersigned: 1) warrants that he or she is acting as a duly authorized representative of the Permittee, 2) acknowledges receipt of this ITP, and 3) agrees on behalf of the Permittee to comply with all terms and conditions of the ITP.

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Incidental Take Permit  
No. 2081-2007-020-04  
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## Attachment 1

July 2008

Dear Blunt-nosed Leopard Lizard Surveyor,

Attached is the revised survey methodology for the blunt-nosed leopard lizard (*Gambelia sila*). The protocol was developed by the Central Region of the California Department of Fish and Game (DFG) with input from the United States Fish and Wildlife Service (USFWS), the Bureau of Land Management (BLM), and various species experts. This protocol supersedes previous versions of DFG survey protocols for the blunt-nosed leopard lizard. The range-wide decline of population numbers in the past decade has provided the impetus for development of a more rigorous methodology to detect species presence. Additionally, since DFG is not able to issue an incidental take permit for the blunt-nosed leopard lizard due to its status as a fully-protected reptile under the California Fish and Game Code §5050, detection of species presence on a project site is crucial.

This standard methodology has been developed to provide consultants, local, state and federal agencies with minimum acceptable standards for surveys conducted to determine the status of this state and federally endangered species. The survey methods described within this protocol were designed to optimize the likelihood of detecting the presence of blunt-nosed leopard lizards should they occur on a project site.

When the presence of blunt-nosed leopard lizards is detected, we request that you notify DFG's local Permitting and Project Review staff for further instructions of what additional information will be needed to assess the project's potential impact on the species. This will assist in expediting the review of the project and help control the project sponsor's biological survey costs. Additionally, the USFWS should be contacted for further advice since this is also a federally-listed species. Use of this protocol and notification of DFG does not exempt you from consultation with the USFWS.

DFG is willing to cooperate with surveyors who have circumstances or needs not addressed by this protocol and who may wish to propose alternative methods to comply with State law prohibiting take of blunt-nosed leopard lizards. If you have any questions or comments regarding this methodology or if you want to propose the use of a different methodology, please contact the Central Region's Habitat Conservation Planning staff at (559) 243-4014 (Fresno, Merced, Madera, Kings, Tulare, and Kern Counties) or (805) 528-8670 (San Benito and San Luis Obispo Counties).

## CALIFORNIA DEPARTMENT OF FISH AND GAME

### APPROVED SURVEY METHODOLOGY FOR THE BLUNT-NOSED LEOPARD LIZARD JULY 2008

#### **Blunt-nosed leopard lizard, *Gambelia sila* = (*Gambelia silus*)**

**STATUS:** SE, FE, DFG fully protected

This protocol has been developed to provide a minimum level of protection for blunt-nosed leopard lizards (BNLL) when projects or maintenance activities are scheduled to occur within potential BNLL habitat. Disturbing activities should not proceed until appropriate surveys are conducted to determine if the species is present on the site. Surveys conducted according to the following protocol by qualified researchers provide a reasonable, although not conclusive, indication of BNLL presence at a particular site and yield critical information needed to prevent mortality and minimize impacts to the species. Researchers conducting the surveys are expected to understand the basic biological requirements of the species and have the ability to recognize potential BNLL habitat. This protocol satisfies the Department of Fish and Game requirements when it is determined that formal BNLL surveys are needed. [Note: This protocol is appropriate for pre-project BNLL surveys, however, population monitoring over time on a site is best conducted using a permanent survey grid, such as described in Tollestrup (1976).]

#### **METHODS:**

A minimum of two researchers, walking in parallel on adjacent transects, should conduct a BNLL survey. Optimum BNLL activity periods occur when air temperature is between 25C-35C (77F-95F) (Tollestrup 1976; USFWS 1985, 1998). Surveys must be conducted when the air temperature falls within the optimal range. Surveys may begin after sunrise as soon as the minimum air temperature criterion is met, and must end by 1400 hours or when the maximum temperature is reached, whichever occurs first (Tollestrup 1976). Time of day and air temperature should be recorded at the start and end of each survey. Air temperature should be periodically checked to ensure that the maximum has not been exceeded. Air temperature should be measured at 1-2 cm above the ground over a surface most representative of the area being surveyed. The researcher must shade the thermometer from direct sunlight while taking the reading. Other factors that affect BNLL activity such as soil temperature (measured at 1cm below soil surface with a shaded thermometer) and weather conditions must be recorded at the start and end of each survey. Surveys should not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph (force > 3 on Beaufort wind scale) (Montanucci 1965; Tollestrup 1976; J. Vance, pers. comm.).

Surveys must be conducted on foot, and researchers must survey all areas with potential BNLL habitat. BNLL are often difficult to detect, particularly in areas where shrubs are fairly numerous (>30% cover) and/or the herbaceous vegetation is tall (>30 cm). In such conditions, 10 meter wide transects should be walked at a slow pace. In areas with few shrubs and shorter herbaceous vegetation (<15 cm), transects as wide as 30 meters are acceptable. When feasible, transects should be walked in a north-south orientation to minimize glare from the sun. The surveyor should stop periodically and scan the transect for BNLL using close-focusing binoculars (minimum 7X35 magnification). In addition to recording the location of all BNLL observed (must provide UTM coordinates), the presence of habitat features important for BNLL (washes, playas, relative abundance of small mammal burrows) should also be recorded for each transect. Streambeds, washes, roads, etc., should be walked in addition to transect lines since BNLL are often seen in these areas.

#### **TIMING AND LENGTH OF SURVEY:**

Survey intensity should be commensurate with the anticipated level of disturbance to the BNLL habitat. The primary concern for BNLL when disturbance occurs during maintenance activities is direct mortality from equipment or personnel. Removal of intact BNLL habitat has a much greater potential for "take" due to direct impact on animals aboveground as well as any hibernating animals or eggs underground. A longer survey effort including both spring adult surveys and fall hatchling surveys is therefore required for activities that cause impacts to undisturbed BNLL habitat. The more intensive survey effort increases the chances of observing the species, even if the population is small. Once a BNLL has been observed, surveys may cease and consultation with the Department must begin regarding avoidance measures. If BNLL are observed incidentally while conducting surveys for other species, specific surveys for BNLL are not required. Surveys will be accepted for one year from the date of completion.

#### **Disturbances for Maintenance Activities**

Examples of maintenance activities include grading existing roads, grass mowing on roadsides, and maintaining existing structures. BNLL are active and above ground from April through September, but optimum activity periods for adults occur between April 15 and July 15 (Montanucci 1965; Tollestrup 1979; USFWS 1985, 1998). BNLL surveys should be conducted for a total of 8 days over the course of the 90-day time span. A minimum of 3 survey days should be conducted consecutively, with a maximum of 6 days completed within any 30-day time period. Fall hatchling surveys are not required for activities in this category.

#### **Disturbances Leading to Habitat Removal**

Examples of disturbances that impact intact habitat include establishment of new roads or structures, housing subdivisions, and changes in historic land use. BNLL surveys should be conducted for 12 days over the course of the 90-day adult optimal survey period (April 15 to July 15), with a maximum of 4 survey

days per week and 8 days within any 30-day time period. At least one survey session should be conducted for 4 consecutive days, weather permitting. BNLL hatchlings and subadults are most commonly observed from August 1 to September 15, along with a few adults that are still active above ground (Montanucci 1965; Tollestrup 1979; USFWS 1985, 1998). In addition to the 12 days of adult BNLL surveys required for activities in this category, 5 more survey days are required during the hatchling optimal survey period for a total of 17 survey days overall.

#### **QUALIFICATIONS OF RESEARCHERS:**

An acceptable BNLL survey crew should consist of no more than 3 Level I researchers for every Level II researcher. This restriction should reduce the number of incorrect/missed identifications. The names and affiliations of all researchers must be recorded for each survey day.

Level I: Researcher has demonstrated the ability to distinguish BNLL from other common lizard species that may inhabit the area;

Level II: Researcher has demonstrated the ability to distinguish BNLL from other common lizard species that may inhabit the area and has participated in at least 50 survey days for BNLL (or 25 survey days and a BNLL identification course recognized by/acceptable to the Department of Fish and Game). Researcher has made at least one confirmed\* field sighting of a BNLL.

#### **REPORTING**

All BNLL observations should be reported to the California Natural Diversity Database within 30 days. A sample form is attached. Additional forms can be obtained at <http://www.dfg.ca.gov/whdab/html/animals.html> .

#### **SPECIAL REQUIREMENT FOR SURVEYS IN San Luis Obispo County**

Lands with potential BNLL habitat in San Luis Obispo County have different conditions compared to other counties within the range of BNLL. The sites with habitat in San Luis Obispo County tend to be at higher elevations, where nighttime temperatures can remain low even though daytime temperatures meet minimum survey criteria. In such conditions, BNLL activity is likely to be low and surveys conducted at this time could result in non-detection of the species even though they are present. As such, an additional requirement of a visit to a known voucher site to check for BNLL activity applies to surveys conducted in this County. Once the species has been observed at the voucher site, formal surveys can begin. The Elkhorn Plain ER has been selected as the voucher site for San Luis Obispo County.

## LITERATURE CITED

- Montanucci, R.R., 1965. Observations of the San Joaquin leopard lizard, *Crotaphytus wislizenii silus* Stejneger. *Herpetologica* 21(4): 270-283.
- Tollestrup, K. 1976. A standardized method of obtaining an index of densities of blunt-nosed leopard lizards, *Crotaphytus silus*. Unpub. Rpt. U. S. Fish and Wildlife Service, Sacramento, CA. 11pp + Appendices.
- Tollestrup, K. 1979. The ecology, social structure, and foraging behavior of two closely-related leopard lizards, *Gambelia silus* and *Gambelia wislizenii*. PhD Dissertation, University of California Berkeley.
- United States Fish and Wildlife Service. 1985. Revised blunt-nosed leopard lizard recovery plan. United States Fish and Wildlife Service. Region 1, Portland, OR. 85 pp.
- United States Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California. United States Fish and Wildlife Service. Region 1, Portland, OR. 319 pp.

## PERSONAL COMMUNICATIONS

Julie Vance, California Department of Water Resources, San Joaquin District, 3374 E. Shields Ave, Fresno, California, 93726.

\*A minimum of one confirmed field sighting must be documented for each Level II researcher and be available to the Department upon request. As with all BNLL sightings, it should also be submitted to the California Natural Diversity Database. Information to be included in documentation of BNLL sighting: Name of researcher, date of survey, location of survey, names of accompanying researchers who can confirm the sighting, and details of sighting (distance, BNLL activity, etc).

## CONTACT INFORMATION

California Department of Fish and Game  
Central Region  
Habitat Conservation Planning  
1234 Shaw Ave  
Fresno, CA 93710  
559/243-4005

The Department is willing to cooperate with researchers who have circumstances or needs not addressed by this protocol and who may wish to propose alternative methods to comply with State law prohibiting take of BNLL.

**Attachment 2**

**CALIFORNIA DEPARTMENT OF FISH AND GAME  
MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)  
CALIFORNIA ENDANGERED SPECIES ACT**

**INCIDENTAL TAKE PERMIT NO. 2081-2007-020-04**

**Permittee: California Department of Transportation (Caltrans)**

**Project: Route 46 Corridor Improvement Project**

**PURPOSE OF THE MMRP**

The purpose of the MMRP is to ensure that the minimization and mitigation measures required by the California Department of Fish and Game (DFG) for the above-referenced Project are properly implemented and thereby to ensure compliance with Section 2081(b) of the Fish and Game Code and Section 21081.6 of the Public Resources Code. A table summarizing the mitigation measures required by DFG is attached. This table is a tool for use in monitoring and reporting on implementation of mitigation measures, but the descriptions in the table do not supersede the mitigation measures set forth in the California Incidental Take Permit (ITP) and in omission of a permit requirement from the attached table does not relieve the Permittee of the obligation to ensure that the requirement is performed.

**OBLIGATIONS OF THE PERMITTEE**

Mitigation measures must be implemented within the time periods indicated in the table that appears below. The Permittee has the primary responsibility for monitoring compliance with all mitigation measures and for reporting to DFG on the progress in implementing those measures. These monitoring and reporting requirements are set forth in the ITP itself and are summarized at the front of the attached table.

The ITP requires that the Permittee identify and fund at least one full-time biologist to oversee and implement the mitigation activities that are required conditions of approval. The Permittee, through the "Designated Biologist", the "Designated Representative", or some other specific Permittee's designee shall insure the implementation of all Avoidance and Mitigation Measures listed in the ITP and shall monitor the effectiveness of these measures.

**VERIFICATION OF COMPLIANCE, EFFECTIVENESS**

DFG may, at its own discretion, verify compliance with any mitigation measure or independently assess the effectiveness of any mitigation measure.

## **TABLE OF MITIGATION MEASURES**

The following items are identified for each mitigation measure: Mitigation Measure, Source, Implementation Schedule, Responsible Party, and Status/Date/Initials. The Mitigation Measure column summarizes the mitigation requirements of the ITP. The Source column identifies the ITP document that sets forth the mitigation measure. The Implementation Schedule column shows the date or phase when each mitigation measure shall be implemented. The Responsible Party column identifies the agency that is primarily responsible for implementing the mitigation measure. The Status/Date/Initials column shall be completed by the Permittee during preparation of each Status Report and the Final Mitigation Report, and must identify the implementation status of each mitigation measure, the date that status was determined, and the initials of the person determining the status.

