

**U.S. Fish and Wildlife Service Biological Opinion**





# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846



In Reply Refer To:  
81420-2010-F-0629-2

MAR 09 2011

Mr. Jim Richards  
Attn: Laura Ivey  
Office of Biological Sciences and Permits  
California Department of Transportation  
P.O. Box 23660  
Oakland, California 94623-0660

Subject: Biological Opinion on the Effects of the United States Highway 101/Broadway Interchange Reconstruction Project in the City of Burlingame, San Mateo County, California (Caltrans EA 235840)

Dear Mr. Richards:

This letter responds to a letter from the California Department of Transportation (Caltrans), dated September 8, 2010, which requested formal consultation for the proposed United States Highway 101 (US 101)/Broadway Interchange Reconstruction Project in the City of Burlingame, San Mateo County, California. Your letter was received by the U.S. Fish and Wildlife Service (Service) on September 9, 2010 (Caltrans EA 235840). The proposed project is not located in proposed or designated critical habitat for any federally-listed species. Therefore, no critical habitat will be affected. This document represents the Service's biological opinion on the effects of the project on the threatened California red-legged frog (*Rana draytonii*), endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), and endangered California clapper rail (*Rallus longirostris obsoletus*). This letter issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users legislation (23 U.S.C. 327) allows the Secretary of the U.S. Department of Transportation acting through the Federal Highway Administration (FHWA) to establish a Surface Transportation Project Delivery Pilot Program, whereby a State may assume the FHWA responsibilities under the National Environmental Policy Act (NEPA) for environmental review, agency consultation and other action pertaining to the review or approval of a specific project. Caltrans assumed these responsibilities for the FHWA on July 1, 2007 through a Memorandum of Understanding (MOU) within the State of California ([http://www.dot.ca.gov/ser/downloads/MOUs/nepa\\_delegation/sec6005mou.pdf](http://www.dot.ca.gov/ser/downloads/MOUs/nepa_delegation/sec6005mou.pdf)).

Based on the information provided in the September 1, 2010, biological assessment, the letter from Caltrans to the Service dated September 9, 2010, and email correspondence from Caltrans on December 8, 2010, Caltrans determined that based on their findings the project is not likely to adversely affect the San Francisco garter snake and California clapper rail. Based on our review of the project as described herein and the information provided by Caltrans, the Service concurs with this determination. Therefore, the effects to these species are not addressed herein.

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This biological opinion is based on: (1) the *US 101/Broadway Interchange Reconstruction Project, Biological Assessment* dated September 1, 2010; (2) letter from Caltrans to the Service dated September 9, 2010; (3) email correspondence from Caltrans on December 8, 2010 and accompanying exhibits; (4) site visits conducted by the Service and Caltrans on February 23, 2010; (5) miscellaneous correspondence and electronic mail concerning the proposed action between Caltrans and the Service; and (6) other information available to the Service.

### **Consultation History**

- February 23, 2010 The Service attended a site visit with Caltrans District 4 staff, URS Corporation consultants, and Melissa Escaron of the California Department of Fish and Game to review the project, biological findings, effects determination, project timing and scheduling, and avoidance and minimization measures.
- August 30, 2010 The Service received the Notice of Availability of Draft Environmental Document, Notice of Public Meeting for the US 101/Broadway Interchange Reconstruction Project and the Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment dated August 2010.
- September 9, 2010 The Service received a letter requesting the initiation of formal consultation dated September 8, 2010, and a biological assessment for the US 101/Broadway Interchange Reconstruction project.
- November 2, 2010 The Service sent an email to Caltrans requesting additional information with regards to noise attenuation buffers around pile driving locations, cofferdam installation and timing, revised conservation measures and California red-legged frog surveys.
- December 8, 2010 The Service received an email from Caltrans responding to the request for additional information from Caltrans with regards to noise attenuation buffers around pile driving locations, cofferdam installation and timing, revised conservation measures and California red-legged frog surveys.
- December 10, 2010 The Service received a letter from Caltrans dated December 8, 2010, requesting to receive the biological opinion by January 22, 2011.
- February 2, 2011 The Service issued a draft biological opinion to Caltrans for their review and comment.
- February 11, 2011 The Service received comments from Caltrans on the draft biological opinion.
- February 4, 2010 - February 17, 2011 Electronic and phone correspondence between Caltrans, URS Corporation, California Department of Fish and Game, and the Service.

## BIOLOGICAL OPINION

### Description of the Proposed Action

The following is a summary of the project description, inclusive of the proposed conservation measures, provided by Caltrans in the September 2010 biological assessment (Caltrans 2010a) with modifications outlined in emails from Caltrans to the Service on December 8, 2010, and February 11, 2011. Any changes to the project description or project plans not provided to Service and evaluated in the preparation of this biological opinion are subject to the requirements of reinitiation of formal consultation.

### Project History

The proposed action will reconstruct the US 101/Broadway interchange. The total length of the project is 0.76-mile (from post miles [PM] 16.30 to 17.06) and extends from East Millbrae Avenue south to Anza Boulevard. The project will replace the Broadway overcrossing with a wider structure, reconfigure all ramp connections to US 101, and install ramp meters on northbound and southbound on-ramps.

The existing US 101/Broadway interchange is a trumpet configuration composed of the four-lane Broadway overcrossing and a combination of diagonal and loop ramps. The short distance between the southbound on-ramp from westbound Broadway and the southbound off-ramp to eastbound Broadway (less than 200 feet) requires drivers to reduce their speed through the weaving section. At the Cadillac Way/US 101 southbound ramps/Rollins Road intersection, drivers making left turns from Rollins Road to US 101 and from US 101 to Rollins Road experience long delays during the afternoon peak hour. The radius of the loop ramp in the northwest quadrant of the US 101/Broadway interchange is below current design standards, which forces drivers to slow down and can cause backups on westbound Broadway during peak periods. The existing movement from southbound Bayshore Highway to westbound Broadway requires drivers to travel northbound at one point to cross US 101.

### Project Description

The proposed action will construct a new seven-lane Broadway overcrossing approximately 170 feet to the north of the existing four-lane structure. Broadway will be realigned to extend straight across US 101 from the Broadway/Rollins Road intersection on the west to Bayshore Highway on the east, eliminating the existing curvilinear alignment. The northern terminus of Airport Boulevard will be shifted approximately 100 feet to the north to meet the new eastern touchdown of the overcrossing and maintain a four-leg intersection with Broadway, Bayshore Highway, and the access road for the Crowne Plaza Hotel. New traffic signals and streetlights will be installed as part of the project. The proposed action, as designed, is anticipated to take 2 to 2.5 years to construct.

### *Overcrossing Construction*

Construction of the new overcrossing will require the installation of abutments on both ends of the structure and a support column in the US 101 median. Approximately 250 piles will be driven to permanently support the abutments and column. The piles will be Class 140, measuring 14 or 15 inches in diameter depending on the type used, and driven by an impact hammer. Approximately 12 to 15 piles will be driven per day. Pile driving for the overcrossing is expected to last between 2 and 4 weeks. As groundwater has been encountered at a depth of

approximately 4 feet in the project vicinity, dewatering at the abutment footings is anticipated. Tanker trucks will collect all extracted liquid and dispose of it at an appropriate off-site facility.

The new overcrossing's profile will be more than 2 feet higher than the existing structure to meet the current standard for vertical clearance. The southbound off- and on-ramps west of US 101 and Airport Boulevard, Bayshore Highway, and the Crowne Plaza Hotel access road east of US 101 will also be raised as they approach the Broadway overcrossing. Imported fill will be used for project-related grade changes as needed.

#### *Freeway On-Ramp and Off-Ramp Changes*

On the west side of US 101, the existing partial cloverleaf interchange with collector-distributor roads will be removed and replaced with a partial diamond interchange. The intersection of the southbound off- and on-ramps with Broadway will be elevated by up to 25 feet above the existing grade. Approximately 60 to 120 piles will be driven to permanently support the southbound off- and on-ramps. The piles will also be Class 140, measuring 14 or 15 inches in diameter depending on the type used, and driven by an impact hammer. Approximately 12 to 15 piles will be driven per day. Pile driving for the southbound off- and on-ramps is expected to last approximately 2 weeks. On the east side of the interchange, the existing trumpet-configuration ramps will be replaced with a partial buttonhook interchange. The two-lane northbound US 101 off-ramp will pass under the new overcrossing and curve west to form a T-intersection at Bayshore Highway. Bayshore Highway will be widened from four to eight lanes between the new overcrossing and the northbound US 101 ramps.

