

## **APPENDIX E**

### **Section 7 Consultation**





# 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-0844-3

DEC 30 2011

Leslie T. Rogers  
Regional Administrator  
Attn: Paul Page  
Federal Transit Administration  
U.S. Department of Transportation  
201 Mission Street, Suite 1650  
San Francisco, California 94105-1839

Subject: Biological Opinion on the Proposed Hercules Intermodal Transit Center Project in the City of Hercules, Contra Costa County, California

Dear Mr. Rogers:

This is in response to the Federal Transit Authority's (FTA) February 4, 2011, request for formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Hercules Intermodal Transit Center (ITC) Project in the City of Hercules, Contra Costa County, California. FTA's letter was received by this field office on February 7, 2010. At issue are effects to the federally threatened California red-legged frog (*Rana draytonii*), the endangered salt marsh harvest mouse (*Reithrodontomys raviventris*), the endangered California clapper rail (*Rallus longirostris obsoletus*), the endangered soft bird's beak (*Cordylanthus mollis ssp. mollis*), and the threatened vernal pool fairy shrimp (*Branchinecta lynchi*). Our comments are provided under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

The Service concurs with your determination that the proposed action may affect, but is not likely to adversely affect the salt marsh harvest mouse. The Service's concurrence is based on the following: (1) only small, isolated patches of tidal marsh and pickleweed habitat are present in the action area; and (2) avoidance and minimization measures provided in the *Description of the Proposed Action*, including using only nonmechanized hand tools to remove pickleweed or vegetation within 50 feet of pickleweed habitat, installing fencing between areas of salt marsh harvest mouse habitat and work sites, and having an on-site biological monitor present during construction will be implemented.

The Service concurs with your determination that the proposed action may affect, but is not likely to adversely affect the California clapper rail. The Service's concurrence is based on the following: (1) only small, isolated patches of tidal marsh habitat are present in the action area; (2) protocol-level surveys for California clapper rails will be conducted prior to the commencement of construction activities and no construction work will occur within 700 feet of any active nests; and (3) on-site biological monitors will stop work if any rail species is detected in the work area.

The Service concurs with your determination that the proposed action may affect, but is not likely to adversely affect the soft bird's beak. The Service's concurrence is based on a September 14, 2010, focused protocol-level rare plant survey for soft bird's which found no species of bird's beak within areas of suitable habitat in the project area.

The Service has determined that the proposed action may affect, but is not likely to adversely affect the vernal pool fairy shrimp. This determination is based on the negative results of protocol-level presence/absence surveys for federally-listed vernal pool branchiopods conducted in the project area between 2003 and 2010.

This document represents the Service's biological opinion on the effects of the proposed action on the California red-legged frog.

This document was prepared based on: (1) the December, 2010, *City of Hercules Intermodal Transit Center USFWS Biological Assessment* (Biological Assessment); (2) the September, 2010, *Draft Environmental Impact Report/Environmental Impact Statement for the Hercules Intermodal Transit Center* (Draft EIR/EIS); (3) the April, 2010, *California Red-legged Frog Site Assessment Report* prepared by (HDR) Engineering, Inc HDR; and (3) other information available to the Service.

### **Consultation History**

- April 27, 2010: At the request of the applicant, the Service attended a site visit to discuss the proposed action with representatives from the City of Hercules (City), HDR, and Hercules Bayfront LLC.
- June 14, 2010: The City provided the Service with an Administrative Draft EIR/EIS for the Hercules ITC and requested technical assistance.
- July 23, 2010: The Service sent a letter to the City providing technical assistance.
- September 20, 2010: The Service received the Draft EIR/EIS.
- February 7, 2011: The Service received the FTA's request to initiate consultation.
- August 23, 2011: The Service provided HDR with a draft project description for review and requested information on impact acreages, restoration/compensation acreages, and requested clarification on various project elements.
- September 22, 2011: The Service provided draft conservation measures to HDR for review.

- September 26, 2011: HDR and the City provided clarification on some project elements and indicated the City intended to place a conservation easement on restored areas of Refugio Creek as compensation for effects to California red-legged frog.
- October 4, 2011: The Service sent a letter to the FTA outlining remaining information needs for the biological opinion.
- October 12, 2011: The Service provided the City with a template for Service-approved conservation easements and a checklist for off-site compensation.
- October 14, 2011: The Service received effect and compensation acreages from the City.
- October 20, 2011 to December 16, 2011: Numerous phone conversations and emails between the Service, HDR, and the City took place to finalize conservation measures.

## **BIOLOGICAL OPINION**

### *Description of the Proposed Action*

The proposed Hercules ITC will be designed to promote alternative modes of transportation and will be pedestrian- and bicyclist-oriented, and include walkable streets, trails, and other open space areas. The proposed project will include construction of a new intercity passenger train station on the existing Capitol Corridor line, a transit bus terminal, access roadways, and parking facilities. Additionally, the transit center will provide connection to future development of ferry service through the San Francisco Bay Area.

In support of the development of the project, additional improvements in city infrastructure are proposed as part of the project including:

1. Construction of a station building including a land-side component, a center platform component for access to the trains, and a component for access to the future ferry pier;
2. Grade separation and realignment of a portion of the existing Union Pacific Railroad (UPRR) tracks, including the construction of a rail platform, retaining walls, and a new railroad bridge;
3. Extension of John Muir Parkway, including the construction of Bayfront Boulevard and a bridge over Refugio Creek, a new Transit Loop Drive and bridge, a civic plaza, and surface parking;
4. Restoration and realignment of a portion of Refugio Creek from San Pablo Bay to the existing restored segment near Tsushima Bridge;
5. Construction of segments of the East Bay Park Regional District's recreational trail along

the shoreline to close the gaps from Pinole to the Victoria-by-the-Bay development;

6. A pedestrian walkway over the railroad tracks connecting to the Hercules Point open space area; and,
7. Relocation of existing utility and gas lines and construction of an outfall to Refugio Creek.

Table 1 presents the acreage of habitat disturbance that will result from constructing the various components of the ITC. A total of 32.7 acres will be either permanently or temporarily disturbed by project construction.

**Table 1.** Hercules ITC Habitat Disturbance Acreages

Habitat Type	Permanent Impact	Temporary Impact
<b>Terrestrial Habitats</b>		
Ruderal/Disturbed	17.167	6.545
Willow Riparian Forest	0.249	0.126
<b>TOTAL for TERRESTRIAL HABITATS</b>	<b>17.416</b>	<b>6.671</b>
<b>Aquatic Habitats</b>		
Intertidal mudflat	0.017	5.048
California cordgrass tidal marsh	0.068	0.521
Cattail marsh	0.025	0.390
Pickleweed tidal marsh	0.042	0.000
Riprap	0.000	0.030
Seasonal wetland	0.559	0.066
Pickleweed brackish marsh	0.098	0.684
Brackish stream including Refugio Creek	0.063	0.473
Unvegetated seasonal depression	0.452	0.000
Freshwater intermittent drainage	0.007	0.047
<b>TOTAL for AQUATIC HABITATS</b>	<b>1.331</b>	<b>7.259</b>
<b>TOTAL</b>	<b>18.747</b>	<b>13.930</b>

### *Project Location*

The proposed project is located in the City of Hercules on the southeastern shoreline of San Pablo Bay approximately one mile northwest of Interstate 80. The proposed project is located primarily in the Refugio Creek watershed but includes portions of San Pablo Bay.

### *John Muir Parkway Extension*

John Muir Parkway, an existing four-lane median separated roadway, will be extended north approximately 700 feet from its existing terminus. This extension will connect to the proposed

extension of Bayfront Boulevard and Transit Loop described below and will serve as the primary transit access route to the Hercules ITC. The new roadway segment will have two paved 12-foot lanes traveling north and one 12-foot lane traveling south, and include 14-foot-wide sidewalks. The parkway will include parking and sidewalks on both sides of the street, for a total Right-Of-Way (ROW) width of 80 feet.

The parkway extension will also require construction of a culvert crossing of the North Channel of Refugio Creek. The proposed crossing will incorporate a 48-inch-diameter reinforced concrete pipe or 48-inch-high by 72-inch-wide precast concrete box culvert. The crossing will be approximately 91 feet long, with an additional 40 feet of culvert apron (heavy rocks placed at the culvert outlet). Some soil surcharge previously placed on the project site to consolidate underlying bay mud will need to be removed in order to construct the parkway.

#### *Bayfront Boulevard Extension and Bridge*

The Bayfront Boulevard extension will be a two-lane roadway connecting the existing boulevard segment, which ends at Sanderling Drive, to the planned John Muir Parkway extension. The new roadway segment will be approximately 620 feet long and will include construction of the Bayfront Bridge over Refugio Creek. The proposed bridge will be a two-lane, cast-in-place reinforced concrete box girder span, approximately 200 feet long and 50 feet wide. The bridge will consist of a constant depth (flat bottom) girder with decorative railings along the sidewalk and abutments consistent with the architectural character of the waterfront. The two-span bridge will be supported above Refugio Creek by three 4-foot-diameter columns, which will form a single pier aligned with the width of the bridge (i.e., in the upstream-downstream direction). The pier will be supported under the creekbed by piles; however, the pier will not be constructed in the wetted channel. The bridge will include two 12-foot-wide traffic lanes, two 3-foot-wide shoulders, and 10-foot-wide sidewalks on both sides. The bridge sides will be enclosed by traffic-rated railing on both sides.

#### *Transit Loop and Bridge*

Transit Loop Drive will be a two-lane paved roadway that extends north from John Muir Parkway at the intersection with Bayfront Boulevard, west at the northern end of a parcel known as Block K, across Refugio Creek and then south to Bayfront Boulevard forming a loop that will allow transit vehicles to enter and exit the Hercules ITC and providing drop-off, pick-up, and short-term parking areas for non-transit vehicles. Ground improvement such as cement deep soil mixing will be used for Transit Loop Drive as protection against roadway and bridge/road interface differential settlement.