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
<b>PRE-CONSTRUCTION</b>					
1	Before initiating ground- or vegetation-disturbing activities, Permittee shall designate a representative (Designated Representative) responsible for communications with DFG and for overseeing compliance with the ITP. The Permittee shall notify DFG in writing prior to commencement of ground- or vegetation-disturbing activities of the Designated Representative's name, business address and contact information, and shall notify DFG in writing if a substitute Designated Representative is selected or identified at any time during the term of the ITP.	ITP Condition #4.1	Before commencing ground or vegetation disturbing activities  Entire Project	Permittee	
2	At least 30 days before initiating ground- or vegetation-disturbing activities, Permittee shall submit to DFG in writing the name, qualifications, business address, and contact information for a biological monitor (Designated Biologist). The Designated Biologist shall be knowledgeable and experienced in the biology and natural history of the Covered Species. The Designated Biologist will be responsible for monitoring construction and/or ground- or vegetation-disturbing activities in areas of Covered Species' habitat to help minimize or avoid the incidental take of individual Covered Species and to minimize disturbance of Covered Species' habitat. Permittee shall obtain DFG approval of the Designated Biologist prior to the commencement of Project-related activities that may result in the incidental take of the Covered Species.	ITP Condition #4.2	Before commencing ground or vegetation disturbing activities  Entire Project	Permittee	
3	The Designated Biologist shall have authority to immediately stop any activity that is not in compliance with this ITP and/or to order any reasonable measure to avoid the take of an individual of the Covered Species or any fully protected species. Neither the Authorized Biologist(s) nor DFG shall be liable for any costs incurred in complying with the management measures, including cease-work orders.	ITP Condition #4.3	Before commencing ground or vegetation disturbing activities  Entire Project	Permittee	
4	Permittee shall conduct an education program for all persons employed or otherwise working on the Project site prior to performing any work on-site. Instruction shall consist of a presentation by the Designated Biologist that includes a discussion of the biology and general behavior of the Covered Species, information about the distribution and habitat needs of the Covered Species, sensitivity of the Covered Species to human activities, its status under CESA including legal protection, recovery efforts, penalties for violations, and Project-specific protective management measures provided in the ITP. Interpretation shall be provided for non-English speaking workers, and the same instruction shall be provided for any new workers prior to on-site Project activity. Copies of the ITP shall be maintained at the worksite. Permittee shall prepare and distribute wallet-sized cards or a fact sheet handout containing this information for workers to carry on-site. Upon completion of the program, employees shall sign an affidavit stating they attended the program and understand all protection measures. These forms shall be filed at the worksite offices and be available to DFG upon request.	ITP Condition #4.4	Before commencing ground or vegetation disturbing activities  Entire Project	Permittee	
5	Permittee shall initiate a trash abatement program during pre-construction phases of the Project and continue the program throughout the duration of the Project. Trash and food items shall be contained in closed (raven-proof) containers and removed regularly (at least once a week) to avoid attracting opportunistic predators such as ravens, coyotes, and feral dogs.	ITP Condition #4.5	Before commencing ground or vegetation disturbing activities  Entire Project	Permittee	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
6	Permittee shall provide DFG with written detailed construction plans, including engineering drawings, a minimum of 30 days prior to ground- or vegetation-disturbing activities authorized by this ITP. These plans as provided to DFG by the Permittee shall include the protection and restoration features and techniques made part of the Permittee's construction contract for the Project, including the features and techniques and any other modifications to the Project made since the Permittee submitted its application to DFG for this ITP.	ITP Condition #5.1	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
7	Permittee shall notify DFG 14 calendar days before initiating ground- or vegetation-disturbing activities for each phase of the Project and document compliance with all pre-Project Conditions of Approval before initiating ground- or vegetation-disturbing activities.	ITP Condition #5.2	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
8	If a Covered Species is injured as a result of Project-related activities, it shall be immediately taken to a DFG-approved wildlife rehabilitation or veterinary facility. The Permittee shall identify the facility prior to the start of ground- or vegetation-disturbing activities. Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. Permittee shall notify the USFWS and DFG immediately unless the incident occurs outside of normal business hours. In that event the USFWS and DFG shall be notified no later than noon on the next business day. Notification to DFG shall be via telephone or e-mail, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.	ITP Condition #6.2	Before commencing ground or vegetation disturbing activities  Entire Project	Permittee	
9	The Designated Biologist shall perform a pre-construction survey for Covered Species no more than 30 days prior to ground- or vegetation-disturbing activities for each Phase of the Project. Surveys shall cover the proposed construction right-of-way (ROW) with a 200-foot buffer for all areas along the Project length with habitat to support Covered Species. A report documenting the results of the pre-construction surveys shall be submitted to DFG within 30 days after performing any such survey.	ITP Condition #6.3	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
10	If a potential Covered Species den (one that shows evidence of current use or was used in the past) is discovered or a Covered Species is found in an "atypical" den (e.g., a pipe or culvert), a 50-foot buffer shall be established using flagging. If a known Covered Species den is discovered, a buffer of at least 100 feet shall be established using fencing. If a natal den (den in which Covered Species young are reared) is discovered, a buffer of at least 200 feet shall be established using fencing. Buffer zones shall have restricted entry. Permittee shall notify the USFWS and DFG's Regional Representative immediately via telephone or email if any Covered Species dens, natal dens or atypical dens are discovered.	ITP Condition #6.4	Before commencing ground or vegetation disturbing activities  Entire Project	Permittee	
11	For dens found within the portion of the Project area to be disturbed, natal dens shall not be excavated until the pups and adults have vacated and then only after consultation with the USFWS and DFG. If, after 4 consecutive days of monitoring with tracking medium or infrared camera the Designated Biologist has determined that a Covered Species is not currently present, known dens may be destroyed. Potential dens (any hole 3 inches or larger) may be excavated without monitoring if a take permit has been obtained from the USFWS, but if the process reveals evidence of use inside then destruction shall cease and the USFWS and DFG shall be notified immediately.	ITP Condition #6.5	Before commencing ground or vegetation disturbing activities of each phase	Permittee	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
12	Destruction of Covered Species dens shall be accomplished by careful excavation until it is certain no Covered Species are inside. The den should be fully excavated, filled with dirt and compacted to ensure that Covered Species cannot reenter or use the den during the construction period. If at any point during excavation a Covered Species is discovered inside the den, excavation shall cease immediately and monitoring of the den as described above shall be resumed. Destruction of the den shall only be completed when, in the judgment of the Designated Biologist, the animal has escaped from or otherwise vacated the partially destroyed den.	ITP Condition #6.6	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
13	Any Covered Species' den that must be destroyed shall be replaced with an artificial den. This will compensate for the loss of important shelter used by Covered Species for protection, reproduction, and escape from predators. Den design and placement should be determined on a site-specific basis in consultation with the USFWS and DFG.	ITP condition #6.7	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
14	Permittee shall acquire and permanently preserve 1,337.02 acres as total compensation for the loss of Covered Species' habitat for the entire Project. The required acreage is based on factors including an assessment of the quality of the habitat at the Project site and DFG's estimate of the acreage required to provide for adequate biological carrying capacity at a replacement location. Permittee has identified five Phases of the Project. (See Table 1.) Permittee shall complete all compensatory mitigation requirements separately and in their entirety for each Phase of the Project in sequential order prior to commencing ground- or vegetation-disturbing activities for the next Project Phase. As described in Table 2 of this ITP, the required compensation for each Phase of the Project is as follows: Phase 1 is 154.99 acres, Phase 2 is 213.61 acres, Phase 3 is 401.91 acres, Phase 4 is 286.04 acres, and Phase 5 is 280.47 acres; for a total of 1,337.02 acres.	ITP Conditions #7.1, 7.2	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
15	For Project Phases 1 through 3, Permittee intends to mitigate at the Palo Prieto Conservation Bank, which approved DFG on February 26, 2008, as authorized to sell habitat mitigation credits for the Covered Species. Permittee is not authorized to commence ground- or vegetation-disturbing activities associated with the Project until this ITP is effective and the Permittee has complied with ITP Condition of Approval 5.2, including providing written documentation to DFG that Permittee has purchased the required habitat mitigation credits.	ITP Condition #7.3	Before commencing ground or vegetation disturbing activities of each phase	Permittee	
16	For Project Phases 4 and 5, the Permittee shall purchase credits at the Palo Prieto Conservation Bank or another conservation bank approved by DFG in San Luis Obispo County that is authorized to sell habitat mitigation credits for the Covered Species. Permittee shall not commence ground- or vegetation-disturbing activities associated with Project Phases 4 and 5 until the Permittee has complied with ITP Condition of Approval 5.2, including providing written documentation to DFG that Permittee has purchased the required habitat mitigation credits.	ITP Condition #7.4	Before commencing ground or vegetation disturbing activities of each phase	Permittee	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
<b>DURING CONSTRUCTION</b>					
17	Permittee shall implement dust control measures during Project activities to facilitate visibility for monitoring of the Covered Species by the Designated Biologist.	ITP Condition #4.6	Entire Project	Permittee	
18	Workers shall inspect for Covered Species under vehicles and equipment before vehicles and equipment are moved. If a Covered Species is present, the worker shall wait for the Covered Species to move on its own to a safe location.	ITP Condition #6.1	Entire Project	Permittee	
19	Permittee shall prohibit firearms and domestic dogs from the Project site and site access routes during construction and development of the Project, except those in the possession of authorized security personnel or local, State, or Federal law enforcement officials.	ITP Condition #4.7	Entire Project	Permittee	
20	Permittee shall clearly delineate property boundaries of the Project site with fencing, stakes, or flags and shall similarly delineate the limits of construction areas.	ITP Condition #4.8	Entire Project	Permittee	
21	Permittee shall clearly delineate habitat of the Covered Species on the Project site with posted signs, posting stakes, flags, and/or rope or cord, and place Environmentally Sensitive Area (ESA) fencing as necessary to minimize disturbance of Covered Species' habitat.	ITP Condition #4.9	Entire Project	Permittee	
22	Project-related personnel shall access the Project site during construction and development activities using existing routes and shall not cross Covered Species' habitat outside of and in route to the Project site. Project-related vehicle traffic shall be restricted to established roads, staging and parking areas. Vehicle speeds shall not exceed 20 miles per hour, except when traveling on existing highway, in order to avoid Covered Species on or traversing the roads. If the Permittee determines construction of off-site routes for travel are necessary, Permittee shall contact DFG prior to carrying out any such an activity. DFG may require an amendment to this ITP if additional take of Covered Species may result from Project modification.	ITP Condition #4.10	Entire Project	Permittee	
23	Permittee shall confine all Project-related parking, storage areas, laydown sites, equipment storage, and any other surface-disturbing activities to the Project site using, to the extent possible, previously disturbed areas. Additionally, Permittee shall not use or cross Covered Species' habitat outside of the marked Project boundaries unless specifically provided for in this ITP.	ITP Condition #4.11	Entire Project	Permittee	
24	Permittee shall immediately stop/repair any fuel or hazardous waste leaks or spills on the Project site during construction and development activities and immediately clean up such spills at the time of occurrence. Permittee shall exclude the storage and handling of hazardous materials from the construction zone and shall properly contain and dispose of any unused or leftover hazardous products off-site.	ITP Condition #4.12	Entire Project	Permittee	
25	Permittee shall immediately notify DFG in writing if it determines that it is not in compliance with any Conditions of Approval of this ITP, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods indicated in this ITP and MMRP. Permittee shall report any non-compliance with the ITP during the construction phase of the Project to DFG within 24 hours.	ITP Condition #5.3	Entire Project	Permittee	

Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
<p><b>26</b> <b>Monthly Report:</b> The Designated Biologist shall be on-site daily while construction and/or surface-disturbing activities are taking place to minimize take of the Covered Species; to ensure compliance with all mitigation and avoidance measures; to check all exclusion zones; and to ensure that signs, stakes, and fencing are intact, and that human activities are restricted to outside of these protective zones. Weekly compliance inspections shall be conducted after clearing, grubbing, and grading are completed. These inspections shall be compiled into Monthly Compliance Reports along with a copy of the MMRP table with notes showing the current implementation status of each mitigation measure. Monthly Compliance Reports shall be submitted to DFG's Regional Office at the address listed in the Notices section of this ITP or via e-mail to DFG's Regional Representative. At the time of this ITP's approval, the DFG Regional Representative is Laura Peterson-Diaz (e-mail address <a href="mailto:lpdiaz@dfg.ca.gov">lpdiaz@dfg.ca.gov</a>). DFG may at any time increase the timing and number of compliance inspections and reports required under this provision depending upon the results of previous compliance inspections (see Condition 5.5).</p>	<p>ITP Condition #5.4</p>	<p>Entire Project</p>	<p>Permittee</p>	
<p><b>27</b> All observations of Covered Species and their sign, oversight activities, verifications, compliance inspections, surveys, monitoring, and records required by this ITP shall be reported in writing to DFG by the Designated Representative or Designated Biologist. Permittee shall submit reports of these activities to DFG in the next Monthly Compliance Report.</p>	<p>ITP Conditions #5.5</p>	<p>Entire Project</p>	<p>Permittee</p>	
<p><b>28</b> All Covered Species sightings confirmed by the Designated Biologist shall include the following documented information: the date, time, and location of each occurrence using GPS technology, the name of the party that actually identified the animal, circumstances of the incident, the general condition and health of each individual, any diagnostic markings, sex, age (juvenile or adult), and actions undertaken and habitat description. The Permittee shall submit this information to the California Natural Diversity Database (CNDDDB).</p>	<p>ITP Conditions #5.6</p>	<p>Entire Project</p>	<p>Permittee</p>	
<p><b>29</b> <b>Annual Report:</b> Permittee shall provide DFG with an Annual Status Report (ASR) no later than January 31 of every year beginning with the issuance of the ITP and continuing until DFG accepts the Final Mitigation Report identified below. Each ASR shall include, at a minimum: 1) a general description of the status of the Project site and construction activities, including actual or projected completion dates, if known; 2) a copy of the table in the MMRP with notes showing the current implementation status of each mitigation measure; 3) a copy of the Monthly Compliance Reports from the previous year; and 4) a description of any site-specific avoidance and minimization measures that were employed and an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for Project impacts.</p>	<p>ITP Condition #5.7</p>	<p>Entire Project</p>	<p>Permittee</p>	
<p><b>30</b> Restoration of Project lands where temporary impacts occur shall be monitored and the status of the restoration included in the Annual Reports beginning after completion of Phase 1 of the Project. Restoration of all areas subject to temporary ground- or vegetation disturbance shall be recontoured, as necessary, covered with stockpiled top-soil, and seeded with native species. Monitoring for 2 years post-construction of each Phase shall insure that noxious weeds do not become dominant in the restored area and that native species found in the vicinity are successfully reintroduced. If the temporary impact lands have not returned to pre-Project conditions two years after completion of each Phase, additional mitigation and an amendment to this ITP might be required.</p>	<p>ITP Condition #5.8</p>	<p>After completion of phase 1 until 2 years post-construction of phase 5</p>	<p>Permittee</p>	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
31	If a Covered Species is killed by a Project-related activity during construction of the Project or if a Covered Species is otherwise found dead, the Designated Biologist shall be immediately notified and initial notification shall be made to the Sacramento Office of the USFWS at (916) 414-6620, and DFG by calling the DFG Regional Office at (559) 243-4017. The initial notification to the USFWS and DFG shall include information regarding the location, species, number of animals injured or killed, and the DFG ITP Number. Following initial notification, Permittee shall send DFG a written report within 2 calendar days. The report shall include the date and time of the finding or incident, location of the carcass, and if possible provide a photograph, explanation as to cause of death, and any other pertinent information. The Designated Biologist shall collect the carcass, place it in plastic, and keep it on ice or in a freezer until a DFG representative can either collect the specimen or issue alternative instructions.	ITP Condition #5.10	Entire Project	Permittee	
32	If a Covered Species is injured as a result of Project-related activities, it shall be immediately taken to a DFG-approved wildlife rehabilitation or veterinary facility. The Permittee shall identify the facility prior to the start of ground- or vegetation-disturbing activities. Permittee shall bear any costs associated with the care or treatment of such injured Covered Species. Permittee shall notify the USFWS and DFG immediately unless the incident occurs outside of normal business hours. In that event the USFWS and DFG shall be notified no later than noon on the next business day. Notification to DFG shall be via telephone or e-mail, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident and the name of the facility where the animal was taken.	ITP Condition #6.2	Entire Project	Permittee	
33	All open holes and trenches within the Project construction boundary shall be inspected at the beginning of the day, middle of the day, and end of the day for trapped animals. To prevent inadvertent entrapment of Covered Species or any other animals during the construction phase of the Project, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped animals. If at any time a trapped or injured Covered Species is discovered, the USFWS and DFG will be notified within one (1) working day of the incident.	ITP Condition #6.8	Entire Project	Permittee	
34	All construction pipe, culverts, or similar structures with a diameter of 7.6 centimeters (3 inches) or greater that are stored at the construction site for one or more overnight periods will be thoroughly inspected for Covered Species before the pipe is subsequently moved, buried, or capped. If a Covered Species is discovered inside a pipe during inspection, that section of pipe shall not be moved until the animal has escaped on its own.	ITP Condition #6.9	Entire Project	Permittee	
35	DFG may issue Permittee a written stop-work order to suspend any activity covered by this ITP for an initial period of up to 25 days to prevent or remedy a violation of ITP conditions (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species. Permittee shall comply with the stop-work order immediately upon receipt thereof. DFG may extend a stop-work order under this provision for a period not to exceed 25 additional days, upon written notice to the Permittee. DFG shall commence the formal suspension process, pursuant to California Code of Regulations, Title 14, section 783.7, within five working days of issuing a stop-work order.	ITP	Entire Project	DFG	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Status / Date / Initials
<b>POST-CONSTRUCTION</b>					
36	Upon completion of Project construction, Permittee shall remove from the Project site and properly dispose of all construction refuse, including, but not limited to, broken equipment parts, wrapping material, cords, cables, wire, rope, strapping, twine, buckets, metal or plastic containers, and boxes.	ITP Condition #4.14	Post-construction	Permittee	
37	<b>Final Mitigation Report:</b> No later than 60 days after completion of the Project, including completion of all mitigation measures, Permittee shall provide DFG with a Final Mitigation Report. The Final Mitigation Report shall be prepared by the Designated Biologist and shall include, at a minimum: 1) a copy of the table in the MMRP with notes showing when each of the mitigation measures was implemented; 2) all available information about Project-related incidental take of the Covered Species; 3) information about other Project impacts on the Covered Species; 4) construction dates; 5) an assessment of the effectiveness of the ITP's Conditions of Approval in minimizing and compensating for Project impacts; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the Covered Species; and 7) any other pertinent information, including the level of take of the Covered Species associated with the Project.	ITP Condition #5.9	Post-construction	Permittee	
38	DFG accepts the Final Mitigation Report as complete.	ITP Condition #4.15	Post-construction	DFG	