#### *Pedestrian and Bicycle Facilities*

Both ends of the pedestrian overcrossing located approximately 100 feet south of the existing Broadway overcrossing will be reconfigured to meet the increased profile grades of Rollins Road to the west and Bayshore Highway and the Crowne Plaza Hotel access road to the east. The new Broadway overcrossing will have a 10-foot sidewalk on the north side and Class II (striped) bike lanes on both sides. The project will also provide new Class II bike lanes on Airport Boulevard and Bayshore Highway and Class III (unstriped) bikeways on Broadway west of the overcrossing and Rollins Road.

#### *Ramp Metering Systems*

Ramp metering signals and equipment will be installed at both the northbound and southbound US 101 on-ramps.

#### *Right-of-Way (ROW) Requirements*

East of US 101, the realignment of Airport Boulevard at its intersection with Broadway and Bayshore Highway will require the acquisition of a gas station. West of US 101, an industrial property will be acquired to accommodate the northward realignment of Broadway just east of Rollins Road. Partial property acquisitions and temporary easements for construction access and staging could be necessary from commercial and industrial properties. No residential properties will be acquired for the proposed action.

The increased profile height of the new Broadway overcrossing will require adjacent approach roadways and parking lot driveways to be raised in elevation by 2 to 10 feet, depending on the distance from the overcrossing. Asphalt-concrete overlay will be added to increase roadway

elevations, and in some locations retaining walls will be constructed to minimize encroachment onto existing properties.

### *Utilities and Drainage*

To meet Caltrans freeway design standards, utilities within the proposed action's state ROW will be relocated unless longitudinal encroachment variances are approved. A number of utilities are anticipated to be affected, including Pacific Gas and Electric Company (PG&E) electric cables and gas lines; Comcast and Sprint communication lines; and City of Burlingame sanitary sewer, storm water, and water lines. The project will avoid the three PG&E transmission towers in the northwest quadrant of the existing US 101/Broadway interchange. All potentially relocated utilities are within the areas studied for biological effects.

The existing drainage systems in the project limits consist of roadside ditches, cross culverts, longitudinal culverts, asphalt-concrete dikes, and concrete curbs with inlets to collect storm water at shoulders. The City of Burlingame also operates a pump station on the west side of US 101, which the project will not affect. The project will replace undersized culverts and install additional inlets and new longitudinal systems to meet current drainage design requirements.

An unnamed drainage channel lies just east of the project footprint between Bayshore Highway and San Francisco Bay near Airport Boulevard. The channel occupies a drainage easement between a vacant lot and a gas station. Roadway and roadside runoff from around the eastern landing of the Broadway overcrossing and Bayshore Highway flows into the drainage channel by way of 18 and 24 -inch pipe culverts under Bayshore Highway. The culvert outfall is flush with the bottom of the channel and routinely becomes clogged with sediment, restricting flows from draining into the channel. A low berm across the channel approximately 200 feet to the east of the outfall restricts the channel from draining into San Francisco Bay. Together, the clogged culvert and the berm result in localized flooding around the eastern landing of the Broadway overcrossing.

The project will restore the conveyance capacity of the unnamed drainage channel by cleaning the 24-inch culvert pipe that drains to the channel and determining if it has sufficient capacity to convey runoff. The project will also remove sediments from the channel to increase its capacity and remove the berm across the channel to allow surface water to drain to the Bay. All temporarily affected areas will be restored to approximately the original site conditions upon completion of work. Native salt marsh vegetation along the unnamed drainage channel will be removed and restored. Options for restoration may include preserving the native plants in a nursery and replanting them after construction is complete, or replanting using plugs from the surrounding remaining vegetation. The method and design of channel improvements and replanting options will include coordination with appropriate agency staff.

### *Creek Crossings*

US 101 crosses Easton and Sanchez creeks within the action area. Easton Creek is located north of the proposed interchange. The existing 6 by 6 foot double box culvert at Easton Creek on the east side of US 101 will be extended by approximately 42 feet to accommodate the construction of the new northbound US 101 on-ramp. A temporary creek diversion system will be installed before culvert work in the creek commences. In-stream work will occur during the dry season from June 15 to October 15 when the water levels are at their lowest. The creek bottom will be dewatered at low tide in the portion of the creek isolated by one or more cofferdams, which will be in place for a maximum of 4 months. A temporary creek diversion bypass will be installed to

allow creek flow over or around the dewatered portion of the creek, either using a gravity flow system or pumping. On completion of the culvert extension, the cofferdam(s) and creek diversion bypass will be removed and the creek will be returned to preconstruction conditions. Neither the existing culvert nor the proposed extension will interfere with fish passage. No changes will be made to the segment of Easton Creek on the west side of US 101. Sanchez Creek crosses US 101 in a triple box culvert south of the proposed interchange and flows into the Burlingame Lagoon. No work will take place in Sanchez Creek or the lagoon. Project activities near Sanchez Creek and the Burlingame Lagoon will be limited to pavement restriping within the existing paved roadway. A third waterway, Mills Creek, is to the north and outside of the action area and will not be affected by project construction. The Burlingame Lagoon and Mills Creek will be designated as an environmentally sensitive area (ESA), and contractor access will be prohibited.

The cofferdams would be configured as follows.

1. To divert flow from the upper reaches of Easton Creek around the work area, a sandbag cofferdam would be constructed inside of the existing 6-ft-by-6-ft concrete double box culvert under US 101. The sandbags would be manually placed inside of the existing box culvert so as to not affect Easton Creek west of US 101. One or more plastic pipes would be placed within the sandbag cofferdam to allow creek and tidal waters to pass around the work area by gravity flow.
2. To divert tidal flow from the Bay around the work area, a gravel cofferdam would be constructed in the concrete-lined Easton Creek channel between US 101 and Bayshore Highway just east of the culvert extension area. The cofferdam would be sized to withstand the hydrostatic and hydrodynamic pressure from tidal flows. This cofferdam would also have one or more plastic pipes to allow tidal and creek waters to pass around the work area by gravity flow.
3. The downstream outlet of the diversion pipe will be screened with 1/4-inch mesh screen material during all dewatering in accordance with National Marine Fisheries Service (NMFS) Fish Screening Criteria (NMFS 1997) for fingerling-sized fish unless otherwise directed by NMFS. On completion of the culvert extension, the cofferdam(s) and creek diversion bypass will be removed and the creek will be restored to preconstruction conditions.
4. Most of the cofferdam work will be done manually because of the lack of construction equipment access to/in the channel. However, construction equipment such as a small pickup truck, backhoe and/or small crane will be used to mobilize the needed materials. The equipment and materials staging would be in one of the existing paved parking lots on either side of the creek channel between US 101 and Bayshore Highway.

#### *Site Preparation*

Site preparation activities will include:

- Installation of ESA fencing
- Installation of Wildlife Exclusion Fencing (WEF)
- Vegetation removal during the non-nesting season for migratory birds

### *Retaining Walls and Concrete Barriers*

Retaining walls will be constructed in several locations within the action area to minimize ROW impacts to existing businesses and to support the ramp approaches and roadway embankments. Approximately 375 piles will be driven to permanently support retaining walls adjacent to the Broadway overcrossing and southbound off- and on-ramps. The piles will be Class 90, 14 or 15 inches in diameter depending on the type used, and driven by impact hammer. Approximately 12 to 15 piles will be driven per day. Pile driving for the retaining walls is expected to last between 4 and 5 weeks. Dewatering at retaining wall footings is anticipated and tanker trucks will collect all extracted liquid and dispose of it at an appropriate off-site facility.

Retaining walls will also be constructed along the Crowne Plaza Hotel access road, Bayshore Highway, and Rollins Road. These retaining walls will be supported on spread footings and will not require pile driving. Concrete safety barriers will be constructed on the east side of US 101 along the proposed northbound off-ramp and on the east side of the proposed northbound onramp. Soundwalls are present in the southern project limits (south of approximately Toyon Drive) along the west side of US 101 and will not be affected by the project.

### *General Construction Actions*

The project footprint is the area subject to direct permanent and temporary construction effects. All construction activities, including site preparation, staging, access, and detours will take place in the project footprint. Construction will require work to be conducted during both day and night.

### *Contractor Access and Laydown*

The proposed action will not require special haul roads. Caltrans will use one-way traffic control and lane closures to accomplish construction activities. Temporary K-rail will be used with other traffic control devices to close lanes, sidewalks, and trail areas, and the available paved surfaces behind the K-rail will provide temporary storage, staging, or laydown areas. Temporary detours and partial nighttime closures of US 101, Broadway, and Bayshore Highway will be required for safety reasons during interchange reconstruction. Some short-term closures of existing interchange ramps, pedestrian overcrossing, sidewalks, and trail segments may be necessary during construction.