The Transit Loop Drive bridge will consist of a single span (approximately 72-foot long), cast-in-place concrete bridge over Refugio Creek. The bridge will be supported on two abutments with wing walls supported on driven steel H-piles. Approximately 20 piles, 60 to 80 feet deep, will be driven. Driven piles will be used instead of drilled piles due to shallow groundwater and soft/loose deposits that are anticipated to make vertical excavations problematic. Piles will be driven into the banks and adjacent areas. Equipment will be staged adjacent to the creek beginning on the east side and ending on the west side of the creek.

### *Parking*

A 220-space surface parking lot will be located southwest of the intersection of John Muir Parkway and Bayfront Boulevard and will provide parking for train and bus patrons.

### *Union Pacific Railroad Track Relocation, Railroad Bridge Replacement, and Utilities Relocation (UPRR)*

The existing UPRR ROW runs along the shoreline of San Pablo Bay in a generally east-west orientation and is 100 feet wide with two main tracks approximately 13 to 14 feet apart. Near the west end of the project site there is an additional track (storage 'house' track) located on the water side. Along the tracks, there are signals and utilities, including two petroleum pipelines (one active and one non-active), fiberoptic and telephone cables, and electrical lines located along the south side of the UPRR ROW. The tracks range in elevation from approximately 9 feet above mean sea level (msl) to approximately 12.5 feet above msl. The ground on either side of the track within the UPRR ROW ranges from near sea level adjacent to the bay on the water side to approximately 20 feet above msl on the land side, particularly near the eastern limit of the project site.

At the proposed train station, the existing tracks will be realigned, and spread to accommodate a center platform. Track relocation will create a permanent station and passing tracks through the project area and past the station stop to meet freight and passenger operational requirements. Approximately 5,000 linear feet of track will be affected in an area extending eastward from Hercules Point to about 3,000 feet east of Refugio Creek. Both waterside and landside tracks will be realigned vertically and horizontally in order to satisfy rail geometric constraints as well as adjust for prior track settlement. The track realignment will include expanding the rail ROW to the south to provide adequate clearances and straighten the curvature of the tracks through the station area. This will also require the relocation of a crossover and associated signals in order to accommodate the proposed station platform and train operations.

The proposed action will also include replacing the UPRR timber trestle bridge (a two-span structure, approximately 30 feet long) over Refugio Creek with a new bridge over the realigned Refugio Creek and installing new riprap within the creek. The new railroad bridge will be located approximately 100 feet east of the current bridge location. The new railroad bridge will be positioned to accommodate the new mouth for Refugio Creek that will result from the creek restoration described below and will have a larger span to accommodate the realigned enhanced creek. The proposed two-span railroad bridge will be approximately 68 feet long and 100 feet wide. The railroad bridge will be supported on two abutments and a center pile bent. The railroad bridge abutments will be constructed outside of the creekbed and banks. New riprap slope protection will be installed to protect the bridge abutments through the UPRR prism. The railroad bridge foundation will consist of steel H-piles. The driven pile foundation will include a combination of vertical and battered piles. The railroad bridge deck will consist of precast, prestressed concrete box girders connected to the abutments and bent with restrainer rods and deck plates.

Track realignment will result in a need for soil-nail retaining walls up to 25 feet high and 1,900 feet long along a section of track adjacent to the Bio-Rad Laboratories, Inc. (Bio-Rad) boundary. The Bio-Rad property (1000 Alfred Nobel Drive) is located approximately 200 feet northeast of the proposed boarding platform at the eastern limit of the project. The soil-nail wall will provide a widened railroad corridor at the project for track realignment while accommodating the Bay Trail alignment (described below) and minimizing impacts to adjacent properties. West of Bio-Rad, the existing site grades drop and design grades will be achieved through construction of fill walls, primarily with a mechanically stabilized earth retaining wall system. Due to the presence of deep Bay Mud under some portions of the project, the existing ground is subject to settlement and differential movement – especially when loaded by earth fill and infrastructure improvements. Approximately 18,000 cubic yards (cy) of ground improvement will be required at the areas with deep Bay Mud to stabilize the ground and support the Bay Trail. Ground improvements could include treatment, such as cement deep soil mixing, other in-situ soil improvement, or temporary surcharging. The fill retaining wall will extend west just beyond the proposed Hercules Point pedestrian bridge (described below) for a total length of approximately 3,050 feet. Both retaining walls will be located adjacent to the UPRR ROW to accommodate the Bay Trail at an elevation higher than the tracks and adjacent to the retaining walls providing a trail and promenade with extended views of San Pablo Bay.

Several communication utilities including Qwest, Comcast, MCI, and Level 3 fiber optic lines are all currently located within the UPRR ROW. In addition, Kinder Morgan and Shell Oil have petroleum pipelines within and adjacent to the UPRR ROW. These lines will be relocated to avoid conflicts with the proposed track, platform, and railroad bridge. The lines will be rearranged within the UPRR ROW and adjacent to the proposed retaining wall based on input from and coordination with the utility and petroleum companies. The relocated pipelines will be installed within the proposed Bay Trail and roadway for a section of the alignment; the fiber optic lines will be realigned on the south side of the proposed tracks but remain within the UPRR ROW to the extent feasible. The pipelines will be directionally drilled under Refugio Creek (25 feet below bottom) and the fiber optic conduits will be jack-and-bored underneath the creek.

The track realignment will require acquisition of approximately two acres of additional ROW to accommodate rail service to the passenger platform and maintain operations for UPRR. The additional ROW will have a width of up to 30 feet and a length of approximately 3,365 feet for a total of approximately 1.77 acres. The passenger platform and main tracks on the land side will require minor grading for the roadbed, installation of tracks, placement and compaction of ballast, drainage facilities, utility relocation, and installation of security fencing.

#### *Station Platform and Emergency Vehicle Access*

The proposed passenger platform will be a mat foundation deck, 35 feet wide by 800 feet long, constructed between the new main UPRR track and Station track. The center platform will have two passenger shelter structures to provide protection from the elements. Pedestrian access to the platform will be provided from the pedestrian overpass by a combination of stairs, ramps, and elevators; these will also be covered or enclosed for weather protection. A maximum of 12 small-scale Mariah Power wind power turbines will be installed at the station platform.

A restricted, at-grade emergency vehicle crossing for emergency ingress and egress will be constructed. The route will extend from the Bay Trail to the north across the UPRR ROW and connect to the west end of the Station Platform. The crossing will be constructed up to the UPRR ROW fence and will provide emergency access to the west end of the passenger platform and be secured by locked gates. The crossing will be approximately 20 feet wide by 129 feet long within the UPRR ROW, and approximately 20 feet wide by 230 feet long south of the UPRR ROW.

### *Station Building and Civic Plaza*

The proposed station building will be located on Bayfront Boulevard, west of Refugio Creek. The approximately 11,075 square-foot land side station building will provide grade-separated pedestrian access over the railroad tracks to the platform and future ferry terminal. The Ferry Plaza will serve as the platform (i.e. foundation) for the waterside station structure. The pedestrian bridge will be elevated approximately 16 feet above the plaza ground level (approximately 26 feet above existing ground level and top of rail) to maintain required vertical clearance above the train tracks. The station building's frame will be extensively glazed, with over 22,000 square feet of glass wall area, and a window-to-wall ratio of over 66 percent. Directly south of the station building and west of Transit Loop Drive an approximately 12,273 square foot Civic Plaza that will include a café and annex building will be constructed. The plaza open space will be a combination of impervious hardscape and softscape areas planted with vegetation.

The station building, the pedestrian bridge crossing, station plaza, and platform work will include site clearing, demolition, grading, and construction. This work will be carried out from the land side of the railroad tracks to minimize and/or avoid the need to cross the tracks during construction. A pile foundation system will be used to support the station building and pedestrian bridge. The foundation for the station building and civic plaza will either be constructed through the incorporation of lightweight fills or the incorporation of cement deep soil mixing ground improvement under station building and plaza. The ferry plaza foundation will be constructed on a concrete mat supported by piles. Approximately 250 cy of concrete will be placed within San Pablo Bay to construct the foundation.

### *Bay Trail and Waterfront Promenade*

The Bay Trail in the project area will be a newly constructed Class I trail, approximately 5,900 feet long by 10 feet wide (paved) with 2-foot-wide gravel shoulders within a 27-foot-wide easement, excluding the promenade, that will connect existing segments of the Bay Trail. The trail will extend from Bio-Rad on the east end of the project and connect to the existing Bay Trail terminus near the west end of the project. The trail will cross over Refugio Creek on the north side of the Transit Loop Drive bridge. When complete, the trail will close a critical gap in the existing trail from Pinole to the south and a residential development (Victoria-by-the-Bay) to the north and provide opportunities for biking, walking, and scenery viewing. The waterfront promenade will be a 500-foot-long public space that varies from about 18 feet wide on its west end to about 26 feet wide on its east end. The promenade will have a walking path of stamped and/or colored concrete, integrated benches, and San Pablo Bay viewing areas.

The portion of the Bay Trail near Bio-Rad is hilly, steep, and approximately 40-feet higher in elevation than the adjacent tracks. As a result, the area is subject to landslides. During construction, design cut slope areas containing adverse conditions, such as dip slope conditions, water seepage, intensely sheared materials, and unconsolidated sandy materials, may be exposed. Such adverse conditions could lead to potentially unstable situations and slope failures. Therefore, as part of construction, existing landslides will be mitigated by earthwork repair, stabilization using soldier piles, and stabilization using drilled piers. In order to mitigate for removal of the entire landslide debris of postulated landslides, the following measures will be required: (1) excavation of keyways; (2) installation of subdrains; and (3) reconstruction of the cut slopes within the landslide limits. The modifications of the slope gradient downhill of the proposed trail will modify the slope to a 2:1 ratio (horizontal:vertical). The remainder of the Bay Trail and the Waterfront Promenade will be constructed according to Association of Bay Area Governments and East Bay Regional Park District standards.