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Ventura Fish and Wildlife Office  
2493 Portola Road, Suite B  
Ventura, California 93003

IN REPLY REFER TO:  
PAS 681.731.927

December 12, 2005

Gene K. Fong, Division Administrator  
Federal Highway Administration, California Division  
650 Capitol Mall, Suite 4-100  
Sacramento, California 95814

Subject: Biological Opinion for the State Route 46 Corridor Improvement Project, Post Mile 32.2 – 56.3, San Luis Obispo County, California (Document # P43727) (1-8-03-F-59)

Dear Mr. Fong:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological and conference opinion on the effects of the California Department of Transportation's (Caltrans) proposed State Route (SR) 46 Improvement Project on the federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*), and the federally threatened California tiger salamander (*Ambystoma californiense*), and California red legged frog (*Rana aurora draytonii*), in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U. S. C. 1531 *et seq.*).

The subject project would be funded by the Federal Highways Administration (FHWA) and would widen SR 46 from a two-lane conventional highway to a four-lane expressway. Your June 25, 2003, request for formal consultation was received on June 27, 2003.

## CONSULTATION HISTORY

Your request for consultation included a determination that the proposed project would not affect on the California red-legged frog. You also determined the proposed project may affect the California tiger salamander and requested technical assistance regarding this species. Following discussions between biologists from Caltrans and our Office, we received your October 24, 2005, letter requesting formal consultation on the California red-legged frog and California tiger salamander.

On August 23, 2005, we designated critical habitat for the California tiger salamander, Central population, in four regions: Central Valley, Southern San Joaquin Valley, East Bay, and Central Coast (70 Federal Register [FR] 49380). However, the action described in this biological opinion is outside the boundary of critical habitat. Consequently, the proposed action would have no effect on critical habitat for this species.

The federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*) also occurs in the vicinity of the proposed project. Critical habitat was designated on August 3, 2003 (68 FR 46684). FHWA has determined there would be no effect to vernal pool fairy shrimp because Caltrans has designed the new alignment of the highway to avoid both direct and indirect effects to this species and its critical habitat (Caltrans 2003a). Therefore, this biological opinion does not address the vernal pool fairy shrimp or its critical habitat.

This biological opinion is based on information that accompanied the request for consultation, subsequent discussions between our staffs, the scientific literature, a site visit on May 17, 2005, and information in our files. A complete administrative record of this consultation is on file at the Ventura Fish and Wildlife Office.

In addition to the action proposed in this biological opinion, Caltrans and FHWA plan to widen SR 46 to the east of the proposed project site. On March 10, 2005, we issued a biological opinion for the Highway 46 Improvement Project, Post Mile (PM) 55.1 to 60.9 (Service 2005), in which we concluded that project is not likely to jeopardize the continued existence of the San Joaquin kit fox or the California red-legged frog. On September 22, 2003, the Service's Sacramento Fish and Wildlife Office issued a biological opinion concluding the section of the SR 46 Improvement Project from PM 0.0 to PM 33.5, east of Interstate 5, is not likely to jeopardize the continued existence of the San Joaquin kit fox (Service 2003).

## BIOLOGICAL OPINION

### DESCRIPTION OF PROPOSED ACTION

State Route 46, also known as the "Paso Robles Highway," is predominantly an east-west highway that spans from State Route 1 near Cambria in San Luis Obispo County eastward to State Route 99 near Famoso in Kern County. Truck traffic currently comprises nearly 20 percent of the average daily traffic volume between Highway 101 and Interstate 5. State Route 46 is heavily used on weekends as a corridor for vehicles traveling between the San Joaquin Valley and communities on the California central coast.

Caltrans proposes to convert a 24 mile section of SR 46, from two to four lanes, between Paso Robles and the interchange of SR 41 and SR 46 near Cholame. The interchange is known locally as the "Y". The eastern end of the proposed project would adjoin SR 46 at the Antelope Grade, which was included in our previous biological opinion (Service 2005).

The width of the median separating east and westbound traffic would vary between 61 feet and 46.3 feet. All public road intersections would be improved with left turn channels (lanes). The existing roadbed would be improved to meet current design standards for a four-lane expressway. Horizontal and vertical curves would be upgraded to meet the design speed of 80 miles per hour with the exception one 65 mile per hour horizontal curve just west of the Cholame Creek Bridge, in the Shandon section.

Caltrans and FHWA analyzed the proposed project in four sections and selected the least environmentally damaging practicable alternative (LEDPA), for each section, as their proposed action. In each section, the existing highway would be widened from two to four lanes. The following four sections make up the proposed action:

1. Estrella – Alternative 8N;
2. Shandon – Alternative 1;
3. Cholame – Alternative 1; and
4. Y – Alternative 8b (overflow variation).

The following is a summary of the proposed action. A complete description of the alternatives, including the LEDPA, can be found in Caltrans 2003b.

#### **Estrella – Alternative 8N (PM 32.2 to 41.2)**

The Estrella section would start at the western end of the SR 46 where it intersects with Airport Road. Caltrans would construct two new eastbound lanes south of the existing highway. The existing highway would be converted into two westbound lanes. This section of the project would include a 46.3-foot wide, vegetated median between PM 32.2 and 34.4. The vegetated median would minimize impacts to blue oak (*Quercus douglasii*) woodlands. A 1,148-foot segment of the existing roadbed, west of Estrella Road, would be restored with native vegetation. A new 778-foot bridge would be constructed across the Estrella River. The new bridge would be 62.3 feet higher and 516 feet longer than the existing bridge. Estrella Road would be re-routed under the new bridge. The new bridge would span the entire Estrella River Valley, including an extensive Fremont cottonwood (*Populus fremontii*) woodland, which occurs along the Estrella River.

#### **Shandon – Alternative 1 (PM 41.2 to 50.2)**

Two new lanes would be built in the Shandon section to improve the flow of traffic. The location of the new lanes, relative to the existing highway, would vary between the north and south sides of the existing highway. Between PM 46.0 and 46.8, the highway alignment would be shifted to the north to reduce impacts to Cholame creek. This section would include a 61.0-foot wide median along its entire 9 mile length.

Minor modifications to the access and circulation at the Shandon Safety Roadside Rest would be implemented. Additions to the rest area would include new right-turn and left-turn lanes and a paved median crossover. Several utilities including electric, gas, telephone, jet fuel, and oil would be relocated outside of the Caltrans right-of-way.

**Cholame – Alternative 1 (PM 50.2 to 54.8)**

This section would include the largest highway realignment of the proposed project, from PM 50.2 to 52.2. In this area Caltrans would construct four new traffic lanes and re-route SR 46 to the North, around the existing Tosco Oil pumping plant. The new alignment would rejoin the existing route at PM 52.2. Between this point and the end of the Cholame section, two new lanes would be constructed to make SR 46 a four lane expressway. From PM 52.2, the location of the two new lanes, relative to the existing highway, would vary between the north and south sides of the existing highway. Two new bridges would be built across Cholame Creek approximately 0.16 mile north of the existing Cholame Creek Bridge. The existing bridge would be removed. Several utilities including electrical, gas, jet fuel, and oil would be relocated outside of the Caltrans right-of-way.

**Y – Alternative 8b (overflow variation - PM 54.8 to 56.3)**

This section is located in the Cholame Valley, at the east end of the project, and includes the interchange of SR 46 and SR 41. The new design would realign the interchange to the north and west of its existing location. The new highway would then veer back to the south, across the Cholame Creek floodplain to meet up with the existing State Route 46 alignment near PM 56.3.

SR 41 would be relocated south of its alignment near PM 45.4, to connect with State Route 46 near PM 55.6. The existing State Route 41 roadway, between PM 43.9 and 44, would be removed and the land restored with native vegetation. The new eastbound and westbound lanes would be separated with a 61-foot median.

The existing Cholame Creek Bridge would be removed and replaced. The new Cholame Creek Bridge would be 394 feet long and between 13 and 20 feet above the floodplain at their lowest point and highest points, respectively. It would have two support piers approximately 120 feet apart.

A second bridge, the Cholame Creek Overflow/secondary wildlife crossing, would be built beginning at PM 55.6. The Cholame Creek Overflow/secondary wildlife crossing would be a single-span bridge, 131 feet long, nearly 15 feet above the ground, and would partially span the wetland complex on the Cholame Valley floor. These new bridges would be elevated above the Cholame Valley floor, and are designed to provide San Joaquin kit fox with a clear line of sight under the highway.

Construction of the SR 46 Improvement Project is scheduled to begin in 2007, with the Estrella section at the west end of the highway. The remaining sections would be completed from west to east and are scheduled for completion by 2013. Working hours for the proposed project have not been established. Caltrans anticipates typical road-building equipment would be used for this project including, but not limited to: bulldozers, pile drivers, steam rollers, concrete trucks, concrete pumps, hand compactors, gas compressors, pavers, pavement

rollers, rippers, backhoes, chainsaws, and graders. Caltrans would put the project out for bid to the private sector for construction.

### **Minimization Measures**

Caltrans has proposed the following measures to minimize adverse effects to the Joaquin kit fox:

1. The Service's recommendations for protection of San Joaquin kit fox prior to or during ground disturbance (Service 1997) have been incorporated into the project description.
2. A full time, qualified biologist will implement the Service's recommendations and other project related biological monitoring requirements.
3. Dry culverts, a minimum of 36" high, will cross all four lanes of traffic and will be located along the entire length of the proposed project every 0.3 mile based on recommendations in the literature (Cypher 2000). Culverts will not be placed at 0.3 mile intervals where drainage culverts or bridges greater than 36" high are already proposed.
4. Wire mesh drift fencing (<2 inch squares) will be used to funnel San Joaquin kit fox toward culvert openings. Drift fencing will extend out approximately 150 feet on either side of culvert openings.
5. Box culverts, 12 feet tall and 12 feet across, will be placed on both SR 46 and SR 41 east of the Y interchange to facilitate cattle drives. Additional 12-foot box culverts will be installed at known deer crossing points (PM 32.9, PM 34.1 (Dry Creek) and PM 37.7). San Joaquin kit fox may also use these additional undercrossings.

Caltrans proposes to purchase conservation easements to compensate for permanent impacts to San Joaquin kit fox habitat using the following ratios based on the CDFG San Joaquin kit fox habitat assessment form: 4:1 between PM 37.6 through the Cholame Valley; 3:1 between Airport Road and Jardine Road; and 2:1 between Jardine Road and PM 37.6. Up to 352 acres would be permanently impacted. Caltrans proposes to compensate for temporary impacts at a 1/3:1 ratio. Up to 283 acres of San Joaquin kit fox habitat would be temporarily impacted. Caltrans would purchase a total of approximately 1200 acres of off-site San Joaquin kit fox habitat at a CDFG-approved conservation bank within the corridor connecting the southern Salinas Valley to the Carrizo Plain. Two conservation banks are currently being developed by CDFG. Caltrans will evaluate both banks and will purchase credits at the bank which best suits the proposed project (D, Hacker pers. comm. 2005).

Caltrans will remove several acres of abandoned roadbed in each of the four sections, and restore these areas with native California grassland species, suitable for San Joaquin kit fox.

For every acre restored, Caltrans proposes to reduce the amount of their off-site compensation by one acre.

Caltrans will also construct artificial dens in the off-site conservation area or other areas approved by the Service and CDFG. The number of artificial dens will be based on the existing number of dens and the condition of the conservation site.