### *Fill and Excavation*

Segments of Broadway, Airport Boulevard, Bayshore Highway, and some on- and off-ramps would be raised using imported fill to conform to the grade of the new Broadway overcrossing. The type and quality of fill material would be selected during final design based on the findings of the geotechnical design report. The total quantity of fill placed in the project footprint as a result of project activities is estimated to be 90,000 cubic yards. About 85 percent of the fill will be placed in upland areas (76,500 cubic yards), and about 15 percent (13,500 cubic yards) will be placed in aquatic areas designated as estuarine wetlands and other waters of the U.S. Minor roadway excavation for proposed pavement sections would not exceed 3 feet in depth. Material removed during excavation would be disposed by the contractor at an appropriate offsite location.

*Structure Type and Pile Driving*

According to the Advanced Planning Study Design Memo (URS 2010), the replacement Broadway overcrossing would be one of the following structure types:

- A 5-foot-deep cast-in-place box girder structure with five 4-foot-diameter octagonal columns on pile footings
- A 6-foot-deep precast, prestressed California wide flange girder bridge with a continuous dropped bent cap supported on pile footings
- A 5-foot-deep precast, prestressed California wide flange girder bridge with an integral bent cap supported on pile footings

Approximately 250 piles would be driven to support the Broadway overcrossing, and approximately 60 to 120 piles would be driven to support the southbound off- and on-ramps. Class 140 precast, prestressed concrete piles are recommended; minimum 14-inch Alternative "X," minimum 15-inch Alternative "Y," piles, or steel pipe piles (Alternative "V," cast-in-steel shell) could be used at this location. While the Advanced Planning Study Design Memo (URS 2010) does not specify pile depths, the maximum estimated depth would be between 60 and 70 feet. Class 90 piles would be driven to support new retaining walls. These piles would also be 14 or 15 inches in diameter and would be driven to a shorter depth than the Class 140 piles.

Hammers used in pile installation would conform to Caltrans Standard Specifications (49-1.05). Impact hammers would be steam, hydraulic, air or diesel hammers sufficient to drive piles at a penetration rate of not less than 1/8 inch per strike at the specified nominal resistance. Vibratory hammers would be considered for use in the initial installation of permanent piles unless shown on the plans or specified in the special provisions, possibly followed by driving to a specified tip elevation with an impact hammer if a hard layer of soil exists at that level. The contractor may also use vibratory hammers to install shoring, cofferdam, or falsework piles unless otherwise restricted in the Contract Special Provisions or as listed in permits.

*Sequence of Construction Actions*

Caltrans anticipates that construction will begin in early 2014 and will be completed in 2016. The project is anticipated to involve seven stages of construction, which are summarized as follows. Construction staging may be further refined during the final design phase.

**Stage 1:**

- Partially detour southbound off-ramp
- Construct Bayshore Highway to Collector-Distributor Road detour connection
- Construct northbound off-ramp to northbound on-ramp direct connection
- Construct Broadway overcrossing
- Construct a portion of Airport Boulevard and relocate Bayshore Trail
- Extend Easton Creek culvert
- Partially construct northbound on-ramp
- Partially construct southbound off-ramp

Stage 2:

- Demolish existing southbound off-ramp detour and construct new southbound off-ramp detour
- Partially detour southbound off-ramp
- Partially construct Broadway
- Construct embankment and detour Broadway southbound traffic to new Broadway overcrossing

Stage 3:

- Close existing bus stop and establish up to two temporary bus stop locations.
- Detour two lanes of Broadway northbound traffic to new Broadway overcrossing
- Demolish existing Broadway overcrossing and embankment
- Partially construct Broadway and Bayshore Highway
- Widen and restripe Broadway and Rollins Road

Stage 4:

- Detour two lanes of Broadway northbound traffic to new Broadway alignment
- Partially construct Bayshore Highway
- Partially construct northbound off-ramp
- Temporarily restripe and detour Bayshore Highway

Stage 5:

- Partially construct southbound off-ramp and detour traffic
- Detour Airport Boulevard - Broadway traffic
- Partially construct Bayshore Highway and Crowne Plaza Hotel access road
- Construct temporary pavement (raised) for Airport Boulevard to Broadway connection
- Partially construct northwest portion of Bayshore Highway
- Partially construct northbound off-ramp
- Construct remaining portions of Broadway, Rollins Road, and access road to PG&E towers
- Demolish existing southbound off-ramp to southbound on-ramp connection

Stage 6:

- Detour Airport Boulevard to Broadway traffic
- Construct portion of Bayshore Highway
- Construct remaining portions of Airport Boulevard
- Partially construct northeast portion of Bayshore Highway
- Construct remaining portions of southbound on-ramp
- Construct remaining portions of northbound on- and off-ramp
- Demolish remaining portions of northbound on-ramp, and southbound off-ramp
- Remove temporary bus stops and establish new bus stop

Stage 7:

- Construct remaining portion of Crowne Plaza Hotel access road
- Construct pedestrian access to Bayside Park
- Construct POC landings
- Demolish existing northbound on- and off-ramp
- Construct remaining portion of northbound off-ramp

### *Site Clean-up and Restoration*

Temporarily disturbed areas and staging areas will be cleaned up and recontoured to original grade. Permanent erosion control, including soil stabilization measures such as hydroseeding and coir netting, will be applied to all temporarily affected project areas to minimize erosion after construction. All construction-related materials, including ESA fencing and exclusion fencing, will be removed after construction, site clean-up, and restoration activities are complete.

Vegetation and trees removed by construction operations within the project limits will be replaced according to Caltrans' policy. Appropriate native species will be used to the maximum extent possible, and trees, shrubs, and groundcover will be selected for drought tolerance and disease resistance. Mulch will be applied to planted areas to reduce weed growth, conserve moisture, and minimize maintenance operations. An automated electric remote irrigation control system will be installed and will include low-volume irrigation heads and limited overhead irrigation. Revegetation will take place under a separate landscape contract after completion of the roadway construction contract. The landscape contract will be funded by the parent project and will include a 3-year plant establishment period.

### *Post-Project Maintenance*

When the project is completed, maintenance will be performed by Caltrans or by approved contractors hired by Caltrans for those tasks. Standard Caltrans practices for cleaning, repairing, and otherwise maintaining US 101 throughout the length of the project area will be followed.

### Conservation Measures

The measures listed below will be implemented as part of construction to avoid and/or minimize effects to listed species and their habitats as well as to common biological resources.

1. **Construction Work, Access, and Staging Areas.** All proposed construction will be limited to the existing and proposed Caltrans ROW.
2. **Environmentally Sensitive Area Fencing.** ESAs are defined as the areas containing sensitive habitats within or adjacent to the construction work areas that are off-limits to construction personnel and will be conspicuously demarked to prevent any disturbance within these areas. Prior to the start of construction, all ESAs will be clearly demarked using high-visibility orange construction fencing. The ESA fencing will remain in place throughout the duration of the project, while construction activities are ongoing, and will be regularly inspected and fully maintained at all times. The final project plans will depict all locations where ESA fencing will be installed and will provide installation specifications. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities including vehicle operation, material and equipment storage, access roads and other surface-disturbing activities within ESAs. In addition, hydrological features (i.e., topographic depressions, drainage ditches, culverts, etc.) outside of the project footprint will not be manipulated (i.e., re-routed, dredged, filled, graded, etc.). This will avoid potential effects to wetlands and waters outside of the project footprint that are hydrologically connected to aquatic features within the project footprint.

3. **Wildlife Exclusion Fencing.** Replaced by Term and Condition 1.f.
4. **Environmental Awareness Training.** Prior to the start of construction, a qualified biologist will conduct an educational training program for all construction personnel including contractors and subcontractors. The training will include, at a minimum, a description of the California red-legged frog, San Francisco garter snake, California clapper rail, salt marsh harvest mouse, California seablite, and migratory birds and their habitats; associated habitats of these species within the action area; an explanation of the status of these species and protection under state and federal laws; the avoidance and minimization measures to be implemented to reduce take of these species; communication and work stoppage procedures in case a listed species is observed onsite; and an explanation of the ESAs and WEF and the importance of maintaining these structures. A fact sheet conveying this information will be prepared and distributed to all construction personnel. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of Act.
5. **Vegetation Removal.** Replaced by Term and Condition 1.g.
6. **Work in Waterways.** One or more temporary cofferdam(s) will be required to install the Easton Creek culvert extension. Only sandbags filled with clean gravel or sand, i.e. gravel or sand substantially free of dirt, silt or other debris that would adversely affect water quality if released into the stream, will be used for construction of the cofferdams. The dewatering pump will be screened with 1/4-inch mesh screen material during all dewatering in accordance with NMFS Fish Screening Criteria (1997) for fingerling-sized fish unless otherwise directed by NMFS. Sediment removal in the unnamed drainage channel will take place after upstream culvert work is complete. The berm separating the unnamed drainage channel from San Francisco Bay will be removed after completion of the culvert work (including sediment removal) and during low tide.
7. **Construction Discharges.** No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the U.S., non-jurisdictional drainages, or other suitable California red-legged frog habitat. No discharges of excessively turbid water will be allowed, and all equipment will be well-maintained and free of leaks.
8. **Best Management Practices (BMPs).** Storm Water Pollution Prevention Plans (SWPPP) and erosion control BMPs will be developed and implemented to minimize any wind or water-related erosion and will be in compliance with the requirements of the Regional Water Quality Control Board. The SWPPP will provide guidance for design staff to include provisions in construction contracts for measures to protect sensitive areas and prevent and minimize stormwater and non-stormwater discharges. Protective measures will include, at a minimum:
  - a. No discharge of pollutants from vehicle and equipment cleaning is allowed into any storm drains or water courses.