#### *Creekside Park and Plaza*

Creekside Park and Plaza will be located in the center of the Transit Loop, Bayfront Boulevard, Refugio Creek, and the footprint of a future building to be developed on Block K. An open lawn will fill the center of the space and transition into tidally influenced native plants as the space blends into the creek to the west. The Creekside Trail will wind along the western edge of the park adjacent to Refugio Creek. Creekside Park will be bound by a linear footpath corridor to the east, adjacent to Block K. The north border will be formed by a distinctive swale providing stormwater treatment with rocks and stepping stones that will also be planted with trees as a windscreen.

The Creekside Park and Plaza will be built at grade and will be approximately 17,000 square feet (0.4 acre). The area will be landscaped with a variety of local plant species as well as non-invasive ornamentals and turf for active recreation areas. Approximately 4,400 square feet will include impervious surfaces such as pavers, concrete and asphalt for walkways, and the Creekside Trail. The remainder of the park and plaza will be comprised of pervious planted areas including lawn, trees, a bio-infiltration area, and some ornamental planting. The creek corridor will be planted with local and California native drought resistant vegetation.

#### *Creekside Trail*

Outside of Creekside Park, the Creekside Trail will be a 960-foot-long trail of varying width (8 feet minimum to 20 feet maximum) along the east bank of Refugio Creek. This trail will serve as a pathway for bicyclists and pedestrians, connecting users from John Muir Parkway near the North Channel of Refugio Creek with the Hercules ITC facility across Bayfront Boulevard and will ultimately connect to the proposed Bay Trail adjacent to the UPRR tracks. The Creekside Trail will be constructed according to City standards and will be paved with asphalt.

#### *Railroad Plaza, Hercules Point Bridge, and Land Side Ramp*

The proposed project will include construction of a plaza approximately 100 feet by 150 feet at the terminus of Railroad Avenue. The Railroad Plaza will be built on surcharge fills approximately 10 feet above original grade and 5 feet below anticipated settled finish ground.

The plaza will be an open space planted with vegetation. A landside ramp will be constructed from the Railroad Plaza to provide access to a viewing platform at Hercules Point, and a 130-foot prefabricated steel bridge over the UPRR tracks will be installed.

### *Refugio Creek and North Channel Restoration*

Refugio Creek is a channelized annual stream and a low-flow tributary of San Pablo Bay that traverses the UPRR ROW east of Hercules Point. Within the project area, the creek passes through three 72-inch-diameter culverts located under a service road, then under the railroad bridge, and empties into San Pablo Bay. The segment of Refugio Creek between the downstream face of the Railroad Bridge and the point that the low-flow channel terminates in San Pablo Bay, includes approximately 150 linear feet of tidal channel. As a result of historic filling, the creek banks have developed very steep to vertical profiles, and are supported by sand and concrete bags along the banks. The creek banks within the project site range in height from 8 to 14 feet from creekbed to top-of-bank. The existing low-flow creek channel varies in width (top-of-bank to top-of-bank) from approximately 20 feet in the upstream portion to about 40 feet in the downstream portion. A non-tidal tributary, referred to as the North Channel, enters the main creek channel from the northeast near the southern project boundary. An additional non-tidal tributary (referred to as the Central Channel) enters the main creek channel from the south, approximately in the middle of the main channel length on the project site.

The three culverts under the access road restrict flow during flood events and result in overtopping of the access road and railroad tracks. The existing channel also has a 90-degree bend where Refugio Creek encounters the access road and a second 90-degree bend, where flows enter the culverts under the access road. These man-made sharp bends further reduce channel capacity to convey flows. The proposed creek restoration will realign and restore Refugio Creek upstream approximately 1,000 feet to the southern project boundary. As part of restoration these bends will be eliminated, the creek straightened, and a new outlet to San Pablo Bay constructed. Upstream of the southern project boundary, Refugio Creek has been previously restored as part of earlier development projects. The proposed restoration work in the project area will include similar elements to upstream restoration to allow a smooth and complete habitat restoration of the entire lower creek.

The proposed creek restoration will create a new meandering low flow channel and enlarged marsh within the project area that will improve hydraulic and ecological function. The creek channel will be regraded and widened in order to restore a more natural serpentine form, increase flood-flow capacity, provide a creek floodplain, and restore associated tidal wetlands. The restored creekbed will be approximately 180 to 185 feet wide from top-of-bank to top-of-bank, with the restored banks at a slope no greater than 3:1; some bank slopes in two riparian planting areas will vary between 6:1 and 9:1.

Construction of the new meandering channel will increase the overall length and acreage of Refugio Creek in the project area from approximately 1,590 feet (0.54 acre) to 1,652 feet (0.97 acre). At a minimum, restoration work will reestablish the same acreage of tidal marsh and freshwater wetlands adjacent to Refugio Creek. Native plant species will be planted and it is anticipated that there will also be some voluntary colonization of tidal marsh species, including

pickleweed, gumplant, and other native species. The marsh is expected to gradually increase the floodplain width to a maximum of approximately 200 feet upstream of the Bayfront Bridge. The proposed realignment will require creating a new mouth into San Pablo Bay. The existing creek and culverts near the existing railroad bridge will be filled and the new bridge described above constructed over the new creek alignment.

Within the Refugio Creek corridor area, approximately 16,381 cy of material will be cut and approximately 2,524 cy will be filled to accomplish creek restoration. This will generate 13,587 cy of export material that will either be used within the currently undeveloped portion of the waterfront area as surcharge materials, or moved to an off-site storage area within the City limits. The entire channel from the upstream project boundary to the bay side edge of the UPRR ballast will effectively be filled, and a new meandering channel will be constructed. Tidal wetlands will be constructed by excavating and widening the steep banks of the existing creek into a gradually sloped-floodplain to allow tidal influence. The water sources for the wetlands will be tidal flows from San Pablo Bay, influenced by freshwater flows from upstream runoff, sheetflow, and stormwater discharge from adjacent developed areas. The North Channel will also be re-graded and enhanced to accommodate an expanded wetland area. This area may also provide some stormwater detention and water quality improvements prior to discharge back into the North Channel and downstream into Refugio Creek and ultimately into San Pablo Bay.

To prepare for Refugio Creek realignment, excavation will begin on the south side of the railroad bridge to tie into the existing alignment of Refugio Creek. This will be followed by excavation on the north side of the railroad bridge to tie into San Pablo Bay and complete realignment of the creek. The creek will be backfilled to its new alignment. Railroad bridge work will be completed prior to diverting the creek into the realigned segment.

The new mouth of Refugio Creek in San Pablo Bay can most likely be excavated from the landside, but excavation may require an excavator be placed on pontoons. Excavation work within San Pablo Bay will be done during low tide. Creek excavation work is anticipated to be done from the landside. The creek channel will be continued into San Pablo Bay for approximately 200 feet to provide an initial unobstructed tidal connection. Silt curtains will be installed for work in open water. Long-term maintenance is not expected to be required.

Refugio Creek will be dewatered during construction to minimize erosion and sedimentation and allow for excavation in dry conditions. Cofferdams or a similar dewatering technique will be installed at upstream and downstream locations to dewater Refugio Creek. The contractor will construct cofferdams approximately 15 feet upstream and downstream of the proposed work limits. The cofferdams will be constructed of clean sand bags, washed gravel, sheet metal, or water-inflated cofferdam method (such as AquaDam). If necessary, temporary fill used to construct the cofferdam will occupy the minimum footprint possible. Water will be pumped from the upstream location to the downstream location via a temporary flexible pipe. At the discharge location, to minimize the potential for erosion, the water flows from the pipe will be discharged via one of two alternative methods: (1) a T-pipe to reduce velocities over a riprap apron; or (2) into a containment area between two cofferdams adjacent to San Pablo Bay. The riprap apron and containment area will be constructed over visquine or similar material to facilitate clean-up. Associated sandbags, sheet metal piling, and/or rock will be removed and the

area restored to preconstruction contours. The cofferdam will also be used to restrict tidal flow into the construction area.

Stream crossings at the UPRR, Transit Loop, and Bayfront bridges will be constructed so that the bridges completely span the new creek channel and footings/abutments are placed outside of the channel. Both the Bayfront and Transit Loop bridges will clear span the creek low-flow channel which will be graded to encourage a more natural meander along the widened channel. However, the new UPRR bridge is a two-span structure and will require supporting piles that will be placed in the middle of the channel under the UPRR where the channel widens before it enters the Bay. Over time, it is anticipated that this section of channel will silt-in due to tidal action and naturally form a new low-flow channel. The Transit Loop and UPRR bridges will require rock slope protection and armor placed in the channel bed to prevent scour. Approximately 3 feet of rock slope protection will be keyed in and placed within the channel bed.

Restoration of Refugio Creek may be completed in one or in multiple phases depending on seasonal variation and construction progress. Phases of construction will be planned and completed within a construction season to ensure that channel construction and modification does not occur during the wet season. Erosion control measures including wattles, jute netting, mulching, and seeding will be installed throughout the restoration area to stabilize disturbed soils and minimize erosion when the cofferdams are removed. When the primary channel grading and restoration work is completed and the bridge installed, cofferdams will be removed and Refugio Creek will be allowed to flow naturally through the newly constructed channel.

#### *Project Schedule*

Construction of the Hercules ITC will proceed in phases over approximately 48 to 60 months. The initial phase will begin in 2012 and will include constructing retaining walls and the Bay Trail and conducting utility relocations, restoration of upstream portions of Refugio Creek, and North Channel work. Construction of the rail platform, track relocation, signals, railroad bridge, Bayfront Bridge, Transit Loop, parking lot, station building, and the realignment of the lower portion of Refugio Creek is anticipated to begin in 2014, with the intention that the train station and bus terminal could be completed and operational in late 2016.