Caltrans has provided the following specific measures to minimize adverse effects to the California red-legged frog:

1. All earthwork within 270 feet of California red-legged frog aquatic habitat will be completed between May 1 and October 31.
2. A qualified biologist will conduct pre-construction surveys for California red-legged frogs within the project area within two days of initiation of project construction.
3. Any California red-legged frogs encountered will be reported to the Service immediately or as soon as practicable (i.e. the following business day if encountered at night). California red-legged frogs found in harm's way will be captured and relocated to appropriate habitat as determined after discussions with Service staff.
4. All new sightings of California red-legged frogs within project areas will be reported to the Service and the CNDDDB.
5. Pre-construction meetings with the construction contractor and crew will be conducted to brief them on the potential presence of California red-legged frogs in the project area, and educate onsite workers in the identification and habitat requirements of California red-legged frogs, as well as the ramifications of take of listed species. The minimization measures outlined will also be discussed.
6. To the maximum extent practicable, contractors will avoid all project-related activities including road construction within 300 feet of all wetlands/water courses that provide suitable breeding and foraging habitat for the California red-legged frog.
7. Pesticide application will be avoided within 500 feet of all wetlands/water courses.
8. Bank slope protection placed on creek channel banks will be designed for erosion control by means of riparian function enhancement. Designs using native topsoil and native riparian local stock are preferred (biotechnology, logs, willow wattles, potted willows, "soft-tech" or low-tech dirt terracing, etc.).
9. Prior to the commencement of construction activities, Caltrans will coordinate with the CDFG to prepare a riparian vegetation replacement program for the project. Riparian vegetation removed as a result of the project will be replaced at a 3:1 ratio.

10. California native species (local stock preferred) will be utilized in re-vegetation and habitat enhancement efforts associated with the project.
11. Erosion control devices will be installed adjacent to work areas to control sedimentation and turbidity. Measures will be taken to control post-construction runoff and pollutant discharge.
12. Within 300 feet of potential California red-legged frog breeding habitat, only water will be used for dust abatement.

Caltrans has proposed the following measures to minimize adverse effects to the California tiger salamander:

1. All areas greater than 15 feet beyond the proposed cut/fill limits would be off limits to construction equipment.
2. Equipment and materials storage would be within the proposed median to the maximum extent practicable. If a median location is unavailable, then equipment and material storage areas would be selected in areas with no small mammal burrows or areas greater than 2200 feet from potential breeding pools.

## STATUS OF THE SPECIES

### **San Joaquin Kit Fox**

The San Joaquin kit fox was federally listed as endangered on March 11, 1967 (32 FR 4001), and state listed as threatened on June 27, 1971. Critical habitat has not been designated for this species. A recovery plan was published in 1983 (Service 1983). The San Joaquin kit fox recovery strategy was subsequently incorporated into an ecosystem-wide recovery plan for upland species of the San Joaquin valley (Service 1998).

Historically, San Joaquin kit foxes may have existed in a metapopulation structure of core and satellite populations, some of which may have periodically experienced local extinctions and recolonization (Service 1998). In the San Joaquin Valley before 1930, the San Joaquin kit fox was distributed within an 8,700-square mile range in central California from the vicinity of Tracy in the upper San Joaquin Valley south to the general vicinity of Bakersfield. Although the current range of San Joaquin kit fox now appears to be reduced by half of its historical range, the species still extends from Contra Costa County to the southern end of the Cuyama River watershed in Ventura, Santa Barbara, and southeastern San Luis Obispo counties, and east to the surrounding foothills of the Sierra Nevada.

Historically, the San Joaquin kit fox was associated with shrub, grassland, alkalai, and vernal pool plant communities native to the San Joaquin Valley (Service 1998). San Joaquin kit foxes also exhibit a capacity to utilize some habitats that have been altered by man, such as oil

fields, grazed pasture land, and wind farms (Cypher 2000), the margins and fallow lands near irrigated row crops, orchards, and vineyards, and may forage occasionally in these agricultural areas (Service 1998). The San Joaquin kit fox seems to prefer more gentle terrain and decreases in abundance as terrain ruggedness increases (Grinnell et al. 1937; Morrell 1972).

Throughout their range, San Joaquin kit foxes are currently limited to remaining grassland, saltbush, open woodland, alkali sink valley floor habitats, and other similar habitats located along bordering foothills and adjacent valleys and plains. The largest extant populations of San Joaquin kit foxes are in the Elk Hills and the Buena Vista Naval Petroleum Reserve in Kern County, and the Carrizo Plain Natural Area in San Luis Obispo County (Service 1998).

No current population estimate exists for San Joaquin kit foxes. Prior to 1930, range-wide estimates between 8,667 and 12,134 were suggested (Service 1983). In 1975, 6,961 San Joaquin kit foxes were estimated from 14 counties (Service 1983). However, these estimates are unreliable as they were not based on direct counts of individuals, but instead were based on den counts or assumed San Joaquin kit fox densities combined with estimates of available habitat. Also, because natural population fluctuations are observed among San Joaquin kit foxes, point estimates of population size may not be good indications of the overall status of the population. Subsequently, these estimates likely over estimated true abundance of San Joaquin kit fox (Cypher 2000).

The San Joaquin kit fox is a small canid, with an average body length of 20 inches and weighing about 5 pounds. They are lightly built, with long legs and large ears. Diet of San Joaquin kit foxes varies geographically, seasonally, and annually, based on variation in abundance of prey. San Joaquin kit foxes feed primarily on kangaroo rats (*Dipodomys*), California ground squirrels (*Spermophilus beechyi*), desert cottontails (*Sylvilagus audubonii*), black-tailed jackrabbits (*Lepus californicus*), and various rodents, insects, birds, and vegetation.

Kit foxes can breed at one year old, but may not breed their first year of adulthood (Morrell 1972). During September and October, adult females begin to clean and enlarge natal or pupping dens (Morrell 1972). Mating and conception take place between late December and March (Egoscue 1956, Morrell 1972, Zoellick et al. 1987a). Litters of from two to six pups are born sometime between February and late March (Egoscue 1962, Morrell 1972, Zoellick et al. 1987a).

Reproductive success of kit foxes is correlated with abundance of their prey (Egoscue 1975). Periods of prey scarcity, owing to drought or excessive precipitation, could contribute to episodes of low reproduction and population crashes. Conversely, when densities of prey increase in response to favorable precipitation levels, foxes may reproduce at their biotic potential and contribute to population explosions (White and Garrott 1999).

Female San Joaquin kit foxes are rarely seen hunting during the time they are lactating. During this period males provide most of the food for females and pups. The pups emerge

above ground at slightly more than 1 month of age. After 4 to 5 months, usually in August or September, the young begin dispersing.

San Joaquin kit foxes maintain core home range areas that are exclusive to mated pairs and their offspring (White and Ralls 1993, Spiegel 1996). Home ranges of approximately 1 to 12 square miles have been reported (Morrell 1972, Knapp 1978, Zoellick et al. 1987b, Spiegel and Bradbury 1992, White and Ralls 1993). Individuals often move independently within their home range, traveling an average of 5.8 to 9.1 miles per night (Cypher 2000).

The territorial spacing behavior exhibited by San Joaquin kit fox eventually limits the number of individuals that can inhabit an area owing to shortages of available space and/or per capita prey (White and Garrott 1999). Hence, as habitat is fragmented or destroyed, the carrying capacity of a particular area is reduced and a larger proportion of the juvenile population is likely forced to disperse. Increased dispersal can lead to lower juvenile survival rates and possibly decreased abundance.

Approximately 65 percent of dispersing juvenile San Joaquin kit foxes on the Naval Petroleum Reserves, California, died within 10 days of leaving their natal range (Koopman et al. 2000). Juvenile San Joaquin kit foxes would likely be less familiar with the location of escape dens and, as a result, may be more susceptible to predation by coyotes. At higher San Joaquin kit fox densities, the number of juveniles that encounter coyotes probably increases. Also, a larger proportion of juveniles probably disperse as San Joaquin kit fox density increases because there is a shortage of available territories. Dispersing juveniles may be highly susceptible to predation by coyotes because they have little or no knowledge of the location of potential escape dens when traversing unfamiliar areas (White and Garrott 1999). Dispersal likely occurs most often at night.

An annual mortality rate of approximately 50 percent has been reported for adult San Joaquin kit foxes (Morrell 1972, Egoscue 1975, Berry et al. 1987a, Ralls and White 1995, Standley et al. 1992). The annual mortality rate for juvenile San Joaquin kit foxes may be closer to 70 percent (Berry et al. 1987a). Predation by larger carnivores, such as coyotes, accounts for the majority of San Joaquin kit fox mortality. The effects of disease, parasites and accidental death are largely unknown, but were thought to account for only a small portion of mortality (Berry et al. 1987a).

San Joaquin kit foxes use dens for temperature regulation, shelter from adverse environmental conditions, reproduction, and escape from predators. San Joaquin kit foxes may build their own dens or modify and use dens constructed by other animals, such as ground squirrels, badgers (*Taxidea taxus*), and coyotes (Jensen 1972, Morrell 1972, Hall 1983, Berry et al. 1987b), and human-made structures such as culverts, abandoned pipelines, and banks in sumps or roadbeds. However, there is no evidence to suggest San Joaquin kit foxes give birth in human structures (Spiegel et al. 1996). San Joaquin kit foxes often change dens and numerous dens may be used throughout the year. San Joaquin kit foxes change dens four or

five times during the summer months, and change natal dens one or two times per month (Morrell 1972).

San Joaquin Kit foxes prefer loose-textured soils (Grinnell et al. 1937, Hall 1946, Egoscue 1962, Morrell 1972), but are found on virtually every soil type. Throughout their range, San Joaquin kit foxes are currently limited to remaining grassland, saltbush, open woodland, alkali sink valley floor, and other similar habitats located along bordering foothills and adjacent valleys and plains.

Dens appear to be scarce in areas with shallow soils because of the proximity to bedrock (OFarrell and Gilbertson 1979, OFarrell et al. 1980), high water tables (McCue et al. 1981), or impenetrable hardpan layers (Morrell 1972). In general, plant communities such as Northern Hardpan Vernal Pool, Northern Claypan Vernal Pool, Alkali Meadow, and Alkali Playa do not provide good denning habitat for San Joaquin kit foxes because all have moist or waterlogged clay or clay-like soils.

Although there are many causes of San Joaquin kit fox mortality (Service 1998) the principal factors that have contributed to the population decline are loss, degradation, and fragmentation of habitat associated with agricultural, industrial, and urban developments in the San Joaquin Valley (Laughrin 1970, Jensen 1972, Morrell 1975, Knapp 1978). By 1979, only about 6.7 percent of the San Joaquin Valley floor's original wildlands south of Stanislaus County remained untilled and undeveloped. Loss and degradation of habitat by agricultural and industrial developments and urbanization continue, decreasing carrying capacity of remaining habitat and threatening San Joaquin kit foxes through displacement, increased predation, direct mortalities such as vehicle strikes, and reduction of prey populations. Livestock grazing is not thought to be detrimental to San Joaquin kit foxes (Morrell 1975, Orloff et al. 1986), but may alter the numbers of different prey species, depending on the intensity of the grazing. Other developments within the range of the San Joaquin kit fox include cities and towns, aqueducts, irrigation canals, surface mining, road networks, non-petroleum industrial projects, power lines, and wind farms. Although these types of developments may negatively impact its habitat and indirectly lead to injury or mortality of individuals, the San Joaquin kit fox may survive within or adjacent to them given adequate prey base and den sites.

The coyote and the introduced red fox (*Vulpes vulpes*) compete for food resources with the smaller San Joaquin kit fox and are known to prey upon San Joaquin kit foxes as well. Predation, competition, poisoning, illegal shooting and trapping, prey reduction from rodent control programs, and vehicle strikes contribute substantially to the vulnerability of this species (Service 1998).

A primary strategy in the recovery plan is to establish and maintain a viable complex of San Joaquin kit fox populations (*i.e.*, a viable metapopulation) on private and public lands throughout its geographic range. The recovery plan (Service 1998) recommends protecting the Carrizo Plain Natural Area, western Kern County, and the Ciervo-Panoche Natural Area

as core populations, maintaining multiple satellite populations, and enhancing natural connections between populations to help reduce the harmful effects of habitat loss and fragmentation. Recent observations suggest that the size of the Ciervo-Panoche Natural Area population may be more modest than previously thought, and this site may not support a core population of San Joaquin kit fox (B. Cypher, pers. comm 2005a).

In the northern most part of the range, west of the town of Tracy, the topography and structures (interstates, canals, aqueducts, etc.) form a triangle on maps. This area has been dubbed the "Tracy Triangle". The northern extent of this area includes the protected lands around Bethany Reservoir and the southern boundary is the county line shared by Stanislaus and San Joaquin Counties. The existing structures and natural topography in the area create a pinch point in the linkage area around the San Joaquin Valley edge (Service 1998). This area is under pressure by increasing development. Communities within Alameda, Contra Costa, and San Joaquin counties have expanded, in part, to low housing prices and to the growth in the Silicon Valley (Kit Fox Planning and Conservation Team 2001). In February 2001, the Service, San Joaquin County, and several cities signed the San Joaquin County Multi-species Habitat Conservation and Open Space Plan. A draft HCP/Natural Communities Conservation Plan (NCCP) for East Contra Costa County has been prepared and a notice of availability was published in the federal register on September 2, 2005 (70 FR 52434). This HCP/NCCP proposes to mitigate the effects of proposed urban development activities, rural infrastructure projects, and preserve management activities on San Joaquin kit foxes and other species, using a system of new preserves linked to existing protected areas.

The Santa Nella area, in Western Merced County, California, is another crucial area to the San Joaquin kit fox. In the past, this area has provided a narrow corridor connecting the northern and southern populations. This area is also considered a pinch point as surrounding development limits movement of San Joaquin kit fox and increases fragmentation of habitat. Further development may eliminate usable habitat in the Santa Nella area and further isolate the northern kit fox populations. Recently a notice of availability was published in the Federal Register regarding a HCP for the Santa Nella area (70 FR 6452). Habitat preservation associated with the HCP is intended to achieve the goal of protecting and maintaining habitat to facilitate population interchange between the core population to the south and northern kit fox populations.

Information regarding movement patterns in northeast San Luis Obispo County and southeast Monterey County is limited. Three occurrences of San Joaquin kit fox movement have been documented between Salinas-Pajaro Region and the Carrizo Plain Natural Area and the area east of Paso Robles. In 1989, a San Joaquin kit fox tagged at Camp Roberts military installation, along the Monterey/San Luis Obispo County line, was captured in the town of California Valley at the northern end of the Carrizo Plain (Standley 1989). In 2000, two San Joaquin kit foxes moved from Camp Roberts to areas south of SR 46, in the San Juan Valley, San Luis Obispo County (R. Root pers. comm. 2005a).

In June 2001, a San Joaquin kit fox was observed on the west side of Cholame Road, approximately 3 miles north of SR 46 (R. Stafford 2001). Recently, a 10 month old female San Joaquin kit fox was found dead on highway 58 near San Juan Creek, several miles northwest of the Carrizo Plain (B. Cypher pers. comm. 2005b).