- b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facility.
  - c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed. Neither will be allowed into watercourses.
  - d. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.
  - e. Dust control measures will include use of water trucks and dust palliatives to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering of temporary stockpiles when weather conditions require.
  - f. Coir rolls or straw wattles will be installed along or at the base of slopes during construction to capture sediment.
  - g. Protection of graded areas from erosion using a combination of silt fences, fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas. No erosion control materials that use plastic or synthetic mono-filament netting will be used.
  - h. Permanent erosion control measures such as bio-filtration strips and swales to receive storm water discharges from the highway, or other impervious surfaces will be incorporated to the maximum extent practicable.
9. **Construction Site Management Practices.** The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:
- a. A speed limit of 15 miles per hour in the project footprint in unpaved areas will be enforced to reduce dust and excessive soil disturbance.
  - b. Construction access, staging, storage, and parking areas, will be located within the Caltrans ROW outside of any designated ESA or outside of the Caltrans ROW in areas environmentally cleared by the contractor. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
  - c. To the maximum extent practicable, any borrow material will be certified to be non-toxic and weed free.
  - d. All food and food-related trash items will be enclosed in sealed trash containers and removed completely from the site at the end of each day.
  - e. No pets from project personnel will be allowed anywhere in the action area during construction.

- f. No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.
  - g. All equipment will be maintained such that there will be no leaks of automotive fluids such as gasoline, oils or solvents and a Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 50 feet from wetlands and aquatic habitats.
  - h. Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 50 feet from any aquatic habitat unless separated by topographic or drainage barrier or unless it is an already existing gas station. Staging areas may occur closer to the project activities as required.
10. **Reduce Spread of Invasive Species.** To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control in order to minimize the economic, ecological, and human health impacts. In the event that high- or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor will contain the plant material associated with these noxious weeds and dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area should be covered to the extent practicable with heavy black plastic solarization material until the end of the project.
11. **Restoration/Revegetation.** Replaced by Term and Condition 1.h.

### **Analytical Framework for Jeopardy Determination**

In accordance with policy and regulation, the jeopardy analysis in this biological opinion relies on four components: (1) *Status of the Species*; (2) *Environmental Baseline*, which evaluates the California red-legged frog range-wide conditions, the factors responsible for that condition, and their survival and recovery needs; and evaluates the condition of this species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of this species; (3) *Effects of the Action*, which determines the direct and indirect effects of the proposed Federal action and the effects of any interrelated or interdependent activities on this species; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the California red-legged frog.

In accordance with policy and regulation, this jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the California red-legged frog current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of this species in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery of the California red-legged frog and the role of the action area in the survival and recovery of species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

### Action Area

The action area is defined in 50 CFR § 402.02, as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” For the proposed action the Service considers the action area, comprising 50.48 acres, to encompass the project footprint, construction access and staging areas, traffic staging, parking areas, turnouts, borrow/disposal/stockpile sites, and utility relocation areas as specified by Caltrans and submitted to the Service in the September 1, 2010 biological assessment and described in the Project Description of this biological opinion. The action area extends 0.76-mile from PM 16.30 to PM 17.06 and includes portions of US 101, Rollins Road, Broadway, Airport Boulevard, Bayshore Highway and immediately surrounding areas. Habitat within the action area is comprised of California annual grassland, landscaped iceplant, eucalyptus forest, mixed non-native forest, mixed non-native shrubland, pickleweed wetland, alkali heath wetland, brackish cattail wetland and saltgrass wetland vegetation communities. However, the majority of the action area consists of paved hardscapes and urbanized/landscaped development. Hydrologic features within the action area includes estuarine wetlands, Easton and Sanchez creeks, roadside ditches, an unnamed drainage channel between Bayshore Highway and San Francisco Bay near Airport Boulevard; all of which are tidally influenced within the action area.

### Status of the Species and Environmental Baseline

#### California Red-legged Frog

**Listing Status:** The California red-legged frog was listed as a threatened species on May 23, 1996 (61 FR 25813). Critical habitat was designated for this species on April 13, 2006 (71 FR 19244) and revisions to the critical habitat designation were published on March 17, 2010 (75 FR 12816). At this time, the Service recognized the taxonomic change from *Rana aurora draytonii* to *Rana draytonii* (Shaffer *et al.* 2010). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002).

**Distribution:** The historic range of the California red-legged frog extended from the vicinity of Elk Creek in Mendocino County, California, along the coast inland to the vicinity of Redding in Shasta County, California, and southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). The species was historically documented in 46 counties but the taxa now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the Central California Coast. Isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular ranges, but is still present in Baja California, Mexico (CDFG 2010).

**Status and Natural History:** California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and manmade ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994,

Bulger *et al.* 2003, Stebbins 2003). However, they also inhabit ephemeral creeks, drainages and ponds with minimal riparian and emergent vegetation. California red-legged frogs breed from November to April, although earlier breeding records have been reported in southern localities. Breeding generally occurs in still or slow-moving water often associated with emergent vegetation, such as cattails, tules or overhanging willows (Storer 1925, Hayes and Jennings 1988). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984).

Habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer including vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees (Fellers 2005). Sheltering habitat for California red-legged frogs potentially includes all aquatic, riparian, and upland areas within the range of the species and includes any landscape feature that provide cover, such as animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or hay stacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water. Some individuals remain at breeding sites year-round, while others disperse to neighboring water features. Dispersal distances are typically less than 0.5-mile, with a few individuals moving up to 1-2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred from one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, i.e., California blackberry, poison oak and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25-mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment in eastern Contra Costa County, Tatarian (2008) noted that a 57 percent majority of frogs fitted with radio transmitters in the Round Valley study area stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. Her study reported a peak seasonal terrestrial movement occurring in the fall months associated with the first 0.2-inch of precipitation and tapering off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the base of trees or rocks, logs, and under man-made structures; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1 to 4 days; however, one adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Upland refugia closer to aquatic sites were

used more often and were more commonly associated with areas exhibiting higher object cover, e.g., woody debris, rocks, and vegetative cover. Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000 to 5,000 eggs are attached to vegetation below the surface and hatch after 6 to 14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand resulted in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3½ to 7 months following hatching and reach sexual maturity 2 to 3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). California red-legged frogs may live 8 to 10 years (Jennings *et al.* 1992). Populations can fluctuate from year to year; favorable conditions allow the species to have extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, the animal may temporarily disappear from an area when conditions are stressful (e.g., during periods of drought, disease, etc.).

The diet of California red-legged frogs is highly variable and changes with the life history stage. The diet of the larvae is not well studied, but is likely similar to that of other ranid frogs, feeding on algae, diatoms, and detritus by grazing on the surface of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific chorus frogs, three-spined stickleback and, to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination, feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

**Metapopulation and Patch Dynamics:** The direction and type of habitat used by dispersing animals is especially important in fragmented environments (Forys and Humphrey 1996). Models of habitat patch geometry predict that individual animals will exit patches at more “permeable” areas (Buechner 1987; Stamps *et al.* 1987). A landscape corridor may increase the patch-edge permeability by extending patch habitat (La Polla and Barrett 1993), and allow individuals to move from one patch to another. The geometric and habitat features that constitute a “corridor” must be determined from the perspective of the animal (Forys and Humphrey 1996).

Because their habitats have been fragmented, many endangered and threatened species exist as metapopulations (Verboom and Apeldoorn 1990; Verboom *et al.* 1991). A metapopulation is a collection of spatially discrete subpopulations that are connected by the dispersal movements of

the individuals (Levins 1970; Hanski 1991). For metapopulations of listed species, a prerequisite to recovery is determining if unoccupied habitat patches are vacant due to the attributes of the habitat patch (food, cover, and patch area) or due to patch context (distance of the patch to other patches and distance of the patch to other features). Subpopulations on patches with higher quality food and cover are more likely to persist because they can support more individuals. Large populations have less of a chance of extinction due to stochastic events (Gilpin and Soule 1986). Similarly, small patches will support fewer individuals, increasing the rate of extinction. Patches that are near occupied patches are more likely to be recolonized when local extinction occurs and may benefit from emigration of individuals via the “rescue” effect (Hanski 1982; Gotelli 1991; Holt 1993; Fahrig and Merriam 1985). For the metapopulation to persist, the rate of patches being colonized must exceed the rate of patches going extinct (Levins 1970). If some subpopulations go extinct regardless of patch context, recovery actions should be placed on patch attributes. Patches could be managed to increase the availability of food and/or cover.