#### *Construction Equipment*

Construction of the proposed project will require the use of standard earthmoving equipment (e.g., bulldozers, excavators), plus specialized equipment (e.g., backhoes). The UPRR track relocation will also require the use of pile driving equipment (e.g. cranes, hammers), and specialized equipment (e.g., backhoes and long reach excavator).

### *Operation*

The train station will not be staffed. Maintenance will be performed by Amtrak and the City's Public Works Department. Maintenance of Refugio Creek and the various trails and plazas will be performed by the City's Public Works Department.

### Conservation Measures

The applicant proposes to implement the following measures:

#### *General Measures*

1. *Prepare and Implement a Storm Water Pollution Prevention Plan (SWPPP)*. The City's construction contractor will prepare and implement a SWPPP and Erosion Control Plan. All construction activities will be performed in accordance with the California National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activities. Best Management Practices (BMPs) and erosion control measures to be implemented may include, but will not be limited to:
  - a. Site-specific erosion and sediment control practices, including installation of erosion control wattles around all disturbed areas and ditches, installation of silt fencing, drainage inlet protection, sediment settling basins (if applicable), concrete washout areas, and hydroseeding and mulching disturbed areas.
  - b. Excavation and grading activities in areas with steep slopes or directly adjacent to open water shall be scheduled for the dry season only (April 15 to October 15). This will reduce the chance of severe erosion from intense rainfall and surface runoff.
  - c. If excavation occurs during the rainy season, storm runoff from the construction area will be regulated through a storm water management/erosion control plan that will include temporary on-site silt traps and/or basins with multiple discharge points to natural drainages and energy dissipaters. Stockpiles of loose material shall be covered and runoff diverted away from exposed soil material. If work stops due to rain, a positive grading away from slopes shall be provided to carry the surface runoff to areas where flow would be controlled, such as the temporary silt basins. Sediment basins/traps shall be located and operated to minimize the amount of off-site sediment transport. Any trapped sediment shall be removed from the basin or trap and placed at a suitable location onsite, away from concentrated flows, or removed to an approved disposal site.
  - d. Temporary erosion control measures will be provided until perennial revegetation or landscaping is established and can minimize discharge of sediment into nearby waterways. For construction within 500 feet of a water body, appropriate erosion control measures shall be placed upstream adjacent to the water body.

- e. Erosion protection shall be provided on all cut-and-fill slopes. Revegetation shall be facilitated by mulching, hydroseeding, or other methods and shall be initiated as soon as possible after completion of grading and prior to the onset of the rainy season (by October 15).
  - f. BMPs will be in place and operational prior to the onset of major earthwork on the site. The construction phase facilities will be maintained regularly and cleared of accumulated sediment as necessary.
  - g. Equipment shall be properly maintained in designated areas with runoff and erosion control measures to minimize accidental release of pollutants.
  - h. All maintenance materials (i.e., oils, grease, lubricants, antifreeze, and similar materials) will be stored at off-site areas. If these materials are required during field operations, then they will be placed in a designated area as far away from site activities and drainages as possible, and at a minimum of 100 feet away from San Pablo Bay, Refugio Creek, and any wetlands.
  - i. Traffic speeds on all unpaved surfaces will be limited to 10 miles per hour or less.
  - j. Soil stabilizers will be applied to all inactive construction areas (previously graded areas that remain inactive for 96 hours) in accordance with manufacturers' specifications.
  - k. Any additional riprap placed on the bayside of the train tracks will include native vegetation in its design.
  - l. In-water construction and excavation activities in San Pablo Bay shall occur during from June 1 to November 30, to minimize effects on listed anadromous salmonids species and other aquatic species and their habitat.
  - m. Bankward slopes of the excavated area will be graded to a stable condition (e.g., 3:1) as approved by a qualified geotechnical engineer to prevent sloughing.
  - n. Sampling and testing for contaminants will be conducted in potential excavation locations in San Pablo Bay prior to the onset of excavation activities. If sediments to be excavated are contaminated such that their resuspension may adversely affect listed species or their habitat, National Marine Fisheries Service (NMFS), California Department of Fish and Game (CDFG), and the Service will be consulted.
2. *Hazardous Material Spill Prevention.* To reduce potential contamination by spills, The City's construction contractor will prepare a Spill Prevention and Response Plan that will include but not be limited to:

- a. Limiting refueling, servicing, and maintenance of vehicles and equipment as far from wetlands and waterbodies as feasible, but at a minimum of 100 feet away.
  - b. Collecting any fluids drained from the machinery during servicing in leak-proof containers and transporting the containers to an appropriate disposal or recycling facility.
  - c. Isolating and containing spills with appropriate absorbent materials.
  - d. Disposing of contaminated materials and soils appropriately if spills occur.
  - e. Stopping construction activities immediately and contacting CDFG, NMFS, and the Service for remedial measures if spills occur in Refugio Creek, San Pablo Bay, or drainages leading to San Pablo Bay.
  - f. Regular maintenance of construction vehicles and equipment such that leaks of fuels, lubricants and other materials are prevented.
3. *Sediment and Contaminant Control.* Excavation may result in some suspension of sediments. Excavation within Refugio Creek and/or San Pablo Bay may create impacts to water quality that will be minimized through the use of the following BMPs:
- a. Use of silt curtains, which prevent suspended sediment from migrating out of the immediate project area.
  - b. Excavate only on low or incoming tide.
  - c. Hydraulic or closed clamshell excavation to reduce the generation of suspended sediments.
  - d. Shunting, which involves pumping of the free water in a sediment holding barge to the bottom of the water body, to reduce turbidity; and employment of an independent, certified, on-board inspector to ensure compliance with permit conditions.
  - e. Monitoring will be conducted during excavation to allow for measurement of the efficiency of contaminated sediment removal; determination of volumes; measurement of sediment resuspension at the excavation site; and checking performance of barriers and other controls.
4. *Protection of Sensitive Plant Communities.* Temporary orange fencing will be placed to delineate environmentally sensitive areas in order to exclude these areas from being impacted by construction activities. All construction personnel will receive training notifying them of the environmentally sensitive areas in the action area and the potential for these areas to support special status species.

5. *Invasive Species Control.* To reduce potential impacts from infestation by non-native cordgrass, pepperweed, and other invasive, non-native plant species, all equipment (including personal gear) will be cleaned of soil, seeds, and plant material prior to arriving on site to prevent introduction of undesirable plant species.
6. *Restoration and Revegetation Plan.* All areas temporarily affected by project construction will be restored. A Restoration and Revegetation Plan will be completed and submitted to the Service for approval within 30 days of issuance of the biological opinion or prior to the start of ground-disturbing activities. The plan will document preconstruction conditions, discuss restoration implementation, identify success criteria, and establish a monitoring program. The plan will require the use of native plants and describe invasive species control measures. The portions of Refugio Creek and the North Channel to be restored will be monitored annually for a minimum of five years following restoration. If restored areas do not meet the success criteria outlined in the Service-approved Restoration and Revegetation plan by the end of the 5-year monitoring period, remedial actions to be taken will be developed in consultation with the Service.

#### *Listed Species*

7. *Conduct Mandatory Biological Resources Awareness Training for All Project Personnel.* Before any ground-disturbing work (including vegetation clearing and grading), a Service-approved biologist will conduct a mandatory biological resources awareness training for all construction personnel on listed species that could occur on site (California red-legged frog, California clapper rail, and salt marsh harvest mouse). The training will include, at a minimum, the natural history, representative photographs, a discussion of the general behavior, information about distribution and habitat needs, the sensitivity to human activities, the conservation measures in this biological opinion, and the penalties for not complying with these measures. Proof of personnel attendance will be kept on file by the City. Interpretation will be provided for non-English speaking workers. When new construction personnel are added to the project, the City will ensure that the new personnel receive the mandatory training before starting work. The subsequent training of personnel can include videotape of the initial training and/or the use of written materials rather than in-person training by a biologist.
8. *Service-approved Biological Monitor.* At least 15 days prior to the onset of activities, the name(s) and credentials of biologists who will conduct preconstruction surveys and monitoring activities for listed species will be submitted to the Service. No project activities will begin until proponent has received written approval from the Service that the biologist(s) is qualified to conduct the work.
9. *Construction Schedule.* All clearing, grubbing, and mass grading activities in or within 50 feet of sensitive areas or water bodies will be initiated and Wildlife Exclusion Fencing (WEF) installed during the dry season (April 15 to November 1). All areas where work will take place during the wet season will be completely enclosed within WEF meeting the criteria in measure 10 below. During the wet season, within these established areas, work performed may include fine grading, placement of fill, trenching, placement of

utilities, planting, paving, placement of ballast and sub-ballast, setting tracks, concrete pouring, and structural construction. All ground disturbing activities within waterways and sensitive areas will be restricted to the dry season.

10. *Wildlife Exclusion Fencing*. Prior to the start of construction, WEF will be installed along the project footprint in all areas where California red-legged frog could enter the project site. Exclusion fence will consist of Service-approved geotextile fabric. Posts/stakes used to support fencing will be placed on the inside of fenced areas. The fence will be a minimum of 42 inches tall and the bottom 6 inches will be buried to prevent listed species from crawling under the fence. The location of the fencing will be determined by the Resident Engineer and Service-approved biologist in cooperation with the Service. The WEF will remain in place throughout the duration of the project, while construction activities are ongoing, and will be regularly inspected and fully maintained. Upon project completion, or completion of a project phase, the WEF will be completely removed and the areas returned to original condition or better.
11. *Construction Monitoring for California Red-legged Frog*. Preconstruction surveys for California red-legged frog will be conducted in the work area by a Service-approved biologist within 24 hours prior to the initiation of any ground disturbing activities. All suitable aquatic and upland habitat including refugia habitat such as under shrubs, downed logs, small woody debris, burrows, etc., will be thoroughly inspected. If a California red-legged frog(s), tadpoles, or eggs, are found the individual(s) will be evaluated and relocated in accordance with the observation and handling protocol outlined in measure 12 below. All relocation activities shall be completed before any activities occur within the work area(s).