Larger than average numbers of San Joaquin kit fox observed on the Carrizo Plain in 2005 (R. Stafford, pers. comm. 2005) may result in increased competition for food and space, leading to increased dispersal to places like the San Juan Creek drainage and areas south of Shandon and Cholame (where two kit foxes that dispersed from Camp Roberts were trapped and collared in 2000), as well as along the Estrella River corridor north to San Miguel, Camp Roberts, King City, and the rest of the Salinas Valley. The role that natural connections between the Salinas Valley and the Carrizo Plain Natural Area may play in maintaining the vigor and ensuring the survival of the metapopulation is complex and yet to be characterized.

Although the extent of movement of San Joaquin kit foxes between the Salinas Valley and the Carrizo Plain Natural Area is unknown, land development along the natural movement corridors between these areas may have contributed to reduced immigration of San Joaquin kit foxes into the Salinas Valley. The number of San Joaquin kit foxes captured at Camp Roberts during annual live-trapping decreased from 103 to 20 from 1988 to 1991. This trend continued through 1997 when only 3 San Joaquin kit foxes were captured. Scent station visits and observations of San Joaquin kit foxes during spotlighting sessions also decreased. Low numbers of previously unmarked young-of-the-year or immigrant San Joaquin kit foxes suggests that recruitment into the Camp Roberts population was low (White et al. 2000).

The cause of the population decline at Camp Roberts has been attributed to a combination of factors including predation by coyotes; displacement by red foxes, rabies and low recruitment (White et. al 2000). Prey abundance did not appear to be a primary factor in the decreased population. Mammalian prey species never appeared to be sufficiently scarce to drastically reduce reproductive or neonatal survival rates (White and Garrott 1997). There is also little evidence that military activities contributed substantially to the decrease in abundance of San Joaquin kit foxes (White et al. 2000). Currently, few San Joaquin kit fox are believed to occur at Camp Roberts. In the northern Salinas Valley, CDFG is working through their Resource Assessment Program to begin evaluating the status of San Joaquin kit fox in San Benito and Monterey Counties (R. Root, pers.comm. 2005b).

In contrast to the Camp Roberts population, the San Joaquin kit fox population at the Carrizo Plain Natural Area reached a record high by the mid-1990s. Even though numbers decreased slightly again in 1997 and 1998, the population is within normal bounds and is considered to be stable. The abundance of San Joaquin kit foxes at the Carrizo Plain Natural Area appears tied closely to the abundance of their prey species, kangaroo rats and lagomorphs (R. Stafford, pers. comm. 2005). During the summer of 2005, a new record number of San Joaquin kit foxes were sighted on the Carrizo Plain. CDFG observed 119 foxes on two combined spotlighting routes, surpassing the previous high of 85 in 1996. CDFB estimated the typical

number of San Joaquin kit foxes observed at the Carrizo Plain during the summer is around 60 (R. Stafford, pers. comm. 2005).

A recent survey effort conducted during the spring of 2005 revealed 29 sightings of San Joaquin kit fox in western Kern County and eastern San Luis Obispo County near the Palo Prieto area. Two individuals were also seen along South Bitterwater Valley Road (J. Moonjian, pers. comm).

Population trends in each of the core areas are not clear. Based on CDFG surveys and recent observations in the Lokern area (western Kern County), San Joaquin kit fox numbers appear relatively high. Numbers on the Carrizo and in western Kern County fluctuate with environmental conditions, but these two populations tend to remain fairly robust. In large part, this is attributable to the fact that habitat quality for San Joaquin kit foxes in these two areas is the highest of anywhere in the range (B. Cypher, pers. comm. 2005b).

### **California Red-legged Frog**

On May 23, 1996, the Service published a final rule to list the California red-legged frog as threatened (61 FR 25813). The Service has published a recovery plan for the species (Service 2002). Critical habitat for the California red-legged frog was designated on March 13, 2001 (66 FR 14625). On November 6, 2002, the United States District Court for the District of Columbia set aside the designation and ordered the Service to publish a new final rule with respect to the designation of critical habitat for the California red-legged frog (*Home Builders Association of Northern California et al. versus Gale A Norton, Secretary of the Department of Interior et al.* Civil Action No. 01-1291 (RJL) U.S. District Court, District of Columbia.). We proposed a revised critical habitat designation April 13, 2004 (69 FR 19620). On November 3, 2005, we re-proposed critical habitat based on more refined mapping (70 FR 66906). Detailed information on the biology of California red-legged frogs can be found in Storer (1925), Stebbins (1985), and Jennings et al. (1992).

The California red-legged frog is one of two subspecies of the red-legged frog (*Rana aurora*) found on the Pacific coast. The historical range of the California red-legged frog extended from the vicinity of Point Reyes National Seashore, Marin County, California, coastally and from the vicinity of Redding, Shasta County, California, inland southward to northwestern Baja California, Mexico.

The California red-legged frog has been extirpated or nearly extirpated from 70 percent of its former range. At present, California red-legged frogs are known to occur in approximately 243 streams or drainages from 22 counties, primarily in central coastal California. Habitat loss and alteration, combined with over-exploitation and introduction of exotic predators, were important factors in the decline of the California red-legged frog in the early to mid 1900s. Ongoing threats include fragmentation, degradation, loss of habitat and establishment of non-native vegetation and predators as a result of urbanization and agricultural activities.

The California red-legged frog occupies habitat that combines both specific aquatic and riparian components. The adults are typically found in dense, shrubby or emergent riparian vegetation closely associated with deep (more than two feet in depth) still or slowly moving water. They breed and migrate from November through March and into spring depending on rainfall, although earlier breeding has been recorded in the southern part of their range. Female California red-legged frogs deposit egg masses on emergent vegetation, floating on the surface of the water. Egg masses contain about 2,000 to 5,000 moderate-sized (0.08 to 0.11 inch in diameter), dark reddish-brown eggs. Eggs hatch in 6 to 14 days. Tadpoles undergo metamorphosis 3.5 to 7 months after hatching. California red-legged frogs normally reach sexual maturity at 3 to 4 years of age. Individuals may live 8 to 10 years.

Juvenile and adult California red-legged frogs have been observed in areas of riparian vegetation where they may use small mammal burrows, moist litter, and debris such as old boards for cover. Radio telemetry studies showed that individual California red-legged frogs move within the riparian zone from vegetated areas to pools. During wet periods (particularly winter and spring), California red-legged frogs may move long distances between aquatic habitats, often traveling through habitats considered to be unsuitable. California red-legged frogs have been found more than one mile from breeding habitat and may reach isolated aquatic habitats up to a mile away from the nearest known California red-legged frog populations.

The diet of California red-legged frogs is highly variable. Tadpoles probably eat algae. Invertebrates are the most common food item for adults. Vertebrates, such as Pacific chorus frogs (*Pseudacris regilla*) and California mice (*Peromyscus californicus*), represented over half of the prey mass eaten by larger individuals. Juveniles are active diurnally and nocturnally, whereas adults are largely nocturnal. Feeding activity probably occurs along the shoreline and on the surface of the water.

Habitat loss and alteration, combined with over-exploitation and introduction of exotic predators, were important factors in the decline of the California red-legged frog in the early to mid-1900s. Habitat loss and degradation continue to threaten California red-legged frogs where agriculture and urbanization are found within their range. Road maintenance projects, off-road vehicle use, and livestock grazing contribute to erosion of stream banks and siltation of streams where California red-legged frog eggs can be smothered. Siltation that occurs during the breeding season can lead to asphyxiation of eggs resulting in small California red-legged frog larvae. Exotic predators like the bullfrog (*Rana catesbeiana*), catfish (*Ictalurus* spp.), bass (*Micropterus* spp.), mosquito fish (*Gambusia affinis*), red swamp crayfish (*Procambarus clarkii*), and signal crayfish (*Pacifastacus leniusculus*) were introduced in the 1800s to 1900s, and prey on at least one life stage of the California red-legged frog. Raccoons (*Procyon lotor*) are known to depress California red-legged frog populations and are often associated with rural developments. The most important mortality factor in the pre-hatching stage is water salinity. On the central California coast, drought may also play a role in decreased reproduction where California red-legged frogs occur in coastal lagoons. High salinity in lagoons can be attributed to drought in many instances.

### California Tiger Salamander

On August 4, 2004, we listed the California tiger salamander, Central population, as threatened (69 FR 47212). The California tiger salamander is recognized as a species of special concern by the CDFG. The species persists in disjunct remnant vernal pool and isolated ponds scattered mainly along narrow strips of rangeland on each side of the Central Valley from southern Colusa County south to northern Kern County, and in sag ponds and human-maintained stock ponds in the coast ranges from Suisun Bay south to the Temblor Range. Populations of California tiger salamanders located in Sonoma and Santa Barbara counties are federally listed as endangered.

The California tiger salamander has been eliminated from an estimated 55 to 58 percent of its historic breeding sites and has lost an estimated 75 percent of its upland and dispersal habitat. Although there are approximately 150 known local populations of California tiger salamanders, only the populations at Jepson Prairie Natural Preserve and Hickson Preserve occur in a permanently protected conservation area.

The California tiger salamander is a large, stocky, terrestrial salamander with a broad, rounded snout. Adults may reach a total length of 8.2 inches, with males generally averaging about 8 inches and females averaging 6.8 inches. For both sexes, the average snout-vent length is approximately 3.6 inches. The small eyes have black irises and protrude from the head. Coloration consists of white or pale yellow spots or bars on a black background on the back and sides and a yellow belly. Males can be distinguished from females, especially during the breeding season, by their swollen cloacae (a common chamber into which the intestinal, urinary, and reproductive canals discharge), more developed tail fins, and larger overall size (Stebbins 1962; Loredó and Van Vuren 1996).

The California tiger salamander inhabits low elevation vernal pools and seasonal ponds and associated grassland, oak savannah, and coastal scrub plant communities. Although California tiger salamanders are adapted to natural vernal pools and ponds, they now frequently use manmade or modified ephemeral and permanent ponds, including stock ponds. California tiger salamanders prefer open grassland to areas of continuous woody vegetation.

California tiger salamanders spend the majority of their lives in upland habitats. The upland component typically consists of grassland savannah, but also can consist of grasslands with scattered oak trees, and scrub and chaparral habitats. Juvenile and adult California tiger salamanders spend the dry summer and fall months in the burrows of California ground squirrels and Botta's pocket gopher (*Thomomys bottae*). California tiger salamanders cannot dig their own burrows, and as a result their presence is associated with active burrows of small mammals such as ground squirrels and pocket gophers.

The California tiger salamander was first described as a distinct species, *Ambystoma californiense*, by Gray in 1853 from specimens collected in Monterey (Grinnell and Camp 1917). Storer (1925) and Bishop (1943) likewise considered the California tiger salamander

to be a distinct species. However, Gehlbach (1967) and Frost (1985) classified the California tiger salamander as a subspecies (*Ambystoma tigrinum californiense*) within the *A. tigrinum* complex. Based on recent morphological and genetic work, evidence of geographic isolation, and ecological differences among the members of the *A. tigrinum* complex, the California tiger salamander is currently considered to be a distinct species (Shaffer and Stanley 1991; Jones 1993; Shaffer and McKnight 1996; Irschick and Shaffer 1997) and was recognized as such in an Annual Notice of Review published by the Service on November 21, 1991 (56 FR 58804).

The most comprehensive analysis of the California tiger salamander's taxonomic status currently available is based on an examination of mitochondrial DNA (mtDNA) sampled from the entire tiger salamander complex, including all 14 currently recognized species and five additional subspecies from across the U.S. and Mexico (Shaffer and McKnight 1996). This study recognized the California tiger salamander as a distinct species and found that it was the sister-species to the remaining 13 species in the tiger salamander complex. Other published and ongoing studies of allozymes (Shaffer et al. 1993), nuclear gene sequences (Shaffer et al. 2004) and morphology (Krauss 1988) concur that *A. californiense* is a well-differentiated taxon that is most appropriately recognized as a full species. The recent literature has uniformly accepted this position (Petranka 1998).

Although California tiger salamanders spend most of their lives in upland habitats, their reproduction is tied to aquatic habitats. Historically, they bred primarily in natural vernal pools, but they have been able to breed successfully in human-made stock ponds created for ranching and agricultural purposes. Migrations to and from breeding ponds occur during the rainy season (November to May), with the greatest activity from December to February (Storer 1925; Loredo and Van Vuren 1996; Trenham et al. 2000). Breeding migrations are strongly associated with rainfall events (Loredo and Van Vuren 1996; Trenham et al. 2000). Breeding may occur in one major bout or during a prolonged period of several months, depending on the rainfall pattern (Loredo and Van Vuren 1996; Trenham et al. 2000).

Female California tiger salamanders mate and lay their eggs singly or in small groups (Twitty 1941; Shaffer et al. 1993). The number of eggs laid by a single female ranges from approximately 400 to 1,300 per breeding season (Trenham et al. 2000). The eggs are typically attached to vegetation near the edge of the breeding pond (Storer 1925; Twitty 1941), but in ponds with limited or no vegetation, they may be attached to objects (rocks, boards, etc.) on the bottom of the pond (Jennings and Hayes 1994). After breeding, adults leave the pond and return to small mammal burrows (Loredo et al. 1996; Trenham 2001), although they may continue to come out nightly for approximately the next two weeks to feed (Shaffer et al. 1993).

Lifetime reproductive success for other tiger salamanders is typically low, with fewer than 30 metamorphic juveniles per breeding female. Trenham et al. (2000) found even lower numbers for California tiger salamanders, with roughly 12 lifetime metamorphic offspring per breeding female. In part, this low reproductive success is due to the extended time it takes for

California tiger salamanders to reach sexual maturity: most do not breed until 4 or 5 years of age. While individuals may survive for more than 10 years, fewer than 50 percent breed more than once (Trenham et al. 2000). Combined with low survivorship of metamorphosed individuals (in some populations, less than 5 percent of marked juveniles survive to become breeding adults (Trenham et al. 2000), reproductive output in most years is not sufficient to maintain populations. This trend suggests that the species requires occasional “boom” breeding events to prevent extirpation (temporary or permanent loss of the species from a particular habitat) or extinction (Trenham et al. 2000). With such low recruitment, isolated subpopulations can decline greatly as a result of unusual, randomly occurring natural events and human-caused factors that reduce breeding success and individual survival.

Movements made by California tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) interpond dispersal. Breeding migration is the movement of salamanders to and from a pond from the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years (on average, 4 years). Upon reaching sexual maturity, most individuals return to their natal/birth pond to breed, while 20 percent disperse to other ponds (Trenham et al. 2001). Following breeding, adult California tiger salamanders return to upland habitats, where they may live for one or more years before breeding again (Trenham et al. 2000).