Movements and dispersal corridors likely are critical to California red-legged frog population dynamics, particularly because the animals likely currently persist as metapopulations with disjunct population centers. Movement and dispersal corridors are important for alleviating overcrowding and intraspecific competition, and also they are important for facilitating the recolonization of areas where the animal has been extirpated. Movement between population centers maintains gene flow and reduced genetic isolation. Genetically isolated populations are at greater risk of deleterious genetic effects such as inbreeding, genetic drift, and founder effects. The survival of wildlife species in fragmented habitats may ultimately depend on their ability to move among patches to access necessary resources, retain genetic diversity, and maintain reproductive capacity within populations (Hilty and Merenlender 2004; Petit *et al.* 1995; Buza *et al.* 2000).

Most metapopulation or meta-population-like models of patchy populations do not directly include the effects of dispersal mortality on population dynamics (Hanski 1994; With and Crist 1995; Lindenmayer and Possingham 1996). Based on these models, it has become a widely held notion that more vagile species have a higher tolerance to habitat loss and fragmentation than less vagile species. But models that include dispersal mortality predict exactly the opposite: more vagile species should be more vulnerable to habitat loss and fragmentation because they are more susceptible to dispersal mortality (Fahrig 1998; Casagrandi and Gatto 1999). This prediction is supported by Gibbs (1998), who examined the presence-absence of five amphibian species across a gradient of habitat loss. He found that species with low dispersal rates are better able than more vagile species to persist in landscapes with low habitat cover. Gibbs (1998) postulated that the land between habitats serves as a demographic “drain” for many amphibians. Furthermore, Bonnet *et al.* (1999) found that snake species that frequently make long-distance movements have higher mortality rates than do sedentary species.

**Threats:** Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the California red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern red-legged frogs in systems supporting bullfrogs (Jennings and Hayes 1990; Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976; Barry 1992; Hunt 1993; Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs (*Rana aurora*), and suggested that bullfrogs could prey on subadult California red-

legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with California red-legged frog reproduction by eating adult male California red-legged frogs. Both California and northern red-legged frogs have been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990; Twedt 1993; Jennings 1993). Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to California red-legged frog habitat has also affected the threatened amphibian. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks dispersal, and the introduction of predatory fishes and bullfrogs. Diseases may also pose a significant threat, although the specific effects of disease on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Chytridiomycosis and ranaviruses are a potential threat because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2006). Mao *et al.* (1999 cited in Fellers 2005) reported northern red-legged frogs infected with an iridovirus, which was also presented in sympatric threespine sticklebacks in northwestern California. Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2006). Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (i.e., contaminated boots, waders or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease.

Negative effects to wildlife populations from roads and pavement may extend some distance from the actual road. The phenomenon can result from vehicle-related mortality, habitat degradation, noise and light pollution, and invasive exotic species. Forman and Deblinger (1998) described the area affected as the "road effect" zone. One study along a 4-lane road in Massachusetts determined that this zone extended for an average of 980 feet to either side of the road for an average total zone width of approximately 1,970 feet. However, in places they detected an effect greater than 0.6-mile from the road. The road effect zone can also be subtle. Van der Zandt *et al.* (1980) reported that lapwings and black-tailed godwits feeding at 1,575 to 6,560 feet from roads were disturbed by passing vehicles. The heart rate, metabolic rate and energy expenditure of female bighorn sheep increases near roads (MacArthur *et al.* 1979). Trombulak and Frissell (2000) described another type of "road-zone" effect due to contaminants. Heavy metal concentrations from vehicle exhaust were greatest within 66 feet of roads and elevated levels of metals in soil and plants were detected at 660 feet of roads. The "road-zone" varies with habitat type and traffic volume. Based on responses by birds, Forman (2000) estimated the road-zone along primary roads of 1,000 feet in woodlands, 1,197 feet in grasslands, and 2,657 feet in natural lands near urban areas. Along secondary roads with lower traffic volumes, the effect zone was 656 feet. The road-zone with regard to California red-legged frogs has not been adequately investigated.

The necessity of moving between multiple habitats and breeding ponds means that many amphibian species, such as the California red-legged frog are especially vulnerable to roads and well-used large paved areas in the landscape. Van Gelder (1973) and Cooke (1995) have examined the effect of roads on amphibians and found that because of their activity patterns, population structure, and preferred habitats, aquatic breeding amphibians are more vulnerable to traffic mortality than some other species. High-volume highways pose a nearly impenetrable barrier to amphibians and result in mortality to individual animals as well as significantly fragmenting habitat. Hels and Buchwald (2001) found that mortality rates for anurans on high traffic roads are higher than on low traffic roads. Vos and Chardon (1998) found a significant negative effect of road density on the occupation probability of ponds by the moor frog in the Netherlands. In addition, incidences of very large numbers of road-killed frogs are well documented (Asley and Robinson 1996), and studies have shown strong population level effects of traffic density (Carr and Fahrig 2001) and high traffic roads on these amphibians (Van Gelder 1973; Vos and Chardon 1998). Most studies regularly count road mortalities from slow moving vehicles (Hansen 1982; Rosen and Lowe 1994; Drews 1995; Mallick *et al.* 1998) or by foot (Munguira and Thomas 1992). These studies assume that every victim is observed, which may be true for large conspicuous mammals, but may be an incorrect assumption for small animals, such as the California red-legged frog. Amphibians appear especially vulnerable to traffic mortality because they readily attempt to cross roads, are small and slow-moving, and thus are not easily avoided by drivers (Carr and Fahrig 2001).

**Status of the Species:** The recovery plan for the California red-legged frog identifies eight recovery units (Service 2002). The establishment of these recovery units is based on the determination that various regional areas of the species' range are essential to its survival and recovery. The status of the California red-legged frog was considered within the small scale recovery units as opposed to their overall range. These recovery units are delineated by major watershed boundaries as defined by U.S. Geological Survey (USGS) hydrologic units and the limits of its range. The goal of the recovery plan is to protect the long-term viability of all extant populations within each recovery unit. Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The goal of designating core areas is to protect metapopulations. Thus when combined with suitable dispersal habitat, will allow for the long term viability within existing populations. This management strategy will allow for the recolonization of habitats within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of California red-legged frogs.

### *Environmental Baseline*

The action area is not located within designated critical habitat, but it is located in the South San Francisco Bay Core Area (Unit 18) and Central Coast Recovery Unit (Service 2002). The conservation needs for the South San Francisco Bay Core Area are to: (1) protect existing populations; (2) control non-native predators; (3) increase connectivity between populations; (4) reduce erosion; (5) implement guidelines for recreation activities to reduce impacts; (6) implement forest practice guidelines; and (7) reduce impacts of urbanization. According to the biological assessment (Caltrans 2010a), the project is located within the known range of the California red-legged frog, but no occurrences have been documented within the action area. However, focused California red-legged frog surveys were not conducted in support of this proposed action (Caltrans 2010a). URS Corporation biologists conducted two site visits on March 31, 2009 and April 1, 2009, to evaluate habitat suitability within the action area. An

additional follow-up site visit was conducted on January 29, 2010, to further evaluate the action area for California red-legged frogs. No California red-legged frogs were observed during these site visits.

Hydrologic features within the action area include estuarine wetlands, Easton and Sanchez creeks, roadside ditches, and an unnamed drainage channel northeast of the Bayshore Highway and Airport Boulevard intersection that extends eastward where it empties into the San Francisco Bay. Several of these aquatic features are tidally influenced as far inland as the Caltrain railroad tracks (City of Burlingame 2004, Caltrans 2010a). Two areas were identified by Caltrans (2010a) as marginally suitable non-breeding aquatic habitat comprising 0.2-acre: (1) a seasonal emergent wetland containing cattails and sedges along the southbound lane of US 101 between the highway and the backs of industrial buildings on Marsten Road; and (2) a seasonal wetland along the western boundary of the southbound US 101/Broadway off-ramp. Both features are hydrologically connected to Easton Creek and are tidally influenced. At the seasonal emergent wetland, Caltrans reported salinity levels ranged between 3.0 and 4.0 ppt, i.e. within the maximum reported tolerance ranges for eggs (4.5 ppt) and well within the tolerance range of adults (9.0 ppt) (Jennings and Hayes 1990). Caltrans (2010a) also identified 3.19 acres of marginal upland foraging and refugia, and dispersal habitat along the road verge of northbound and southbound US 101 north of the US 101/Broadway interchange.