A Service-approved biologist will monitor all initial ground-disturbing construction activity and will be present during all construction activities within sensitive areas. After ground-disturbing activities are completed, the Service-approved biologist will train an individual to act as the on-site construction monitor to monitor work in non-sensitive areas. The Service-approved biologist or designated construction monitor will walk all WEF daily to check for stranded California red-legged frogs. If any frogs are identified within or along the WEF, the Service-approved biologist will be notified and the frog will be relocated in accordance with the observation and handling protocol outlined in measure 12 below. A Service-approved biologist will conduct a weekly survey of the project area for the duration of project work to ensure compliance with avoidance and minimization measures.

Both the Service-approved biologist and construction monitor will have the authority to stop or redirect project activities to ensure protection of resources and compliance with all environmental permits and conditions of the project with communication through the Resident Engineer. If the Service-approved biologist or construction monitor has requested that work stop because of take of any of the listed species, the Service and CDFG will be notified within one working day via email or telephone. The Service-approved biologist or construction monitor will complete a daily log summarizing activities and environmental compliance.

*California Red-legged Frog Relocation.* If California red-legged frogs are encountered in the work area, work within 50 feet of the animal will cease immediately and the Service-approved biologist will be notified. Based on the professional judgment of the Service-approved biologist, if project activities can be conducted without harming or injuring the animal(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 animal without a biological monitor present. If relocating California red-legged frog(s) is determined to be necessary, the following steps will be followed:

- f. Prior to handling and relocation of California red-legged frogs the Service-approved biologist will 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.
  - g. California red-legged frogs will 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 will be minimized to the maximum extent practicable. Holding/transporting containers and dipnets will be thoroughly cleaned and disinfected prior to transporting to the action area and will be rinsed with freshwater onsite immediately prior to usage unless doing so would result in the injury or death of the animal(s) due to the time delay.
  - h. California red-legged frogs will be relocated to the nearest suitable habitat outside of the area where actions would not result in harm or harassment. If suitable habitat cannot be identified, the Service should be contacted to determine an acceptable alternative.
  - i. If egg mass(es) or tadpoles are detected, a plan will be developed in consultation with the Service to relocate them to the nearest suitable location.
12. *Dewatering.* Water diversion techniques will allow stream flows to gravity flow around or through the work site if feasible. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 5 millimeters to prevent California red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction and will be discharged in a non-erosive manner (e.g. gravel or vegetated bars, on hay bales, etc.). Upon completion of construction activities, any barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
13. *California Red-legged Frog Avoidance Measures.* The measures listed below will be implemented to avoid injury and mortality to California red-legged frogs:

- a. To avoid entrapment, injury, or mortality of California red-legged frogs resulting from falling into steep-sided holes or trenches, all construction-related holes capable of entrapping wildlife will be provided with one or more escape ramps constructed of earth fill or wooden planks at the end of each workday. If escape ramps cannot be provided, then holes or trenches will be covered with plywood or other hard material at the end of the workday.
  - b. Because California red-legged frogs may take refuge in cavity-like structures such as pipes and may enter stored pipes and become trapped, all construction pipes, culverts, or similar structures that are stored at a construction site for one or more overnight periods will be either securely capped prior to storage or thoroughly inspected by the Service-approved biologist before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If any individuals have become trapped, the animal will be relocated in accordance with the relocation protocol outlined in measure 12 above.
  - c. To prevent California red-legged frogs from becoming entangled or trapped in erosion control materials, plastic mono-filament netting (i.e., erosion control matting) or similar material will not be used within the action area. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
  - d. A Service-approved biologist will permanently remove from within the project area, any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes to the maximum extent possible. The permittee shall have the responsibility to ensure that their activities are in compliance with the CDFG.
  - e. Temporary disturbance or removal of aquatic and riparian vegetation will not exceed the minimum necessary to complete work.
  - f. All trash will be removed from the site daily to avoid attracting potential predators to the site. Personnel will clean the work site before leaving each day by removing all litter and construction-related materials.
  - g. Night-time construction will be minimized to the maximum extent practicable.
14. *California Clapper Rail Surveys and Avoidance.* If any work will take place during the clapper rail breeding season (January 15 to August 31), a Service-approved biologist will conduct protocol surveys for California clapper rails within 700 feet of the project footprint. The surveys shall be conducted within two weeks prior to the commencement of construction activities.

If active nests (nests with egg(s) or young present), broods, or calling centers are detected, all construction activities within 700 feet shall cease immediately and the Service shall be notified within 24 hours of the observation. A 700 foot no-disturbance buffer will be established within which no work will occur until the young have fledged.

Focused surveys for active nests, broods and calling centers will be conducted by a Service-approved biologist if a lapse in construction activities of two weeks or more occurs at any time during the breeding season such that no more than two weeks will have elapsed between the last survey and the commencement of construction activities.

If a rail of any species is observed in the work area, then work will be stopped immediately by the biological monitor until the rail leaves the work area on its own volition and both Service and CDFG will be notified. If the rail does not leave the work area, work will not be reinitiated until after the Service and CDFG are consulted regarding appropriate avoidance measures and permission is granted by the Service and CDFG to commence work.

15. *Salt Marsh Harvest Mouse Avoidance*. The measures listed below will be implemented in order to avoid take of salt marsh harvest mouse:
  - a. If any areas with pickleweed habitat or vegetation within 50 feet from the edge of pickleweed habitat need to be cleared for project activities, vegetation will be removed only with nonmechanized hand tools (i.e. trowel, hoe, rake, and shovel). No motorized equipment, including weed whackers or lawn mowers, will be used to remove this vegetation. Vegetation will be cleared to bare ground and removal will start at the edge farthest from the salt marsh and work towards the marsh. The upper 6 inches of soil excavated within salt marsh habitat will be stockpiled separately and replaced on top of the backfilled material.
  - b. A Service-approved biologist will be present onsite to monitor for salt marsh harvest mice during vegetation removal and prior to and during construction activities. The biological monitor will have the authority to stop work if deemed necessary for any reason to protect the species. If a salt marsh harvest mouse is observed within the areas being removed of vegetation or within the work area, the biological monitor will stop work in the immediate area until the mouse leaves the work area on its own volition. If the mouse does not leave the work area, work in the immediate area will not be reinitiated until the Service and CDFG are consulted regarding appropriate avoidance measures and permission is granted by the Service and CDFG to commence work. No salt marsh harvest mouse may be handled or captured at any time during site preparation or project activities.
  - c. Visqueen fencing will be installed between areas of salt marsh harvest mouse habitat and work sites immediately following vegetation removal and before excavation activities begin to prevent entry of the mice into cleared areas. The fencing will be trenched into the ground and backfilled to prevent mice from moving under the fencing. Fence stakes will face toward the work site and away from pickleweed habitat. The final design and proposed location of the fencing will be submitted to the Service and CDFG for review and approval prior to placement. The qualified biologist will have the ability to make field adjustments to the location of the fencing based on site-specific habitat conditions.

- d. Maintenance of the fencing will be conducted as needed throughout the work period. Any necessary repairs to the fencing will be completed within 24 hours of the initial observance of damage. Work will not continue within 300 feet of the damaged fencing until the fence is repaired and the site is surveyed by a qualified biologist to ensure that salt marsh harvest mice have not entered the work area. A qualified biologist or site manager will monitor site fencing as follows: (1) periodically throughout each day during which work is conducted within 300 feet of the fence; (2) at least twice per week during clear weather; and (3) within 24 hours after a storm.
  - e. Work hours will be limited to daytime only; at least 1/2 hour after sunrise and 1/2 hour before sunset. Work will be scheduled to avoid extreme high tides (6.5 feet or above, as measured at the Golden Gate Bridge) when there is potential for salt marsh harvest mice to move to higher, drier grounds.
16. *Habitat Preservation.* To compensate for adverse effects and take of California red-legged frogs resulting from the construction of the Hercules ITC, the City shall establish a Service-approved conservation easement to be held by a Service-approved third-party on a minimum of 6 acres of the restored Refugio Creek and its adjacent habitat and shall provide an endowment in an amount approved by the Service to cover the maintenance, monitoring, and security of the conservation easement area in perpetuity. Land within the conservation easement will be managed in accordance with a Service-approved management plan and funded by the endowment in perpetuity. A Property Analysis Record (PAR) or PAR-equivalent analysis of the easement lands shall be conducted to determine the appropriate endowment amount to fund in-perpetuity management. The conservation easement shall be recorded as soon as possible following issuance of the biological opinion but will be recorded no later than 12 months after the start of the ground- or vegetation-disturbing activities. Alternatively the City shall purchase 6 acres of California red-legged frog credits at a Service-approved conservation bank within 12 months of the start of ground-breaking activities.
17. *Monthly implementation/compliance Report.* The City shall provide the Service with a written (email is acceptable) implementation and compliance report by the last calendar day of each month during which project activities occur. The report shall detail approximate project temporary and permanent impacts in acres, construction and restoration activities (e.g. grading, seeding, planting) that have occurred, and a summary of construction monitoring, activities including results of preconstruction and daily clearance surveys, compliance inspections, and observations of listed species.

### **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 purposes of the effects assessment, the action area is an approximately 200-acre, area including the entire area within the project boundary, inclusive of areas that will not be developed as part of the proposed action, and a surrounding buffer extending 200 feet. This is the area in which

the proposed action could result in direct or indirect effects on federally listed species from habitat loss, noise from construction, and potential effects of construction activities on water quality.