California tiger salamanders are known to travel large distances from breeding ponds into upland habitats. Maximum distances moved are generally difficult to establish for any species, but California tiger salamanders have been recorded to disperse 1.3 mile from breeding ponds (S. Sweet in litt. 1998). California tiger salamanders are known to travel between breeding ponds; one study found that 20 to 25 percent of the individuals captured at one pond were recaptured later at ponds approximately 1,900 and 2,200 feet away (Trenham et al. 2001).

Although the observations above show that California tiger salamanders can travel far, typically they stay closer to breeding ponds. Evidence suggests that juvenile California tiger salamanders disperse further into upland habitats than adults. A trapping study conducted in Solano County during winter 2002–03 found that juveniles used upland habitats further from breeding ponds than adults (Trenham and Shaffer 2005). More juvenile salamanders were captured at distances of 328, 656, and 1,312 feet from a breeding pond than at 164 feet. Large numbers (approximately 20 percent of total captures) were found 1,312 feet from a breeding pond.

Results from a 2003–04 trapping efforts detected juvenile California tiger salamanders at even further distances, with a large proportion of the total salamanders caught at 2,297 feet from the breeding pond. Surprisingly, most juveniles captured, even those at 2,297 feet were still moving away from ponds (B. Fitzpatrick pers. comm. 2004). These data show that many California tiger salamanders travel far while still in the juvenile stage. Post-breeding movements away from breeding ponds by adults appear to be much smaller. During post-

breeding emigration, radio-equipped adult California tiger salamanders were tracked to burrows between 62 and 813 feet from their breeding ponds (Trenham 2001). These reduced movements may be due to adult California tiger salamanders having depleted physical reserves post breeding, or also due to the drier weather conditions that can occur during the period when adults leave the ponds.

The spatial distribution of California tiger salamanders in the uplands surrounding breeding ponds is a key issue for conservation planning. Although it might be supposed that California tiger salamanders will move only short distances if abundant burrows are found near their ponds, this is not the case. In the aforementioned study in Solano County, while abundant burrows are available near the pond, a nearly equal number of California tiger salamanders were captured at 328, 656, and 1,312 feet from the breeding pond (Trenham and Shaffer 2005). Similarly, Trenham (2001) tracked salamanders to burrows up to 813 feet from a breeding pond, although burrows were abundant at distances nearer to the pond. In addition, rather than staying in a single burrow, most individuals used several successive burrows at increasing distances from the pond.

Generally, the rate of natural California tiger salamander movement both within a subpopulation (i.e., between breeding and upland sites) and among subpopulations (i.e., between individual pools or pool complexes) depends on the distance between these habitats and the conditions within intervening areas (e.g., topography, vegetation, distribution of small mammal burrows, etc.). Dispersal distance is also closely tied to precipitation, as California tiger salamanders are known to travel farther in years with more rainfall.

The primary cause of the decline of the California tiger salamanders is the loss, degradation, and fragmentation of habitat from human activities. Several other factors, including competition from introduced species and predation, may have negative effects on California tiger salamanders and their aquatic and upland habitats. Non-native or introduced predators of California tiger salamanders include bullfrogs (*Rana catesbeiana*), mosquitofish (*Gambusia affinis*), Louisiana red swamp crayfish (*Procambarus clarkii*), catfish (*Ictalurus* sp.), bluegill (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), fathead minnow (*Pimephales promelas*) and other introduced fish (Shaffer et al. 1993, Graf 1993; Gamradt and Kats 1996, Anderson 1968, Morey and Guinn 1992).

Various nonnative subspecies of the tiger salamander within the *Ambystoma tigrinum* complex have been imported into California for use as fish bait. The introduced salamanders may out-compete the California tiger salamanders. A deformity-causing infection, possibly caused by a parasite in the presence of other factors, has affected pond-breeding amphibians at known California tiger salamander breeding sites. This same infection has become widespread among amphibian populations in Minnesota and poses the threat of becoming widespread in California.

Reduction of ground squirrel populations to low levels through widespread rodent control programs may reduce availability of burrows and adversely affect the California tiger

salamander. Poison typically used on ground squirrels is likely to have a disproportionately adverse effect on California tiger salamanders, which are smaller than the target species and have permeable skins. Use of pesticides, such as methoprene, in mosquito abatement may have an indirect adverse effect on the California tiger salamander by reducing the availability of prey. Automobiles and off-road vehicles can kill a significant number of migrating California tiger salamanders, and contaminated runoff from roads, highways and agriculture may adversely affect them.

## ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) of the Act define the “action area” as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 *Code of Federal Regulations* 402.02). For the purposes of this biological opinion, we consider the action area to be the 24 mile length of the widening project and extending outward perpendicular to the road to varying widths. The extent of the boundary of the affected area varies based on topography, wind and water movement, habitat suitability, and the biology of the species evaluated (Forman 2003). We are not able to determine the precise area that would be affected, based on the information Caltrans has provided us for this project. For example, in the absence of site-specific surveys for San Joaquin kit fox it is impossible to know what project-related effects would affect San Joaquin kit fox at specific locations and how far reaching those effects would occur. After review of the scientific literature (Trombulak and Frissell 2000, Forman and Alexander 1998, Forman 2003, Bulger et al. 2003, Sweet in litt. 1998) and the information provided by FHWA and Caltrans, we assume that an area extending out 1.5 mile on each side of the proposed project likely encompasses the direct and indirect effects of the action on the San Joaquin kit fox, California red-legged frog and California tiger salamander. The discussion in the Effects of the Action section of this biological opinion will explain how these effects radiate out from the project area.

### **San Joaquin Kit Fox**

The San Joaquin kit fox is known to have historically occupied grassland and blue oak woodlands along the entire length SR 46 (Caltrans 2003a). San Joaquin kit foxes have been documented within the action area, although not in high numbers. In 1999, one adult was recorded in the action area, near the east end of the proposed project, about 0.2 mile southeast of the SR 41/46 interchange (Smallwood 1999). Near the west end of the proposed project, one San Joaquin kit fox was documented in the vicinity of Barney Schwartz Park in Paso Robles in 1991 (Caltrans 2003a.). A lack of focused surveys for San Joaquin kit fox may explain why there are few documented occurrences within the action area.

Within the last decade much of the suitable habitat between Paso Robles and Shandon (about two-thirds of the entire project length) has been converted to vineyards or other development. However, San Joaquin kit fox can still move through the action area, dispersing from nearby populations. The proposed project is located within two important movement corridors.

Lands along SR 46, between Blackwell's Corner and Paso Robles, provide connectivity between the Salinas River Valley and Antelope Plain-Blackwell's Corner satellite populations. Lands in the San Juan Creek Valley, between the northern Carrizo Plain and Shandon, provide connectivity between the Carrizo Plain population and the Salinas River Valley and Antelope Plain-Blackwell's Corner satellite populations (Cypher 2000). A recent effort to model potential movement corridors using land use, parcel size, known San Joaquin kit fox occurrences, habitat suitability, and development pressure, consistently assumed a likely movement corridor that broadly intersects SR 46 between Shandon and the Cholame Valley (McElwee 2005). Most of the Cholame Valley is non-tilled rangeland that includes the best and most un-fragmented habitat in the action area. This area contains extensive undeveloped grasslands containing a variety of badger dens and other dens that could be used by San Joaquin kit fox, as well as a variety of prey species for San Joaquin kit fox (Caltrans 2003).

Although movement of San Joaquin kit foxes across SR 46 has been documented (Standley 1989, R. Root, pers. comm. 2005a) it has not been examined extensively. Only limited studies of marked individuals have been conducted on the populations to the north and south of SR 46 (i.e. Camp Roberts and Carrizo Plain). Consequently, the significance of this area to the structure and success of the metapopulation remains unknown.

### **California Red-legged Frog**

A creek that crosses SR 41 at PM 45.5, within the Y section, is intermittent, but contains six permanent pools along a 1,476-foot stream reach. Surveys were not conducted because the property is on private land. These pools are suitable breeding habitat for California red-legged frogs and are approximately 1 mile downstream of a permanent water source where Caltrans found one California red-legged frog during surveys for the Antelope Grade section of SR 46 (Caltrans 2003c). Two additional permanent ponds also considered in our previous biological opinion (Service 2005) are located several hundred feet south of the SR 46 and approximately 1.2 miles east of the proposed interchange of SR 41 and SR 46. Caltrans biologists documented approximately 100 hundred adult and 100 juvenile frogs in these ponds and identified the ponds as breeding sites (Caltrans 2003c). These ponds have the potential to produce thousands of metamorph and juvenile California red-legged frogs.

Two other annual streams cross under SR 46 at PM 56.3 and 57.4. These streams flow from the south side of SR 46 northward under SR 46 via a box culvert where they eventually empty into a flood basin at the SR 41/46 interchange. No California red-legged frogs were found in these streams during the course of surveys.

### **California tiger salamander**

Although surveys for California tiger salamanders have not been conducted in the action area, Caltrans and the Service believe it is reasonable to assume California tiger salamanders are present due to the presence of suitable upland and breeding habitat. Five ponds (Cholame

Ponds) occur at varying distances, between 0.5 mile and 1.7 miles, from the proposed project site (Caltrans 2003a). The nearest known California tiger salamander breeding ponds are Kerr Lake, 3.45 miles north of the project site, and O' Brien Lake, 3.3 miles south of the project site. Additional un-surveyed ponds occur between the known breeding sites and the Cholame Ponds nearest the project site (Caltrans 2003a).

Although the distances between the known and un-surveyed ponds are beyond the maximum known dispersal distance of 1.3 miles, there are apparently no barriers that would preclude dispersal between the known breeding sites, the un-surveyed ponds, and the Cholame Ponds. California tiger salamanders occur in sag ponds and vernal pools created by the San Andreas fault, from the temblor range in San Luis Obispo County, north to Santa Cruz County (Caltrans 2003). We surmise that additional ponds or wetland complexes may have occurred within the San Andreas rift zone at some point in the past, possibly contributing to California tiger salamander dispersal.

Because the Cholame Ponds appear to be suitable breeding habitat (Caltrans 2003), occupied ponds and additional un-surveyed ponds occur to the north and south of the Cholame Ponds, and there are no known dispersal barriers, Caltrans and the Service assume California tiger salamanders are present in the action area.

## EFFECTS OF THE ACTION

### **San Joaquin Kit Fox**

The proposed project would result in the permanent loss of approximately 352 acres, and temporary impacts to 283 acres of San Joaquin kit fox habitat, along the 24 mile length of the project site. Caltrans determined all undeveloped land in the study area of the proposed project is potential foraging and or denning habitat for the San Joaquin kit fox (Caltrans 2003). San Joaquin kit fox foraging or denning within the construction footprint of the proposed project will be permanently displaced during and following construction.

Resident San Joaquin kit foxes or individuals moving through the action area may use existing dens and project components (i.e. pipes) for shelter. San Joaquin kit foxes that are dispersing through the action area are likely to be moving through at night and would likely be sheltering in dens during the day (Koopman et al. 2000). San Joaquin kit foxes that are present in the action area during the proposed project may be injured or killed by construction activities. Injury or mortality of San Joaquin kit foxes may occur if they are trapped or crushed in dens by heavy equipment, or inadvertently trapped in open trenches, uncapped pipes, or culverts.

Caltrans has included measures in their project description in order to minimize the potential for San Joaquin kit foxes to be trapped or crushed during construction. These minimization measures include but are not limited to:

- a. Covering trenches at the close of each working day;

- b. Providing escape ramps in trenches and excavations;
- c. Placing caps on pipes with diameters of 4 inches or greater;
- d. Conducting pre-construction surveys and construction monitoring, using Service-approved biologists, to reduce the chance that an occupied San Joaquin kit fox den would be subject to excavation, grading, or construction activity;
- e. All construction pipe, culverts, or similar structures with a diameter of three inches or greater that are stored at a construction site for one or more nights will be thoroughly inspected for San Joaquin kit foxes before the pipe is subsequently moved, buried, or capped. If during inspection a San Joaquin kit fox is found inside a pipe, Caltrans will not move that section of pipe until the animal escapes or they will move the section of pipe once, out of the immediate construction area.

Construction related traffic could result in vehicles striking San Joaquin kit foxes. Because San Joaquin kit foxes are likely to be active at night, and may be moving around or through the action area, there is a greater chance they could be struck by construction traffic if construction also occurs at night. Death of adult San Joaquin kit foxes during the breeding season (November-January) could result in reduced reproductive success, and death of females during gestation or prior to pup weaning could result in loss of an entire litter of young, and therefore, reduced recruitment into the population (Cypher 2000). Caltrans proposes to provide project employees with training and written guidance governing vehicle use when traveling within the project area, and to strongly encourage a speed limit of 20 miles per hour on unpaved roads within San Joaquin kit fox habitat.

Protective actions may disrupt normal movement patterns and displace San Joaquin kit fox making them more susceptible to predation. For instance, Caltrans proposes to excavate and destroy potential and known dens if they can not be avoided during construction. A San Joaquin kit fox may be more susceptible to predation or subject to temperature extremes, after being removed from an excavated den.

San Joaquin kit foxes may be injured or killed if exposed to hazardous materials, such as spilled or leaking fuels, antifreeze, and herbicides and rodenticides used for the control of weeds and rodents. Caltrans has proposed to restrict the use of rodenticides and herbicides to Service and CDFG approved plans, we anticipate a low potential for injury or mortality associated with the hazardous materials described in this biological opinion.

Project-related garbage may attract San Joaquin kit foxes and predators such as coyotes, red fox, and pet or feral dogs and cats to the project area. To minimize the potential for San Joaquin kit foxes and predators to be attracted to the project site, Caltrans proposes to keep all food-related trash items in closed containers and to remove food-related trash at least once per

week. Caltrans will also ban pets from the construction area, and provide a worker awareness training program.

Because the proposed project would be completed in four sections, over approximately 10 years, construction would not occur along the entire length of the project at the same time. Consequently, San Joaquin kit fox would not be exposed to direct adverse effects, such as construction vehicle strikes, entombment, crushing, etc., along the entire 24-mile length of the project at the same time, but would be subject to these stressors during each separate phase of the project. Two sections (Estrella, Shandon) are each approximately 10 miles long while the other two sections (Cholame, Y) are each approximately two miles long.

The proposed widening of SR 46 from two to four lanes, as well as an increase in the speed limit from 55 to 70 miles per hour, may result in increased injury or mortality of San Joaquin kit fox due to the potential for more frequent vehicle strikes. The number of strikes likely increases with road size, traffic volume, and average speed (Clevenger and Waltho 1999).