The nearest reported breeding sites are located within a freshwater drainage along PG&E transmission line corridor between Rollins Road and Adrian Road approximately 0.25-mile northwest of the project footprint. Two adult California red-legged frogs were observed immediately adjacent to this site in 2001 and 2004 (P. Kobernus pers. comm. 2010). Follow-up surveys were conducted at this location during the August 2009, but no California red-legged frogs were observed (P. Kobernus pers. comm. 2010). A portion of the undeveloped upland ruderal habitat adjacent to the wetland has been converted into a paved parking lot; however, the wetland itself has been fenced off (P. Kobernus pers. comm. 2010). This area remains a suitable breeding site for California red-legged frogs; although, ingress and egress to the site is limited to the PG&E utility corridor which connects the site to another known breeding site to the northwest near the intersection of US 101/Millbrae Avenue. Caltrans (2010a) and the City of Burlingame (2004) identified the seasonal wetlands at the US 101/Millbrae Avenue Interchange and roadside drainage along the US 101 on-ramp off of East Millbrae Avenue as suitable California red-legged frog breeding habitat. During work conducted for the City of Burlingame, Dr. Samuel McGinnis observed several adult California red-legged frogs at this location and documented an active breeding colony in 2002 (S. McGinnis pers. comm. 2010). No follow-up surveys have been conducted and the colony is considered extant. Both locations of California red-legged frog sightings are considered spatially distinct subpopulations of the Lamita Canal and Cupids Row Canal population north of East Millbrae Avenue and west of US 101 across from the San Francisco International Airport. As consistent with metapopulation dynamics, the narrow linear patches of habitat along US 101 (roadside drainages) and the PG&E utility corridor provide a viable dispersal linkage between the population to the north and identified habitat within the action area.

The action area is largely developed and is situated within a heavily urbanized setting. The majority of the action area, i.e. 47.09 acres, does not provide suitable habitat for California red-legged frogs due to the urbanized setting. The remaining 3.39 acres of suitable California red-legged frog habitat is low quality, consisting primarily of roadside drainages along US 101 that are tidally influenced. However, these areas are hydrologically connected to the areas of known

California red-legged frog occurrences previously mentioned. Undeveloped habitat within the action area is comprised of a patchy matrix of California annual grassland, landscaped iceplant, eucalyptus forest, mixed non-native forest, mixed non-native shrubland, pickleweed wetland, alkali heath wetland, brackish cattail wetland and saltgrass wetland vegetation communities. Many of the aquatic features within the action area are tidally influenced, suggesting that it is more suitable for adult California red-legged frogs that have a higher salinity threshold than smaller eggs, larvae or juveniles which have a higher surface area to volume ratio.

Based on reported occurrences less than 0.25-mile from the project footprint, connectivity to occupied habitats north of East Millbrae Avenue, and the presence of non-breeding aquatic, upland and dispersal habitat within the action area, the Service has determined there is a reasonable potential for California red-legged frogs to inhabit or disperse through the action area

### **Effects of the Action**

The proposed project will likely adversely affect the threatened California red-legged frog by harming or harassing juveniles, subadults and adults inhabiting or transiting areas of suitable non-breeding aquatic and upland foraging and refugia, and dispersal habitat; disrupting normal behaviors; and/or altering and removing areas of suitable habitat. The project as proposed in the biological assessment (Caltrans 2010a) and in the project description of this biological opinion encompasses an area of 50.48 acres, i.e. 3.39 acres of suitable California red-legged frog habitat, and would result in the permanent removal of 0.07-acre of aquatic habitat and 1.53 acres of upland foraging and refugia, and dispersal habitat; and temporary disturbance to 0.06-acre of aquatic habitat and 0.38-acre of upland foraging and refugia, and dispersal habitat.

The Service defines temporary and permanent effects as areas denuded, manipulated, or otherwise modified from their pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects are limited to no more than two consecutive seasons and at a minimum, are fully restored to baseline habitat values or better within one year following initial disturbance. Permanent effects are not temporally limited and include all effects not fulfilling the criteria for temporary effects. Areas subject to ongoing operations and maintenance also are considered permanent.

Project effects will be minimized by Caltrans by reducing the project footprint to the minimum area necessary to complete project. Aspects of the proposed action most likely to affect the California red-legged frog are largely confined to the construction phase. Spatial and temporal loss of habitat will result from the removal and/or disturbance of vegetation within the project footprint comprising frog non-breeding aquatic, upland and dispersal habitat within the US 101 roadside drainages that are hydrologically connected to Easton and Mills creeks. Construction noise, vibration, and increased human activity during the construction phase of the project may interfere with normal behaviors – feeding, sheltering, daily/seasonal movement/dispersal, and other frog essential behaviors – resulting in avoidance of areas that have suitable habitat but intolerable levels of disturbance. Caltrans proposes to minimize these effects by locating construction staging, storage and parking areas outside of sensitive habitat; clearly marking construction work boundaries with high-visibility ESA fencing; performing worker environmental training for all on-site construction personnel; conducting preconstruction surveys and environmental monitoring during revegetation removal and construction activities within or adjacent to suitable California red-legged frog habitat; minimizing the spread of invasive species;

and revegetating all unpaved areas disturbed by project activities with native vegetation characteristic of the habitats within the action area.

There is a risk of California red-legged frogs becoming injured or killed by construction activities due to vegetation removal, operation of construction equipment, trampling, and general construction activities. Preconstruction surveys and biological monitoring will minimize the risk of injury or mortality; however, capturing and handling frogs may result in inadvertent injury during handling, containment, and transport if relocation is determined to be necessary during project construction. Caltrans proposes to minimize these effects by using qualified Service-approved biologists, limiting the duration of handling, and relocating frogs to suitable nearby habitat in accordance with Service guidance.

If unrestricted, biologists and construction workers traveling to the action area from other project sites may transmit diseases by introducing contaminated equipment. The chance of a disease being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations in California and the United States. It is possible that chytridiomycosis, caused by chytrid fungus (*Batrachochytrium dendrobatidis*), may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes (e.g., water pH) that reduce normal immune response capabilities (Bosch *et al.* 2001, Weldon *et al.* 2004). Caltrans proposes to eliminate these risks by implementing proper decontamination procedures prior to and following aquatic surveys and handling California red-legged frogs. These will minimize the risk of transferring diseases through contaminated equipment or clothing. Relocation of California red-legged frogs that would otherwise result in mortality or injury if capture and relocation was not implemented increases the likelihood of survival of those individuals when they are handled properly and released nearby.

The amount of take resulting from construction activities and the removal of habitat will be partially minimized by installing wildlife exclusion fencing to deter California red-legged frogs from wandering onto the construction site; educating workers about their presence, their habitat, identification, regulatory laws, and avoidance and minimization measures; and requiring a Service-approved biologist to be present to monitor project activities during construction.

### **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.

The Service is not aware of any projects currently planned for the area surrounding the proposed action. However, numerous activities within this urbanized setting that could negatively affect California red-legged frogs in and near the action area as a result of private or public sector actions that may occur without consultation with or authorization by the Service.

The global average temperature has risen by approximately 0.6 degrees Celsius during the 20th Century (International Panel on Climate Change 2001, 2007; Adger *et al.* 2007). There is an international scientific consensus that most of the warming observed has been caused by human activities (International Panel on Climate Change 2001, 2007; Adger *et al.* 2007), and that it is

“very likely” that it is largely due to manmade emissions of carbon dioxide and other greenhouse gases (Adger *et al.* 2007). Ongoing climate change (Anonymous 2007; Inkley *et al.* 2004; Adger *et al.* 2007; Kanter 2007) likely imperils several listed species including the California red-legged frog, San Francisco garter snake and the resources necessary for their survival. Since climate change threatens to disrupt annual weather patterns, it may result in a loss of their habitats and/or prey, and/or increased numbers of their predators, parasites, and diseases. Where populations are isolated, a changing climate may result in local extinction, with range shifts precluded by lack of habitat.

## **Conclusion**

After reviewing the current status of the California red-legged frog; the environmental baseline for the action area; the effects of the proposed US 101/Broadway Interchange Reconstruction Project and the cumulative effects; it is the Service’s biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of this species.