### **Analytical Framework for the Jeopardy Analysis**

In accordance with policy and regulation, the jeopardy analysis in this biological opinion relies on three components: (1) the *Status of the Species and Environmental Baseline*, which evaluates the species' range-wide condition, the factors responsible for that condition, and the survival and recovery needs; and evaluates the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the listed species; (2) the *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 these species; and (3) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on them.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the California red-legged frog's 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 listed species in the wild.

The jeopardy analysis in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the listed species, and the role of the action area in the survival and recovery of the listed 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.

### **Status of the Species**

**Listing Status:** The California red-legged frog was listed as a threatened species on May 23, 1996 (61 FR 25813) (Service 1996). Critical habitat was designated for this species on April 13, 2006 (71 FR 19244) (Service 2006) and revisions to the critical habitat designation were published on March 17, 2010 (75 FR 12816) (Service 2010). 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).

**Description:** The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the back. Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

**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 2011).

**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 provides 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. This 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; changing with the life history stage. The diet of the larval stage has been the least studied and is thought to be similar to that of other ranid frogs, which feed on algae, diatoms, and detritus (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 frog, 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).

**Recovery Plan:** 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. 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 identified within the Recovery Plan 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.

**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, 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). Humans 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.

### **Environmental Baseline**

The proposed action is located in the South and East San Francisco Bay Recovery Unit 4 for the California red-legged frog (Service 2002). California red-legged frogs have not been observed in the project area; however, six occurrences have been documented within a 5-mile radius of the action area. The closest occurrence is located just southeast of the intersection of I-80 and California State Route 4 less than 1 mile to the southeast of the project area; two adult and nine juvenile California red-legged frogs were observed in a tributary to Refugio Creek (CDFG 2011).

Within the action area, freshwater cattail marsh adjacent to Refugio Creek and at the southwestern and northeastern boundaries of the project area could provide suitable breeding habitat for California red-legged frogs. Refugio Creek, the North Channel, the Central Channel, and an unnamed creek that empties into San Pablo Bay at the northeastern extent of the action area are suitable non-breeding aquatic habitat for California red-legged frogs. Refugio Creek and the unnamed creek are tidally influenced and particularly at their downstream end, salinities are likely too high to support California red-legged frog breeding. The North and Central Channels are freshwater intermittent drainages that are tributary to Refugio Creek. The northern portion of the North Channel supports a willow riparian forest. However, these channels do not appear to provide pools of adequate depth and duration to support successful California red-legged frog breeding.

Brackish and freshwater marsh and ruderal and riparian vegetation along the creeks and channels in the action area provide suitable upland foraging, sheltering, and dispersal habitat for California red-legged frogs. Within the more disturbed portions of the action area, some patches of ruderal vegetation dominated by nonnative grasses and forbs could also provide limited

upland habitat. However, the majority of upland habitat in the project area has been disturbed by remediation activities associated with the former dynamite factory and fertilizer plant as well as other development, including the active Amtrak railroad that traverses the action area. Between 2002 and 2007, grading and demolition occurred on much of the project site and included removal and reworking of existing fills and buried subsurface debris, abandonment of pile elements, environmental remediation under the observation of the California Department of Toxic Substance Control, and installation of wick drains and placement of surcharge fills imported from various sites. Portions of the project area currently support large dirt stockpiles.

Threats to California red-legged frogs within the action area include mortality, injury and loss of habitat resulting from current and future Hercules Bayfront projects to be developed in association with the Waterfront District Master Plan adopted by the City in 2000, as well as future Hercules ITC phases. It is anticipated that a future phase of the Hercules ITC will include construction of a ferry terminal adjoining the ITC station building and platform that will provide ferry service between Hercules and San Francisco. Another future phase will be the Hercules Point Park project which will be developed on Hercules Point, adjacent to the Hercules ITC station building. The Hercules Bayfront project will develop the Historic Town Center and Transit Village sub-districts defined in the Hercules General Plan and will include the construction of mixed-use neighborhoods, community-oriented businesses, and public plazas. Some Hercules Bayfront residential development projects adjacent to the action area have already been completed. Additional threats to California red-legged frogs associated with ongoing and future development include chemical contamination from urban and industrial runoff and predation from non-native and human associated animal species (e.g. bullfrogs, mosquito fish, feral cats, raccoons).

### **Effects of the Proposed Action**

The proposed action has the potential to result in direct and indirect effects to the California red-legged frog. Within the action area, the majority of the upland habitat has been highly disturbed and California red-legged frogs are most likely to occur within creeks and channels and adjacent riparian and ruderal habitat, in areas of freshwater and brackish marsh, and in seasonal wetland. Construction and restoration activities within these habitats will result in displacement of individual frogs and will make the affected habitat unavailable to them for the duration of work. Approximately 1.5 acres of these habitats will be permanently lost to project development and approximately 1.8 acres will be temporarily disturbed by project construction.

Over the 48-60 month period when project construction is ongoing, mortality, injury, or harassment of California red-legged frogs could occur within active work areas. Injury or mortality could result from being crushed by construction equipment, vehicles, construction material and debris, or worker foot traffic. Construction activities could also result in mortality from being crushed or entombed in burrows during removal of vegetation, topsoil, and project grading. California red-legged frogs could also become injured or entrapped in trenches, pits, or erosion control materials. Dewatering activities could result injury or mortality if frogs become entrained or trapped in pumps. Conducting ground-disturbing work in sensitive areas only during the dry season, conducting preconstruction surveys for California red-legged frogs, having a Service-approved biologist present at the work site during ground disturbance to

prevent injury to California red-legged frogs and move frogs to a safe location, installing wildlife exclusion fencing around work areas, and screening pump intakes during dewatering will minimize these effects.

Although surveys for California red-legged frogs and the presence of an on-site biological monitor will reduce the likelihood of injury caused by construction activities within the work area, capturing and handling these animals to remove them from a work area may result in harassment and harm. Stress, injury, and mortality may occur as a result of improper handling, containment, and transport of individuals.

Degraded water quality from runoff over disturbed areas is likely to result in decreased water quality within the action area. Hazardous substances from leaking equipment or contaminated soils could also result in decreased water quality. Reduced water quality could result in reduced reproductive success, prey availability, and foraging success of California red-legged frogs. Contaminated equipment and workers could introduce or spread nonnative invasive plant species, which would diminish habitat quality. Implementing BMPs for erosion control, restricting maintenance and fueling of vehicles and equipment to designated areas, and revegetating disturbed areas will minimize these effects.

Although restoration work in Refugio Creek and the North Channel will result in the temporary loss of habitat for California red-legged frogs, restoration will likely result in an overall net benefit to the frog. Anticipated benefits include: increasing the overall length and acreage of Refugio Creek within the action area, restoring creek banks to a more natural slope and planting them with riparian vegetation, increasing marsh habitat in the Refugio Creek floodplain, and expanding wetlands associated with the North Channel. In addition, to offset effects to California red-legged frogs from construction activities, the City will either place a Service-approved conservation easement on at least 6 acres of the restored Refugio Creek area and ensure this area is protected and managed in perpetuity or purchase 6 acres of California red-legged frog credits from a Service-approved conservation bank.

### **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.

As the Hercules Bayfront area is developed, habitat provided by the remaining wetland, creek, and marsh habitat will be further fragmented isolating California red-legged frogs from other nearby populations. Increased urbanization is also likely to result in increased predation from non-native and human associated animal species and chemical contamination associated with urban and industrial runoff.

The global average temperature has risen by approximately 0.6 degrees Celsius during the 20th Century (IPPC 2001, 2007; Adger *et al.* 2007). There is an international scientific consensus that most of the warming observed has been caused by human activities (IPPC 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 the California red-legged frog 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 species in the action area, the effects of the proposed action, and the cumulative effects, it is the Service’s biological opinion that the Hercules ITC project, as proposed, is not likely to jeopardize the continued existence the California red-legged frog. We base our determination on the following: (1) the majority of the action area is highly disturbed and a relatively small portion of the suitable California red-legged frog habitat will be permanently affected; (2) a variety of conservation measures will be implemented throughout the life of the proposed action to minimize the likelihood or potential for take of individual California red-legged frogs; (3) restoration of Refugio Creek and the North Channel will result in improved habitat conditions for California red-legged frogs; and (4) 6 acres of California red-legged frog habitat will be protected in perpetuity.

## INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as actions that create the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are nondiscretionary, and must be implemented by the FTA so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, for the exemption under section 7(o)(2) to apply. The FTA has a continuing duty to regulate the activity that is covered by this incidental take statement. If the FTA (1) fails to require the applicant, or any of its contractors to adhere to the terms and conditions of the incidental take statement through enforceable terms, 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 the California red-legged frog will be difficult to detect because when this amphibian is not located at breeding ponds and pools, it inhabits the burrows of ground squirrels or other rodents, or may be difficult to locate due to its cryptic appearance and behavior; the sub-adult and adult animals may be located a distance from the breeding habitat; dispersal occurs during rainy nights in the fall, winter, or spring; and the finding of an injured or dead individual is unlikely because of their relatively small body size. Losses of this species also may be difficult to quantify due to seasonal fluctuations in numbers, random environmental events, changes in water regimes at breeding ponds, or other environmental disturbances. Therefore, the Service anticipates that all California red-legged frogs inhabiting the 32.7 acres to be temporarily or permanently disturbed by project construction will be subject to incidental take in the form of harm, harassment, and capture. The Service anticipates that no more than one (1) California red-legged frog will be subject to incidental take in the form of death or injury as a result of project related activities. Upon implementation of the Reasonable and Prudent Measures, incidental take of California red-legged frog associated with the proposed Hercules ITC Project will become exempt from the prohibitions described under section 9 of the Act.

### **Effect of the Take**

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the California red-legged frog.

### **Reasonable and Prudent Measures**

The Service believes the following reasonable and prudent measure is necessary and appropriate to minimize the effects of take on the California red-legged frog:

The proposed action will be implemented by the project proponent as described in the *Description of the Proposed Action* of this biological opinion.