The proposed project will likely contribute to a reduction in landscape connectivity and increased habitat fragmentation. Landscape connectivity may be important for animals foraging within their home range, for dispersal to establish a new home range, and for migration between locations. When landscape connectivity is high, animals are able to repopulate areas that have suffered local population declines and extirpations, and minimize the effects of inbreeding (Forman 2003, Cypher 2000). Movement and dispersal corridors are important for alleviating over-crowding and intraspecific competition during years when San Joaquin kit fox abundance is high. Roads may reduce the suitability of habitat for San Joaquin kit foxes by fragmenting it into areas too small for effective use. As habitat areas decrease in size the number of San Joaquin kit foxes the area can support also decrease (Cypher 2000).

The likelihood of a road acting as barrier increases with a larger road size, higher traffic volume, and the presence of fences or median barriers. Knapp (1978) monitored movements of radio-collared San Joaquin kit foxes in the vicinity of Interstate 5 in Kern County. Many of the San Joaquin kit foxes used areas within 3 kilometers of the highway, and most exhibited movement and home range patterns that parallel the highway, but did not cross it. Only on 2 occasions were animals located on the opposite side of the highway from their primary area of use. Interstate 5 has altered kit fox space use patterns, and effectively restricted movements by San Joaquin kit foxes (Cypher 2000).

The fragmentation of habitat associated with the proposed SR 46 widening could also eventually lead to reduced genetic variation in populations of San Joaquin kit foxes. Genetically isolated populations are at greater risk of deleterious genetic effects such as inbreeding, genetic drift, and founder effects (Cypher 2000). An increase in inbreeding and the loss of genetic variation could increase the extinction risk for small, isolated populations of kit foxes by interacting with demography to reduce fecundity, juvenile survival, and lifespan (Lande 1988, Frankham and Ralls 1998, Saccheri et al. 1998).

The effects from roads may extend some distance beyond the footprint of the road. Foreman and Deblinger (1998) described this affected area as the "road-effect" zone, where a variety of statistically significant adverse effects (e.g. mortality, habitat degradation, fragmentation, disturbance, environmental contaminants, etc.) can occur. The lateral extent of the road-effect zone is asymmetrical and is determined by variables such as topography, vegetation, traffic volume, animal locomotion, wind, or groundwater movement. Effects that extend farther from the road surface normally define the margin of the road-effect zone (e.g. human-access disturbances, spread of exotic species, blocking of wildlife movement routes). Road-effects typically transmit farther into grassland ecosystems than forests (Foreman 2003). The presence of a road-effect zone in the action area is already likely adversely affecting San Joaquin kit fox as a result of the existing highway. As the footprint of the highway is increased, the road-effect zone, and associated adverse effects, would also increase.

Determining exactly how, and when, a road will affect a wildlife population is difficult to determine. Variables such as loss of habitat, decreased landscape connectivity, disease, predation, and vehicle strikes may all contribute to variations in wildlife populations over time. For example, the effect of a road as a barrier to dispersal would likely take several generations to be observed and would also depend on the time interval between local extinctions in a species' regional population (Forman 2003). Consequently, at this time we are unable to determine the extent to which the proposed project may affect San Joaquin kit fox dispersal. However, we assume that an increase in traffic volume and average vehicle speed associated with a four lane expressway would make it increasingly more difficult for San Joaquin kit fox to disperse across SR 46.

Additionally, potential increased residential and commercial, and industrial development that is likely to occur along the highway over time would likely exacerbate the barrier effect of the road corridor. A reduction in dispersal is likely to negatively affect San Joaquin kit fox population in a variety of ways as described above. Development associated with road construction is particularly common where roads intersect, such as the intersection of Interstate 5 and Highway 99 (Cypher 2000). Habitat loss, fragmentation, and the reduction or elimination of movement corridors are likely the most severe effects to San Joaquin kit foxes (Cypher 2000). If San Joaquin kit fox populations in the Southern Salinas Valley, or other areas near the action area increase, or more information regarding the structure of the metapopulation becomes available, effects of the project may be greater than as analyzed in this biological opinion.

Caltrans and FHWA have included multiple measures intended to minimize the adverse effects of the proposed project on San Joaquin kit fox, and to facilitate movement of San Joaquin kit fox across the highway. Caltrans has proposed to construct large (61-foot wide) medians, to eliminate the need for solid median barriers as a traffic safety feature. Wide grassy medians between north and southbound traffic lanes may provide a safe opportunity for animals to rest while trying to cross traffic lanes. The elimination of solid median barriers should also increase the potential for San Joaquin kit fox to successfully cross SR 46 within

the action area as these structures can be formidable obstacles to movement for most wildlife (Foreman 2003).

Caltrans has also incorporated the installation of dry culverts into their project description, for the specific purpose of facilitating movement of San Joaquin kit fox across under the highway. Caltrans recruited expert advice (Cypher 2000) regarding the frequency and size of culverts that would likely maximize use by San Joaquin kit fox.

Caltrans also funded a field study, initiated in 2005, to evaluate the use of existing highway crossing structures by San Joaquin kit foxes and desert kit foxes on 4 lane highways in natural land environments. Caltrans will incorporate the results of the study into the proposed project design.

In addition to wildlife culverts, Caltrans has also proposed to increase the size and number of bridges in the Y section, to facilitate movement of San Joaquin kit fox and other wildlife across the highway. These new bridges would be 394 feet long and 130 feet long, and elevated to a heights ranging from 13 and 19 feet above the valley floor, providing San Joaquin kit foxes with a clear line of sight under the highway and improving the crossing potential for San Joaquin kit foxes in this area.

Caltrans proposes to provide approximately 1200 acres of conservation lands off-site at a CDFG-approved conservation bank within the corridor connecting the southern Salinas Valley to the Carrizo Plain San Joaquin kit fox core population. With this minimization measure, Caltrans would attempt to enhance movement corridors, link natural lands, and protect habitat for San Joaquin kit foxes.

### **California Red-legged Frog**

Construction would not affect any of the known California red-legged frog breeding sites in the action area. However, surface water quality of aquatic habitat, adjacent to the highway, may be temporarily degraded as a result of project construction. Aquatic habitat may also be adversely affected by highway runoff during winter rains. However, the new highway alignment would be buffered from perennial aquatic habitat by distances ranging from 131 to 164 feet, minimizing the potential for highway runoff to reach the aquatic habitat. Project-related releases of sediments from areas cleared of vegetation during construction or of contaminants, such as fuels and oils, from construction equipment into the riparian area or water may negatively affect the quality of habitat for California red-legged frogs by killing native plants used for resting or foraging and by decreasing availability of prey. Released contaminants may also adversely affect or kill California red-legged frogs. Such effects would be reduced or eliminated by the use of erosion control devices, and measures taken to control post-construction runoff and pollutant discharge.

If Caltrans limits construction to the dry season, it does not anticipate direct adverse effects to California red-legged frogs during construction because they do not expect individuals to move away from permanent water sources during the dry season (May 1 through October 31).

However, because Caltrans does not expect to complete the Y section for approximately 8-10 years, and they have not finalized the work schedule to limit the proposed construction to the dry season, construction may occur during winter rainy seasons when California red-legged frogs are likely to be migrating or dispersing through the action area.

Bulger et al. (2003) found that less than 25 percent of an adult California red-legged frog population in Santa Cruz County, California, migrated away from breeding sites during the winter. These authors also noted that migration is spread out over time and does not occur as a synchronous en mass event, and that the density of California red-legged frogs migrating through uplands is usually very low (Bulger et al. 2003).

The dispersal of metamorph and juvenile California red-legged frogs has not been well documented. However, California red-legged frogs are believed to disperse widely the first 6 to 8 months after metamorphosis and through the winter. Once they reach the juvenile stage (approximately 1 year old) they will remain in aquatic habitat (either breeding or summer) until breeding age (approximately 2 to 3 years old). If they did not disperse to suitable breeding habitat as metamorphs, California red-legged frogs will migrate to suitable breeding habitat when they reach breeding age. Some adults may return to summer habitat after breeding (N. Scott pers. comm. 2005).

Although there are large numbers of California red-legged frogs in the action area, the highest known densities are found in ponds approximately 1.2 mile southeast of the proposed SR 41/46 interchange. We anticipate few adult California red-legged frogs will migrate this far from permanent water sources in the arid climate of northeast San Luis Obispo County. Given the number of California red-legged frogs present in the action area, and the distances of the aquatic habitat from the construction area, we anticipate that fewer than 25 adults may migrate from the breeding ponds during the winter rainy months. However, hundreds of metamorphs may disperse through the action area. Migrating or dispersing California red-legged frogs may be struck and killed by vehicle traffic and construction traffic.

California red-legged frogs could be injured or killed if they are improperly handled or contained during capture and relocation efforts if they are found in construction areas. Caltrans would reduce the chances of incidental injury by using only Service-approved biologists to capture and move California red-legged frogs.

Chytrid fungus (*Batrachochytrium dendrobatidis*) could be spread if infected California red-legged frogs are relocated and introduced into areas with healthy California red-legged frogs or vice-versa. Chytrid fungus is a water-borne fungus that can be spread through direct contact between aquatic animals and by a spore that can move short distances through the water. The fungus only attacks the parts of a frog's skin that have keratin (thickened skin), such as the mouthparts of tadpoles and the tougher parts of adults' skin, such as the toes. The fungus can decimate amphibian populations, causing fungal dermatitis, which usually results in death in 1 to 2 weeks. Infected animals may spread the fungal spores to other ponds and streams before they die. Once a pond has become infected with chytrid fungus, the fungus

stays in the water for an undetermined amount of time. It is possible that during the relocation of California red-legged frogs proposed by the applicant that infected individuals or equipment could introduce Chytrid fungus into areas where it did not previously occur. If this occurs, many California red-legged frogs could be affected.

California red-legged frogs have strong homing tendencies (Rathbun and Schneider 2001). As a result, relocated individuals may be at risk of injury or death through predation or dehydration during an attempt to return to a work area from which they had been moved. This risk may increase with the distance of the relocation site from the work area. However, if individuals are moved far enough they are more likely to remain at the relocation site. (Rathbun and Schneider 2001).

California red-legged frogs may be killed or injured from inadvertent trampling by workers from foot traffic and operation of construction equipment during the construction of the highway improvement project. Such effects to California red-legged frogs would be reduced by Caltrans' proposed measures to hold pre-construction meetings with the contractor and crew to brief them on the potential presence of California red-legged frogs in the project area, educate onsite workers in the identification and habitat requirements of California red-legged frogs and ramifications of take of listed species, and discuss minimization measures.

Predation of California red-legged frogs may increase in the project vicinity with the attraction of predators, such as raccoons (*Procyon lotor*), pet and feral dogs (*Canis familiaris*) and cats (*Felis domesticus*), to the work area by food-related trash. Such effects would be reduced by Caltrans' protective measures to manage trash properly and ban pets from the construction area. Additionally, increased exposure to predation and desiccation could occur with the disruption of normal foraging and sheltering behavior by construction noise and activity. Such effects would be minimized by the following measures: pre-construction surveys using Service approved biologists within two days prior to initiation of project construction, properly containing and removing trash; conducting awareness training sessions for workers; and relocating California red-legged frogs, if any are found in harm's way, prior to the start of construction activities.

### **California tiger salamander**

California tiger salamanders dispersing from ponds within the action area are subject to mortality or injury from vehicle strikes and construction activities associated with the proposed project, particularly if work is conducted during the wet season (November to May). Adult migrations to and from breeding ponds occur during the wet season, with the greatest activity from December to February. Because we lack any population data from the ponds within the action area, we are unable to quantify the amount of California tiger salamanders that may disperse into the construction area or attempt to cross the highway following construction. However, based on Trenham's (2001) method for calculating dispersal probabilities, Caltrans (2005) estimated that of the four ponds within the action area, 3.23 percent of one potential breeding population, and less than one percent of each three

additional potential breeding populations are likely to disperse far enough to be adversely affected by construction.

California tiger salamanders may also be crushed if they are present in small mammal burrows within the construction footprint of the proposed project. All small mammal burrows, in the construction footprint of the new traffic lanes, would be destroyed during grading and ground compaction that is part of the road building process. California tiger salamanders may also become trapped in construction trenches where they are subject to predation and desiccation.

The new bridges proposed by Caltrans would be built directly between the two nearest known breeding populations as well as between the two nearest potential breeding pools. The bridges would span a 394-foot wide corridor in the area that is most likely to be used by California tiger salamanders. An additional 131-foot long bridge may also facilitate movement of California tiger salamanders under the highway. The creation of these large under-crossings would enhance a likely movement corridor and may facilitate movement of California tiger salamanders under the highway, and result in fewer vehicle strikes.

California tiger salamanders could be injured or killed if they are improperly handled or contained during capture and relocation efforts if they are found in construction areas. Caltrans would reduce the chances of incidental injury by using only Service-approved biologists to capture and move California tiger salamanders. Handling California tiger salamanders or introducing equipment into their breeding ponds can also result in the spread of chytrid fungus, a pathogen linked to declines in amphibians. The first case of chytrid fungus in California tiger salamanders was reported in 2005 (Padgett-Flohr and Longcore 2005).

#### 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.

Caltrans has recognized the completion of the SR 46 Improvement Project may result in future increased road mortality of San Joaquin kit fox. Consequently, Caltrans has proposed to work cooperatively with the Service to attempt to remedy any increased future mortality of San Joaquin kit foxes on SR 46 following completion of the proposed project (Luchetta, pers. comm. 2005).

In April 2004, the San Luis Obispo County Board of Supervisors voted to update the Community Plan for Shandon (Community Plan). Shandon is a small, primarily agricultural community, located approximately 20 miles east of Paso Robles and adjacent to SR 46. It has a population of approximately 1000 residents within a 380-acre Urban Reserve line.

The Community Plan will include but not be limited to future population, housing development, land use, traffic, infrastructure, and economic development alternatives (County 2005). The study area will include the area within the Urban Reserve line and approximately 1620 additional acres surrounding the community. Expansion of Shandon beyond the existing Urban Reserve line will likely encroach into San Joaquin kit fox habitat, and may adversely affect the population through increased loss of habitat and a reduction or loss of movement corridors. The area between Shandon and the Cholame Valley has been identified as some of the best remaining San Joaquin kit fox habitat in the action area and a likely movement corridor (McElwee 2005). Open space areas, incorporated into the Community Plan Update, which provide connectivity to the north and south of SR 46, would likely benefit the San Joaquin kit fox.