## **INCIDENTAL TAKE STATEMENT**

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including 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 this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by Caltrans so that they become binding conditions of any grant or permit issued to Caltrans, as appropriate, in order for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to require its contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

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

The Service anticipates that incidental take of California red-legged frogs will be difficult to detect due to their cryptic nature and wariness of humans. Losses of these species may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. There is a risk of harm, harassment, injury and mortality as a result of the proposed construction activities, permanent and temporary loss/degradation of suitable habitat, and capture and relocation efforts; therefore, the Service is authorizing take incidental to the proposed action as (1) the injury and mortality of

no more than two adult, subadult or juvenile California red-legged frogs; and (2) the capture, harm and harassment of all California red-legged frogs within the 50.48 acre action area. Incidental take of eggs or larval California red-legged frogs is not anticipated, since the project will not affect breeding habitat for this species. The Service anticipates that the proposed action may result in take of juvenile, subadult and adult life history stages as a result of habitat loss/degradation, construction-related disturbance, or the capture and relocation of California red-legged frogs. Upon implementation of the following Reasonable and Prudent Measure incidental take associated with the US 101/Broadway Interchange Reconstruction Project will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are exempted under this opinion.

### **Effect of the Take**

The Service has determined that this level of anticipated take is not likely to result in jeopardy to the California red-legged frog, and is not likely to jeopardize the continued existence of this species.

### **Reasonable and Prudent Measure**

The following reasonable and prudent measure is necessary and appropriate to minimize the effect of the proposed action on the California red-legged frog:

1. Harm, harassment, injury, capture, handling and mortality to the California red-legged frog shall be minimized by fully implementing the Conservation Measures in this biological opinion and adhering to the minimization measures described below in the Terms and Conditions.

### **Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans shall ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above.

1. The following Terms and Conditions implement Reasonable and Prudent Measure one (1):
  - a. Caltrans shall require all contractors to comply with the Act in the performance of the action and shall perform the action as outlined in the Project Description of this biological opinion as provided by Caltrans in the biological assessment dated September 1, 2010, letter from Caltrans to the Service dated September 9, 2010, and email correspondence from Caltrans on December 8, 2010, and all other supporting documentation submitted to the Service in support of the action. Caltrans shall include language in their contracts that expressly requires contractors and subcontractors to work within the boundaries of the project footprint identified in this biological opinion, including vehicle parking, vehicle parking, staging, batch plants, storage yards and access roads. Changes to the Project Description or performance of work outside the scope of the Project Description are subject to the requirements of reinitiation of formal consultation as described herein.

- b. Caltrans shall ensure the Resident Engineer or their designee shall have full authority to implement and enforce all Conservation Measures and Terms and Conditions of this biological opinion. The Resident Engineer or their designee shall maintain a copy of this biological opinion onsite whenever construction is in progress. Their name(s) and telephone number(s) shall be provided to the Service at least thirty (30) calendar days prior to ground-breaking at the project.
- c. The qualifications of the Service-approved biologist(s) shall be presented to the Service for review and written approval at least thirty (30) calendar days prior to ground-breaking at the project site. The Service-approved biologist(s) shall keep a copy of this biological opinion in their possession when onsite. Through the Resident Engineer or their designee, the Service-approved biologist(s) shall be given the authority to communicate verbally, telephone, email or hardcopy with Caltrans personnel, contractors or any other person(s) at the project site or otherwise associated with the project. Through the Resident Engineer or their designee, the Service-approved biologist(s) shall have the authority to stop project activities if he/she determines any of the Conservation Measures or Terms and Conditions of this biological opinion is not being fulfilled. If the Service-approved biologist(s) exercises this authority, the Service shall be notified by telephone and email within 24 hours. The Service contact is Coast-Bay Branch Chief Endangered Species Program, Sacramento Fish and Wildlife Office at telephone (916) 414-6600.
- d. The Service-approved biologist(s) shall maintain monitoring records that include: (1) the beginning and ending time of each day's monitoring effort; (2) a statement identifying the listed species encountered, including the time and location of the observation; (3) the time the specimen was identified and by whom and its condition; and (4) a description of any actions taken. The Service-approved biologist shall maintain complete records in their possession while conducting monitoring activities and shall immediately surrender records to the Service, California Department of Fish and Game (CDFG), and/or their designated agents upon request. All monitoring records shall be provided to the Service upon completion of the monitoring work.
- e. If verbally requested through the Resident Engineer or their designee, before, during, or upon completion of ground breaking and construction activities, Caltrans shall ensure the Service and/or their designated agents can immediately and without delay, access and inspect the project site for compliance with the Project Description, Conservation Measures, and Terms and Conditions of this biological opinion.
- f. Prior to the start of construction, WEF shall be installed along the project footprint in all areas where California red-legged frogs could enter the project site. The location of the fencing shall be determined by the Resident Engineer and Service-approved biologist in cooperation with the Service prior to the start of staging or surface disturbing activities. The location, type of fencing materials, installation specifications, and monitoring and repair criteria shall be approved by the Service prior to start of construction. Caltrans shall include the WEF specifications on the final project plans. Caltrans shall include the WEF specifications including installation and maintenance criteria in the bid solicitation

package special provisions. The WEF shall remain in place throughout the duration of the project and shall be regularly inspected and fully maintained. Repairs to the WEF shall be made within 24 hours of discovery. Upon project completion the WEF shall be completely removed, the area cleaned of debris and trash, and area returned to original condition or better.

- g. Vegetation shall only be cleared and grubbed within the project footprint and shall only be cleared where necessary. In temporarily disturbed areas, vegetation shall be cut above the soil level to minimize erosion and allow plants that reproduce vegetatively to resprout after construction. A Service-approved biologist shall be present onsite during all vegetation clearing and grubbing activities to monitor for California red-legged frogs. Prior to vegetation removal, the Service-approved biologist shall thoroughly survey the area for California red-legged frogs. Under the supervision of the Service-approved biologist, clearing and grubbing of densely vegetated areas shall be conducted using hand tools or light construction equipment to facilitate a thorough survey of the area for California red-legged frogs. Once the Service-approved biologist has thoroughly surveyed the area for California red-legged frogs, clearing and grubbing may continue without further restrictions on equipment; however, the Service-approved biologist shall remain onsite to monitor for California red-legged frogs until all clearing and grubbing activities are complete. All cleared vegetation shall be properly disposed of off-site to prevent attracting animals to the project site. After project completion, all temporarily affected areas shall be returned to grade, protected with proper erosion control materials, and revegetated with native species appropriate for the region and habitat communities on site.
- h. All slopes or unpaved areas temporarily affected by the proposed action will be revegetated with native species appropriate for the region and habitat communities on site. A revegetation plan shall be prepared and submitted to the Service for review and approval at least 6 months prior to the completion of the proposed action. The revegetation plan shall be implemented within 30 days following completion of the proposed action.

#### California Red-Legged Frog Protective Measures

- i. To prevent California red-legged frogs from becoming entangled, trapped, injured or killed, erosion control materials that use plastic or synthetic mono-filament netting shall not be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.
- j. Preconstruction surveys shall be conducted by a Service-approved biologist immediately prior to the initiation of any ground disturbing activities that may result in take of California red-legged frogs. All suitable aquatic and upland habitat including refugia habitat such as dense vegetation, small woody debris, refuse, burrows, etc., shall be thoroughly inspected. If a California red-legged frog is observed, the Service-approved biologist shall implement the species observation and handling protocol outlined below.

- k. A Service-approved biologist shall be onsite during all activities that may result in take of California red-legged frogs. Through communication with the Resident Engineer or their designee, the Service-approved biologist shall have the authority to stop work to avoid take of listed species and shall advise the Resident Engineer or designee on how to proceed accordingly. The Service-approved biologist shall conduct clearance surveys at the beginning of each day and regularly throughout the workday when construction activities are occurring that may result in take of California red-legged frogs.
- l. If a California red-legged frog(s) is encountered in the action area, work activities within 50 feet of the California red-legged frog(s) shall cease immediately and the Resident Engineer and Service-approved biologist shall be notified. Based on the professional judgment of the Service-approved biologist, if project activities can be conducted without harming or injuring the California red-legged frog(s), it may be left at the location of discovery and monitored by the Service-approved biologist. All project personnel will be notified of the finding and at no time shall work occur within 50 feet of the California red-legged frog(s) without a biological monitor present. If it is determined by the Service-approved biologist that relocating the California red-legged frog(s) is necessary, the following steps shall be followed:
  - i. Prior to handling and relocation the Service-approved biologist shall take precautions to prevent introduction of amphibian diseases in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (Service 2005). Disinfecting equipment and clothing is especially important when biologists are coming to the action area to handle amphibians after working in other aquatic habitats.
  - ii. California red-legged frogs shall be captured by hand, dipnet or other Service-approved methodology; transported by hand, dipnet or temporary holding container; and released as soon as practicable the same day of capture. Handling of California red-legged frogs shall be minimized to the maximum extent practicable. Holding/transporting containers and dipnets shall be thoroughly cleaned, disinfected and rinsed with freshwater prior to use within the action area.
  - iii. California red-legged frogs shall be relocated to nearby suitable habitat outside of the work area and released in a safe area on the same side of US 101 where they were discovered. The individual(s) shall be released within the Caltrans right-of-way only if suitable habitat exists and would not pose a risk to the animal's survival or well-being. Otherwise, California red-legged frogs shall be released at a location subject to the approval of the property owner. If suitable habitat cannot be identified, the Service shall be contacted to determine an acceptable alternative. If California red-legged frogs are relocated, the Service shall be notified within 48 hours of relocation.