### **Terms and Conditions**

To be exempt from the prohibitions of section 9 of the Act, the FTA shall ensure that the applicant complies with the following terms and conditions, which implement the *Reasonable and Prudent Measure*, described above and outline reporting and monitoring requirements. These Terms and Conditions are non-discretionary.

1. The project proponent shall minimize the potential for incidental take of the California red-legged frog resulting from the project related activities by implementation of conservation measures as described in the *Description of the Proposed Action* section of this biological opinion.

2. The FTA shall ensure that the project proponent complies with the *Reporting Requirements* of this biological opinion and the written reports described.
3. If requested, the applicant shall ensure the Service, CDFG, or their authorized agents can examine the action area for compliance with the *Project Description, Conservation Measures, and Terms and Conditions* of the biological opinion before, during, or after project completion.

### **Reporting Requirements**

The Service must be notified within 24 hours of the finding of any injured California red-legged frog, or any unanticipated damage to their habitats associated with the proposed action. Injured frogs must be cared for by a licensed veterinarian or other qualified person such as the Service-approved biologist. Notification should include the date, time, and precise location of the individual/incident 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. Dead individuals must be sealed in a zip-lock® plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it. The bag containing the specimen must be frozen in a freezer located in a secure area. The Service contact persons are the Division Chief, Endangered Species Program at the Sacramento Fish and Wildlife Office (916) 414-6600, and the Resident Agent-in-Charge of the Service's Law Enforcement Division, 2800 Cottage Way, Room W-2928, Sacramento, California 95825, at (916) 414-6660.

### **CONSERVATION RECOMMENDATIONS**

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information and data bases.

1. The FTA should require the use of appropriate California native species in revegetation and habitat enhancement efforts.
2. The FTA should assist the Service in implementing recovery actions identified in the *Recovery Plan for the California Red-legged Frog* (Service 2002).
3. Sightings of any listed or sensitive animal species should be reported to the California Natural Diversity Database of the CDFG. 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.

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

**REINITIATION—CLOSING STATEMENT**

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

If you have any questions regarding this biological opinion on the proposed Hercules ITC Project, please contact Stephanie Jentsch ([Stephanie\\_Jentsch@fws.gov](mailto:Stephanie_Jentsch@fws.gov)) or Ryan Olah, Coast Bay/Forest Foothills Division Chief, ([Ryan\\_Olah@fws.gov](mailto:Ryan_Olah@fws.gov)) at (916) 414-6600.

Sincerely,



Susan K. Moore  
Field Supervisor



cc:

Serge Stanich, HDR, Sacramento, California

Randi Adair, California Department of Fish and Game, Yountville, California

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**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**

NATIONAL MARINE FISHERIES SERVICE

Southwest Region

501 West Ocean Boulevard, Suite 4200

Long Beach, California 90802-4213

January 30, 2012

In response, refer to:  
2011/00439

Leslie Rogers  
Federal Transit Administration, Region IX  
201 Mission Street, Suite 1650  
San Francisco, California 94105

Dear Mr. Rogers:

Thank you for your letter of February 4, 2011, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA), as amended. Also, this response serves as consultation under the Essential Fish Habitat (EFH) provisions of the Magnuson Stevens Fishery Conservation and Management Act (MSA), and the Fish and Wildlife Coordination Act (FWCA) of 1934, as amended. These consultations pertain to the proposed Hercules Intermodal Transit Center (Transit Center) Project in the City of Hercules, Contra Costa County, California. The Federal Transit Authority (FTA) proposes to provide funds to the City of Hercules for portions of this project.

NMFS has reviewed the consultation initiation letter and packet including the Biological Assessment provided by FTA with its February 4, 2011, letter. Additional information was provided to NMFS via electronic mail and telephone between March 15 and July 26, 2011, by HDR, Inc., a consulting firm hired by the FTA. Additional information was provided to NMFS via postal service on October 31, 2011, by the FTA. The City of Hercules is proposing to construct the Transit Center adjacent to Hercules Point and San Pablo Bay. The proposed project would include construction of a new intercity passenger train station on the existing Capitol Corridor line, a transit bus terminal, access roadways, and parking facilities. The project is situated in a manner to accommodate a future ferry pier in the event that the San Francisco Bay Area Water Emergency Transportation Authority pursues future ferry routes connecting locations around San Francisco Bay.

Site improvements include: (1) realignment of a portion of the existing Union Pacific railroad tracks and replacement of the existing rail road bridge crossing Refugio Creek, (2) extension of John Muir Parkway, including construction of Bayfront Boulevard and bridge over Refugio Creek, a new Transit Loop Drive and bridge, Civic Plaza, and surface parking, (3) restoration and realignment of Refugio Creek from San Pablo Bay to the existing restored segment near Tsushima Bridge, (4) construction of segments of the East Bay Regional Park District's



recreational trail along the shoreline, (5) a pedestrian walkway over the railroad tracks connecting to the Hercules Point open space area, and (6) relocation of existing utility and gas lines and construction of an outfall to Refugio Creek. The majority of these activities would occur in upland areas away from San Pablo Bay. Proposed activities associated with the shoreline and waters of San Pablo Bay and Refugio Creek include: replacement of the existing rail road bridge, construction of the new Bayfront Boulevard and Transit Loop Drive bridges, and realignment of Refugio Creek to a more natural configuration which connects to its floodplain.

Proposed measures to minimize or avoid project effects on the aquatic environment include:

- excavation of intertidal mudflat areas will occur in dry season and at low tide to avoid stranding and entrainment of fish;
- silt curtain will be used for in-water excavation of tidal mudflat areas;
- pile driving will occur in dry areas or within cofferdams after dewatering, minimizing noise levels and eliminating risk of lethal noise levels to fish;
- creek restoration activities will occur in dry conditions, with cofferdams installed up and downstream of work limits;
- excavation and grading activities in areas adjacent to open water shall be completed between April 15 and October 15, and any in-water work shall occur between June 1 and November 30;
- a fish rescue and relocation plan will be implemented to avoid fish entrapment or entrainment during cofferdam dewatering;
- riprap placed seaward of the train tracks (but within right-of-way) will incorporate native vegetation;
- control measures will be utilized through all phases of work to prevent erosion, runoff, and non-point sources of contamination and increased turbidity to waterways and will follow an approved Stormwater Pollution Prevention Plan;
- stormwater retention and self-treating devices will be installed in project areas adjacent to impervious surfaces; and
- soil chemistry will be characterized for the dredging/excavation design depth within the new creek realignment area, including the tidal area of San Pablo Bay, the creek channel substrate, and the proposed floodplain of Refugio Creek. Prior to construction a sediment sampling analysis plan and the sampling analysis results will be provided to NMFS for review. If high levels of contaminants are identified in the soil characterization process, the sediments will be assessed for bioavailability and/or toxicity. If results indicate potential adverse impacts to aquatic organisms, a remediation plan will be developed prior to construction.

The FTA has requested NMFS' concurrence with the FTA finding that the proposed Transit Center project is not likely to adversely affect ESA-listed fish and designated critical habitat.

### **Endangered Species Act**

Available information indicates the following listed species (Evolutionarily Significant Units (ESU) or Distinct Population Segments [DPS] under the jurisdiction of NMFS may be affected by the proposed project:

- Sacramento River winter run Chinook salmon** (*Oncorhynchus tshawytscha*) ESU  
endangered (70 FR 37160; June 28, 2005)  
critical habitat (58 FR 33212; June 16, 1993);
- Central Valley spring run Chinook salmon** (*O. tshawytscha*) ESU  
threatened (70 FR 37160; June 28, 2005);
- Central California Coast steelhead** (*O. mykiss*) DPS  
threatened (71 FR 834; January 5, 2006)  
critical habitat (70 FR 52488; September 2, 2005);
- Central Valley steelhead** (*O. mykiss*) DPS  
threatened (71 FR 834; January 5, 2006)  
critical habitat (70 FR 52488; September 2, 2005); and
- North American green sturgeon southern** (*Acipenser medirostris*) DPS  
threatened (71 FR 17757; April 7, 2006)  
critical habitat (74 FR 52300; October 9, 2009).

In its February 4, 2011, letter, the FTA also requested consultation for Central California Coast coho salmon (*O. kisutch*). Coho salmon are not anticipated to occur in the project area and the project site is not designated as critical habitat for that species. Therefore, coho salmon and its designated critical habitat will not be included in this consultation and will not be discussed further herein.

The life history of steelhead is summarized in Busby *et al.* (1996) and Chinook salmon life history is summarized in Myers *et al.* (1998). Central California Coast (CCC) steelhead, Central Valley steelhead, Sacramento River winter-run Chinook salmon, and Central Valley spring-run Chinook salmon use San Pablo Bay adjacent to the project area as a migration corridor. Adult steelhead and adult winter-run Chinook salmon typically begin their migrations through San Pablo Bay in early December. Adult spring-run Chinook salmon migrate through San Pablo Bay during the spring months. Juvenile steelhead and Chinook salmon migrate downstream through San Pablo Bay during the late winter and spring months. Leidy *et al.* (2005) evaluated steelhead use of streams tributary to San Pablo Bay. Those authors did not find evidence for historical or current use of the Refugio Creek watershed by steelhead or salmon. Anadromous salmonids may occasionally pass Refugio Creek during their migration to or from the Pacific Ocean. By using an in-water construction window of June 1 through November 30, the applicant will avoid the migration period of both adult and juvenile ESA-listed anadromous salmonids.

The life history of green sturgeon in California is summarized in Adams *et al.* (2002) and NMFS (2005). The southern DPS of North American green sturgeon spawns in the deep turbulent sections of the upper reaches of the Sacramento River. As juvenile green sturgeon age, they

migrate downstream and live in the lower delta and bays, spending from three to four years there before entering the ocean. Adult green sturgeon return from the ocean every few years to spawn, and generally show fidelity to their upper Sacramento River spawning sites. Adult and juvenile green sturgeon may be present in San Pablo Bay and near the project site year-round.