## CONCLUSION

After reviewing the current status of the San Joaquin kit fox, California red-legged frog, and California tiger salamander, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is our biological opinion that the State Route 46 Improvement Project for PM 32.2 to PM 56.3, is not likely to jeopardize the continued existence of these species for the following reasons:

### **San Joaquin kit fox**

1. Caltrans and FHWA have proposed to install numerous wildlife under-crossings along the entire 24 mile length of the project, to facilitate movement of San Joaquin kit foxes across SR 46.
2. Within the Cholame Valley, Caltrans has proposed to use large bridges to facilitate connectivity and potentially improve crossing opportunities for San Joaquin kit foxes in an important movement corridor.
3. Caltrans has proposed to use the best and most updated science available, to design and implement wildlife under-crossings for San Joaquin kit fox.
4. Caltrans will conserve approximately 1200 acres of San Joaquin kit fox habitat determined by the Service, CDFG, and species experts to be important to dispersal.
5. Caltrans has proposed to work with the Service to attempt to remedy any increased future road mortality that occurs following completion of the proposed project.
6. Because the proposed project would be completed in four phases, and the final phase (the Y section) will not be completed until approximately 2013, we will have an opportunity to monitor the effectiveness of the proposed minimization measures, and to determine if additional protective measures are necessary.

7. In addition to wildlife under-crossings, FHWA and Caltrans will implement numerous other measures to minimize adverse effects to San Joaquin kit fox during construction.

**California red-legged frog**

8. Known breeding locations in the action area would not be affected by the proposed project.
9. Caltrans would minimize adverse effects to aquatic habitat for the California red-legged frog through implementation of erosion control methods and other best management practices.
10. Elevating the highway in the Y section will likely reduce any existing road mortality in this area, and may result in an improved crossing situation when compared to the existing two lane highway.

**California tiger salamander**

11. No California tiger salamander breeding habitat would be affected by the project.
12. Elevating the highway in the Y section will likely reduce any existing road mortality in this area and may increase the potential for dispersal north and south of SR 46.
13. Only a small amount of upland habitat would be adversely affected.

**INCIDENTAL TAKE STATEMENT**

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or 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 behavioral 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 by annoying it 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 section 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 FHWA must make them binding conditions of any grant or permit issued to Caltrans, as appropriate, for the exemption in

section 7(o)(2) to apply. FHWA has a continuing duty to regulate the activity covered by this incidental take statement. If FHWA fails to require Caltrans to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, FHWA must report the progress of the action and its impact on the California red-legged frog, California tiger salamander, and the San Joaquin kit fox to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

The amount of incidental take of San Joaquin kit foxes that may occur during construction is difficult to quantify because there is a lack of information on occurrences of and movement patterns of San Joaquin kit foxes in the action area. Estimating the number of individuals that are subject to harassment is not possible, given the unknown number of San Joaquin kit foxes that may occur in the action area at any given time. However, based on the information in the Status of the Species and Environmental Baseline sections of this biological opinion, we expect few San Joaquin kit fox to be subject to harassment as a result of direct project related effects.

It will be difficult to find injured or dead California red-legged frogs and California tiger salamanders due to their small size and because the large earth moving equipment that would be used during the project would likely destroy any evidence of dead or injured individuals. For these reasons and because there are a large number of California red-legged frogs, in the action area, we are unable to determine the exact number of California red-legged frogs that will be incidentally taken in the form of injury or mortality. However, based upon the information described in this biological opinion, we anticipate that less than 25 percent of the adult California red-legged frogs in the action area would be subject to injury or mortality. An unknown number of metamorph and juvenile California red-legged frogs could be killed or injured by project activities. Although we cannot predict how many individuals may be in the construction footprint at a given time, we anticipate that all California red-legged frogs found in harm's way will be incidentally taken in the form of harassment during capture and relocation efforts.

We are also unable to determine the number of California tiger salamanders that may be incidentally taken because we have no occurrence data from the action area. Caltrans and the Service assume California tiger salamanders are present in the action area based on the presence of suitable breeding habitat and existing land use practices. However, based on Trenham's (2001) method for calculating dispersal probabilities, we estimate that 3.23 percent of one potential breeding population, and less than one percent of each three additional potential breeding populations, in the action area, are likely to disperse far enough to be adversely affected by project activities. Consequently, these calculations suggest that the number of California tiger salamanders that may be incidentally taken are extremely low.

This biological opinion does not exempt any activity from the prohibitions against take contained in section 9 of the Act that is not incidental to the action as described in this biological opinion. Take that occurs outside of demarcated work areas or from any activity

not described in this biological opinion is not exempted from the prohibitions against take described in section 9 of the Act.

#### REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize take of California red-legged frogs, California tiger salamanders and San Joaquin kit foxes:

1. Caltrans and FHWA must reduce the potential for injury or mortality of San Joaquin kit foxes, California red-legged frogs, and California tiger salamanders as a result of construction activities and vehicle traffic.
2. Only personnel authorized under this biological opinion may implement those avoidance and minimization measures, included in this biological opinion, which require biological expertise and experience with San Joaquin kit fox, California red-legged frogs, and California tiger salamanders.
3. Biologists who handle California red-legged frogs and California tiger salamanders must ensure that their activities do not transmit diseases

The Service's evaluation of the effects of the proposed action includes consideration of the minimization measures proposed by Caltrans and included in the description of the proposed action section of this biological opinion. Any subsequent changes to these measures may constitute a modification of the proposed action and may warrant re-initiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures are intended to supplement the protective measures that were proposed by Caltrans as part of the proposed action.

#### TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, FHWA must ensure that Caltrans complies with the following terms and conditions, which implement the reasonable and prudent measures described above and outlined in the reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:
  - a. If a San Joaquin kit fox is found injured or killed as a result of the activities described in this biological opinion, FHWA or Caltrans must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. Project activities may continue during this review period, provided that all protective measures proposed by Caltrans and the

terms and conditions of this biological opinion have been and continue to be implemented.

- b. Prior to the completion of the first phase of the project, Caltrans must provide our office with a draft plan to monitor the wildlife undercrossings associated with the proposed project. Following our review, a final monitoring plan must be completed within one year.
- c. Caltrans must implement the final monitoring plan during the project, to determine if their protective measures are effective in reducing San Joaquin kit fox mortality.
- d. If more than 10 adult California red-legged frogs or 25 metamorphs are found injured or killed due to project activities in any calendar year, Caltrans must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. Project activities may continue during this review period, provided that all protective measures proposed by FHWA and Caltrans and the terms and conditions of this biological opinion have been and continue to be implemented.
- e. FHWA or Caltrans must immediately report any sighting of live California tiger salamanders within the action area to the VFWO.
- f. Any live California tiger salamanders found within the construction footprint of the proposed project must be relocated out of harm's way.
- g. If a California tiger salamander is found injured or killed, Caltrans must contact our office immediately (or the following day if found at night) so we can review the project activities to determine if additional protective measures are needed. Project activities may continue during this review period, provided that all protective measures proposed by FHWA and Caltrans and the terms and conditions of this biological opinion have been and continue to be implemented.
- h. Caltrans must enforce a maximum speed limit of 20 miles per hour on unpaved roads within the action area of this project.
- i. Caltrans must ensure that project related vehicles do not leak anti-freeze or other hazardous materials.
- j. Caltrans must not place fences that act as barriers to movement of California red-legged frogs, within or along the boundary of the project site.
- k. A qualified biologist, approved by the service, must be on-site: 1) when construction occurs on rainy nights; 2) when project activities would occur within

100 feet of aquatic California red-legged frog habitat; and 3) for 72 hours following the sighting of a San Joaquin kit fox in the action area. The biologist must be given the authority to stop any work that may result in the take of San Joaquin kit foxes, California red-legged frogs, or California tiger salamanders. If the biologist(s) exercises this authority, the Service must be notified by telephone and electronic mail within one (1) working day.

2. The following terms and conditions implement reasonable and prudent measure 2:
  - a. At least 30 days prior to the onset of project activities, the project proponent must submit the name(s) and credentials of the biologist(s) who would conduct activities for the San Joaquin kit fox, California red-legged frog, and California tiger salamander, as specified in this biological opinion. Project activities must not begin until Caltrans has received our written approval of the biologist(s) they intend to use.
  - b. Before initiating project activities, the Service-approved biologist must identify appropriate areas to relocate California red-legged frogs and California tiger salamanders found in the construction area. These areas must be near the potential capture site or another site approved by the Service, must support suitable vegetation (as appropriate for the species) and be free of exotic predatory species (e.g., bullfrogs).
  - c. If captured, California red-legged frogs and California tiger salamanders must be placed in moist cloth bags or plastic buckets and kept shaded and moist until they are released at the new site. The relocation process must be implemented as quickly as possible.

3. The following term and condition implements reasonable and prudent measure 3:

To avoid transferring disease or pathogens between aquatic habitats during the course of surveys and handling of California red-legged frogs and California tiger salamanders, the Service-approved biologist shall follow the Declining Amphibian Population Task Force's Code of Practice. A copy of this Code of Practice is enclosed. A bleach solution (0.5 to 1.0 cup of bleach to 1.0 gallon of water) may be substituted for the ethanol solution. Care must be taken so that all traces of the disinfectant are removed before entering the next aquatic habitat.

## REPORTING REQUIREMENTS

FHWA or Caltrans must provide an annual written report to the Service by January 31, each year of the project. The report must discuss activities for the previous calendar year and include a table summarizing California red-legged frog, California tiger salamander, and San Joaquin kit fox sightings and any take that occurs. The report must document the number of

California red-legged frogs and California tiger salamanders, if any, relocated from the project area, the date and time of capture, specific location of capture, approximate size and age of individuals, and a description of relocation sites. The report must also include the number of California red-legged frogs and California tiger salamanders killed or injured, if any, and the date(s) such incidental take occurred. The report must document any observations of San Joaquin kit fox in the action area, the number of any San Joaquin kit foxes harassed, injured or killed, and the date(s) such incidental take occurred. The report must contain a discussion of the activities conducted, results of the wildlife undercrossing monitoring, any problems encountered in implementing terms and conditions, and any recommendations for improving the protective measures. This document will assist the Service and FHWA in evaluating future measures for the conservation of the California red-legged frog, California tiger salamander, and the San Joaquin kit fox.

#### DISPOSITION OF INJURED OR DEAD SPECIMENS

Upon locating a dead or injured California red-legged frog, California tiger salamander, or San Joaquin kit fox, you must notify the Service's Division of Law Enforcement in writing (370 Amapola Avenue, Suite 114, Torrance California 90501) and the Ventura Fish and Wildlife Office by telephone (805/644-1766) and in writing (2493 Portola Road, Suite B, Ventura, California 93003). The report must include the date, time, and location of the carcass, a photograph, cause of death, if known, and any other pertinent information.

Care must be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. Should any injured California red-legged frog, California tiger salamander, or San Joaquin kit fox survive, the Service must be contacted regarding their final disposition. The remains of California red-legged frogs and California tiger salamanders must be placed with the California Academy of Sciences Herpetology Department (contact: Jens Vindum, Collections Manager, California Academy of Sciences Herpetology Department, Golden Gate Park, San Francisco, California 94118, telephone 415/750-7037); or Santa Barbara Natural History Museum (contact: Paul Collins, Santa Barbara Natural History Museum, Vertebrate Zoology Department, 2559 Puesta Del Sol, Santa Barbara, California 93105, telephone 805/682-4711 ext. 321).

Any San Joaquin kit fox found dead shall be provided to CDFG unless agreements have been made with CDFG to the contrary. Notification must be made to Bob Stafford, wildlife biologist, at (805) 528-8670.

#### CONSERVATION RECOMMENDATIONS

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

1. FHWA and Caltrans should fund and participate in a study of San Joaquin kit movements between the Salinas River Valley, Carrizo plain, and Antelope Plain-Blackwell's Corner.
2. The FHWA and Caltrans should involve the Service in long-range planning so its projects are designed and implemented in a manner that meets the conservation needs of the California red-legged frog, California tiger salamander, and San Joaquin kit fox.
3. The FHWA and Caltrans should ensure that material hauled to project sites for fill is free of weedy exotic species.
4. Caltrans should conduct surveys for California tiger salamanders in the action area of this biological opinion.

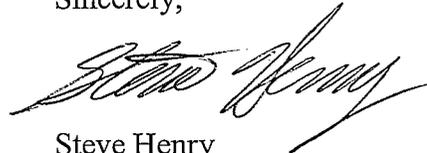
The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats.

#### REINITIATION NOTICE

This concludes formal consultation on the proposed construction of the State Route 46 Improvement Project, PM 32.2 to 56.3. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding this matter, please contact Steve Kirkland of my staff at (805) 644-1766, extension 267.

Sincerely,



Steve Henry  
Assistant Field Supervisor  
San Luis Obispo/Northern Santa Barbara

Enclosure

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#### **IN LITT. REFERENCE**

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## The Declining Amphibian Populations Task Force Fieldwork Code of Practice

1. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each study site.
2. Scrub boots, nets, traps, and other types of equipment used in the aquatic environment with 70 percent ethanol solution or a bleach solution of one-half to one cup of bleach in one gallon of water and rinse clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond, wetland, or riparian area.
3. In remote locations, clean all equipment with 70 percent ethanol or a bleach solution, and rinse with sterile water upon return to the lab or a "base camp." Elsewhere, when laundry facilities are available, remove nets from poles and wash (in a protective mesh laundry bag) with bleach on a "delicate" cycle.
4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolated species, wear disposable gloves and change them between handling each animal. Dedicate separate sets of nets, boots, traps, and other equipment to each site being visited. Clean and store them separately at the end of each field day.
5. Safely dispose of used cleaning materials and fluids. Do not dispose of cleaning materials and fluids in or near ponds, wetland, and riparian areas; if necessary, return them to the lab for proper disposal. Safely dispose of used disposable gloves in sealed bags.
6. When amphibians are collected, ensure the separation of animals from different sites and take great care to avoid indirect contact (e.g., via handling or reuse of containers) between them or with other captive animals. Do not expose animals to unsterilized vegetation or soils which have been taken from other sites. Always use disinfected and disposable husbandry equipment.
7. If a dead amphibian is found, place it in a sealable plastic bag and refrigerate (do not freeze). If any captured live amphibians appear unhealthy, retain each animal in a separate plastic container that allows air circulation and provides a moist environment from a damp sponge or sphagnum moss. For each collection of live or dead animals, record the date and time collected, location of collection, name of collector, condition of animal upon collection, and any other relevant environmental conditions observed at the time of collection. Immediately contact the Ventura Fish and Wildlife Office at (805) 644-1766 for further instructions.

The Fieldwork Code of Practice has been produced by the Declining Amphibian Populations Task Force with valuable assistance from Begona Arano, Andrew Cunningham, Tom Langton, Jamie Reaser, and Stan Sessions.

For further information on this Code, or on the Declining Amphibian Populations Task Force, contact John Wilkinson, Biology Department, the Open University, Walton Hall, Milton Keynes, MK7 6AA, UK.  
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