## Reporting Requirements

Proof of environmental training shall be provided to the Endangered Species Program, Sacramento Fish and Wildlife Office, 2800 Cottage Way, Room W-2605, Sacramento, California 95825-1846. Observations of California red-legged frogs or any listed or rare species should be reported to the California Natural Diversity Database (CNDDDB) within thirty (30) calendar days of the observation.

Injured California red-legged frogs must be cared for by a licensed veterinarian or other qualified person, such as the Service-approved biologist. Dead animals shall be placed in a zip-lock® plastic storage bag with a piece of paper indicating the date, time, location and name of the person who found it. The bag shall be placed in a freezer located in a secure location until instructions are received from the Service regarding the disposition of the specimen or until the Service takes custody of the specimen. The Service must be notified within 24 hours of the discovery of death or injury resulting from project-related activities or is observed at the project site. Notification shall include the date, time, and location of the incident or finding of a dead or injured animal clearly indicated on a USGS 7.5-minute quadrangle and other maps at a finer scale, as requested by the Service, and any other pertinent information. The Service contacts are Branch Chief, Endangered Species Program, Sacramento Fish and Wildlife Office at (916) 414-6600, and Resident Agent-in-Charge of the Service's Law Enforcement Division at (916) 414-6660.

Caltrans shall submit a post-construction compliance report prepared by the on-site biologist to the Sacramento Fish and Wildlife Office within sixty (60) calendar days of the date of the completion of construction activity. This report shall detail: (1) dates that construction occurred; (2) pertinent information concerning the success of the project in meeting compensation and other conservation measures; (3) an explanation of failure to meet such measures, if any; (4) known project effects on the California red-legged frog, if any; (5) incidental take of this species, if any; (6) documentation of employee/contractor environmental education; and (7) other pertinent information.

Caltrans shall report to the Service any information about take or suspected take of listed wildlife species not authorized by this biological opinion. Caltrans must notify the Service via electronic mail and telephone within twenty-four (24) hours of receiving such information. Notification must include the date, time, location of the incident or of the finding of a dead or injured animal, and photographs of the specific animal. The individual animal shall be preserved, as stated above, and held in a secure location until instructions are received from the Service regarding the disposition of the specimen or the Service takes custody of the specimen.

## CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of listed species and critical habitat. Conservation recommendations are discretionary measures to further minimize the effects to listed species and critical habitat. They also serve as suggestions of how action agencies can assist species conservation in furtherance of their responsibilities under section 7(a)(1) of the Act, or recommend studies improving an understanding of a species' biology or ecology. Wherever possible, conservation recommendations should be tied to tasks identified in recovery plans. The Service is providing the following conservation recommendations:

1. Caltrans should assist the Service in implementing recovery actions identified in the Recovery Plan for the California Red-legged Frog (Service 2002).
2. Caltrans should consider participating in the planning for a regional habitat conservation plan for the California red-legged frog, and other listed and sensitive species.
3. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California red-legged frog, and other appropriate species. Such banking systems also could possibly be utilized for other required compensation (i.e., seasonal wetlands, riparian habitats, etc.) where appropriate.
4. Sightings of any listed or sensitive animal species should be reported to the California Natural Diversity Database of the California Department of Fish and Game. A copy of the reporting form and a topographic map clearly marked with the location the animals were observed also should be provided to the Service.
5. Caltrans should incorporate culverts, tunnels, or bridges on highways and other roadways that allow safe passage by California red-legged frog, other listed animals, and wildlife.
6. Caltrans should include photographs, plans, and other information in their biological assessments if they incorporate "wildlife friendly" crossings into their projects.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed and/or proposed species or their habitats, the Service requests notification of the implementation of these recommendations.

#### **REINITIATION--CLOSING STATEMENT**

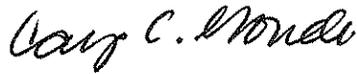
This concludes formal consultation on the proposed US 101/Broadway Interchange Reconstruction Project in the City of Burlingame, San Mateo County, California. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (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, including work outside of the project footprint analyzed in this opinion and including vehicle parking, staging, lay down areas, and access roads; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion including use of vehicle parking, staging, lay down areas, and access roads; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where take exceeds what was anticipated in this biological opinion, Caltrans will no longer be exempt from the prohibitions of section 9 until such time that Caltrans reinitiates formal consultation and consultation is completed.

Mr. Jim Richards

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If you have questions concerning this opinion on proposed US 101/Broadway Interchange Reconstruction Project, City of Burlingame, San Mateo County, California, please contact Jerry Roe or Ryan Olah at the letterhead address or at (916) 414-6600.

Sincerely,



Susan K. Moore  
Field Supervisor

cc:

Margaret Gabil, California Department of Transportation, Oakland, California  
Melissa Escaron, California Department of Fish and Game, Yountville, California  
Richard Fitzgerald, California Department of Fish and Game, Yountville, California

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**Federal Highway Administration Project-Level Conformity Determination**





U.S. Department  
of Transportation  
**Federal Highway  
Administration**

**California Division**

March 9, 2011

650 Capitol Mall, Suite 4-100  
Sacramento, CA 95814  
(916) 498-5001

In Reply Refer To:  
HDA-CA  
EA: 235840

Bijan Sartipi, District Director  
California Department of Transportation  
111 Grand Avenue  
P.O. Box 23360  
Oakland, CA 94612

Attention: Allen Baradar, Office Chief, Chief of Environmental Engineering

Dear Mr. Baradar:

**SUBJECT:** FHWA Project Level Conformity Determination for the US-101 Broadway Interchange Reconstruction Project

On February 1, 2011, the California Department of Transportation (Caltrans) submitted to the Federal Highway Administration (FHWA) a request for a project level conformity determination for the US-101 Broadway Interchange Reconstruction Project in San Mateo County. The project is in an area that is designated Nonattainment for Ozone and PM 2.5 and Maintenance for Carbon Monoxide (CO).

The project level conformity analysis submitted by Caltrans indicates that the transportation conformity requirements of 40 C.F.R. Part 93 have been met. The project is included in the Metropolitan Transportation Commission's (MTC) currently conforming *Transportation 2035 Plan (RTP)* and the *2011 Regional Transportation Improvement Program (RTIP)*. The current conformity determinations for the RTP and RTIP were approved by FHWA and the Federal Transit Administration (FTA) on December 14, 2010. The design concept and scope of the preferred alternative have not changed significantly from those assumed in the regional emissions analysis.

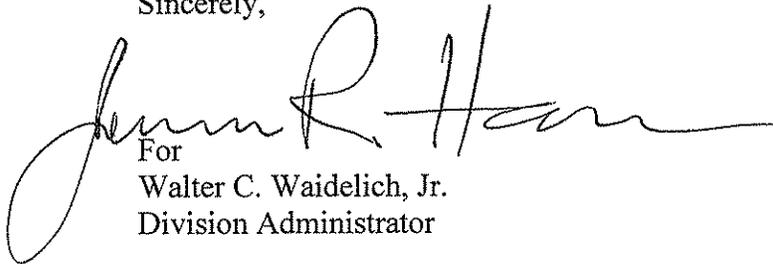
As required by 40 C.F.R. 93.116 and 93.123, the localized CO analyses are included in the documentation. The CO hotspot analysis was conducted using the *Transportation Project-Level Carbon Monoxide Protocol*. The analyses demonstrate that the project will not create any new violation of the standards or increase the severity or number of existing violations.

Based on the information provided, FHWA finds that the Conformity Determination for the US-101 Broadway Interchange Reconstruction Project in San Mateo County conforms to the State Implementation Plan (SIP) in accordance with 40 C.F.R. Part 93.



If you have any questions pertaining to this conformity finding, please contact Stew Sonnenberg, FHWA Air Quality Specialist, at (916) 498-5889.

Sincerely,

A handwritten signature in black ink, appearing to read "Walter C. Waidelich, Jr.", written in a cursive style. The signature is positioned above the typed name and title.

For  
Walter C. Waidelich, Jr.  
Division Administrator

cc: (email)

Mike Brady, Caltrans HQ

Glenn Kinoshita, D-4

Jermaine Hannon, FHWA

SSonnenberg/km