NMFS has evaluated the proposed project for potential adverse effects to ESA-listed anadromous salmonids, green sturgeon, and designated critical habitat. Refugio Creek does not support runs of listed steelhead or salmon. The nearest stream with a spawning population of ESA-listed salmonids is Pinole Creek; that stream has CCC steelhead and enters San Pablo Bay about one mile southwest of Refugio Creek. Juvenile and adult ESA-listed salmonids migrate through San Pablo Bay. However, the project's proposed construction schedule avoids adult and juvenile listed salmonid migration periods. Thus, NMFS anticipates no ESA-listed anadromous salmonids will be present in the action area during construction and fish re-location activities. Therefore, no direct construction effects will occur to listed anadromous salmonid species.

Threatened green sturgeon are present in San Pablo bay year-round and may be in the project area during construction of the Transit Center. Replacement of the existing rail road bridge, construction of the new Bayfront Boulevard and Transit Loop Drive bridges, and realignment of Refugio Creek may have effects on water quality and produce elevated levels of underwater sound. The project site was formerly used as an explosives and fertilizer facility. Sediments in and around the project site are known to contain metals and other hazardous materials. Placement of piles and realignment of Refugio Creek are expected to disturb soft bottom sediments and generate increased levels of turbidity in a small portion of Refugio Creek and San Pablo Bay. Some construction activities, including placement of piles and the realignment of Refugio Creek, may re-suspend contaminated sediments. Increased levels of turbidity and contaminated sediments can affect listed fish species by disrupting normal feeding behavior, reducing growth rates, increasing stress levels, reducing respiratory functions, and increasing the relative incidence of some diseases. To minimize impacts associated with the suspension of sediments, the applicant has proposed the use of silt curtains, cofferdams, and other mechanisms to contain materials and reduce distribution into the water column. Therefore, NMFS anticipates that green sturgeon will not be exposed to suspended contaminated sediments and turbidity will be less than the thresholds commonly cited as the cause of these possible behavioral and physical impacts. Additionally, minor levels of suspended materials are expected to quickly disperse from the project area with tidal circulation. For these reasons, the potential effects of minor and localized areas of elevated turbidity and potential suspended contaminated sediments associated with project construction are expected to be insignificant or discountable to green sturgeon.

The installation of piles for the project's three bridges over Refugio Creek (railroad bridge, Bayfront Boulevard bridge, and Transit Loop Drive bridge) will require use of an impact hammer. Available information indicates that fish may be injured or killed when exposed to very high levels of elevated underwater sound pressure waves generated from driving steel piles with impact hammers. To assess the potential effects of pile driving, NMFS uses a dual metric criteria of 206 dB re one micropascal peak sound pressure level for any single strike and an accumulated Sound Exposure Level (SEL) of 187 dB re one micropascal squared-second to correlate physical injury to fish from underwater sound produced during the installation of piles with impact hammers (Caltrans 2009). As distance from the pile increases, sound attenuation

reduces levels and the potential harmful effects to fish also decrease. Disturbance and noise associated with construction at the pile driving site may also startle fish and result in dispersion from the action area.

The size, shape, and material from which the piles are constructed all affect the sound level anticipated during pile driving. All piles proposed for use by this project will be 15-inch diameter steel H-piles. Based on hydroacoustic data collected from projects placing similar piles with an impact hammer (Caltrans 2009), sound pressure levels should not present a risk of physical injury or mortality to listed salmonids or sturgeon. For this project, NMFS anticipates the unattenuated near-source (10-meter) sound pressure levels during driving of 15-inch H-piles using an impact hammer will be approximately 190 to 195 dB (peak pressure) and 155 to 170 dB (SEL). These sound levels are significantly lower than the NMFS thresholds for the onset of physical injury to fish. Further, the applicant proposes to use cofferdams which will further attenuate the sound by isolating the piles from the surrounding water. Fish may react behaviorally to the sound produced during the installation of these piles. No anadromous salmonids are expected to be present in the project area due to the time of construction and few green sturgeon are expected to be near the project site. San Pablo Bay offers adequate areas to escape this disturbance during pile driving. If threatened green sturgeon react behaviorally to the sound produced by pile driving, adequate water depths and the open water area adjacent to the project site will provide startled fish sufficient area to escape and elevated sound levels should not result in more than an insignificant effect on them.

A portion of Refugio Creek will be dewatered for construction purposes and the project proposes to collect and relocate fish during dewatering. Listed anadromous salmonids will not be present during the construction period and, thus, not expected to be affected by this activity. Although green sturgeon could be presented in San Pablo Bay and in the vicinity of lower Refugio Creek, cofferdams will be installed during low tides when much of the substrate is exposed. During low tide, the area is too shallow to support large fish such as green sturgeon. Due to existing degraded habitat conditions in Refugio Creek, green sturgeon are unlikely to occur in areas upstream of the current railroad tracks which will be dewatered using cofferdams. For these reasons, green sturgeon are unlikely to be collected during the fish collection activities associated with dewatering and cofferdam construction. The likelihood of adverse impacts to green sturgeon from dewatering or cofferdam construction is discountable.

Primary constituent elements (PCEs) of designated critical habitat for listed salmonids in the action area include water quality and quantity, foraging habitat, natural cover including large substrate and aquatic vegetation, and migratory corridors free of obstructions. PCEs for designated green sturgeon critical habitat in estuarine areas include: food resources, water flow, water quality, migratory corridor, water depth, and sediment quality. As discussed above, effects on water quality and aquatic habitat in Refugio Creek and San Pablo Bay during construction are expected to be minor and temporary. The project may also affect critical habitat through (1) temporary disturbance of benthic habitat in Refugio Creek and San Pablo Bay, (2) increased storm water runoff from new impervious surfaces, and (3) restoration of the Refugio Creek to its historical channel alignment.

Benthic habitat areas in Refugio Creek and San Pablo Bay will be disturbed during construction of the realigned channel. The project proposes to sculpt the channel using a long-reach excavator and some portions of the channel will be dewatered using cofferdams. Benthic sediments provide a substrate for infaunal and bottom-dwelling organisms, such as polychaete worms and crustaceans, which in turn provides potential prey items for green sturgeon. However, this disturbance of benthic habitat will be temporary. The depth of the sculpted channel is shallow and layers of mud and silt are expected to rapidly deposit during subsequent tide cycles following construction. NMFS expects infaunal and bottom-dwelling organisms to reinvade the area quickly and restore conditions which support green sturgeon foraging. Neither salmonids nor green sturgeon have been observed in Refugio Creek, though both salmonids and green sturgeon may be present in San Pablo Bay near the mouth of Refugio Creek. There is sufficient surrounding area for feeding, so the potential temporary impacts to this foraging habitat are expected to be discountable or insignificant.

Storm water runoff to San Pablo Bay is expected to increase due to this project's construction of buildings, roadways, and parking areas. Because impervious surfaces prevent water from soaking into the ground, roofs, parking lots, and roads can have dramatic effects on hydrology (reviewed in Calder 1993, Urbonas and Roesner 1993, and Brabec *et al.* 2002). Impervious surfaces and higher storm water runoff rates contribute to erosion, chemical toxicity, and concentrated surface runoff following precipitation events. In undeveloped areas, storm water can soak into the ground, allowing soil and vegetation to filter out pollutants and moderate temperature. To minimize the effects associated with increased impervious surface areas at the project site, the applicant proposes to incorporate sand filters, landscaped bioretention facilities, and self-retaining or self-treating areas. These measures are expected to remove containments from runoff and avoid significant downstream changes to the hydrograph. For these reasons, the project is expected to avoid and minimize the impacts of storm water discharges to Refugio Creek and San Pablo Bay to levels that are discountable or insignificant for listed species and critical habitat.

When project construction is completed, the realignment of Refugio Creek and reconnection to its floodplains are expected to improve aquatic conditions in that stream. The channel was straightened and relocated from its historical alignment. The proposed restoration of Refugio Creek will return the channel to its historical meandering condition and re-establish a connection with vegetated areas on the adjacent tidal floodplain. Considering the current condition of the project area, the construction activities of this project are not expected to degrade PCEs of critical habitat for listed salmonids or green sturgeon. Overall, the potential effects of this project are considered insignificant or discountable and are not expected to result in adverse impacts to designated critical habitat.

Based on the best available information, NMFS concurs with the FTA's determination that ESA-listed anadromous salmonids, green sturgeon, and designated critical habitat are not likely to be adversely affected by this project. This concludes consultation in accordance with 50 CFR 402.13(a) for the proposed construction of the Hercules Intermodal Transit Center and realignment of Refugio Creek, in the Town of Hercules, Contra Costa County, California. However, further consultation may be required if (1) new information becomes available indicating that listed species or critical habitat may be affected by the project in a manner or to

an extent not previously considered; (2) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not previously considered; or (3) a new species is listed or critical habitat designated that may be affected by the action.

### **Magnuson-Stevens Fishery Conservation and Management Act Comments**

EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity. EFH includes all associated physical, chemical and biological properties of aquatic habitat that are used by fish. The project is located within an area identified as EFH for various life stages of fish species managed with the following Fishery Management Plans (FMP) under the MSA:

**Pacific Groundfish FMP** – various rockfish, sole, and sharks;

**Pacific Salmon FMP** – Chinook salmon, coho salmon; and

**Coastal Pelagic FMP** – northern anchovy, Pacific sardine.

In addition, the project occurs within an area designated as Habitat Areas of Particular Concern (HAPC) for various federally managed fish species within the Pacific Groundfish FMP. HAPC are described in the regulations as subsets of EFH that are rare, particularly susceptible to human-induced degradation, especially ecologically important, or located in an environmentally stressed area. Designated HAPC are not afforded any additional regulatory protection under MSA; however, federal projects with potential adverse impacts to HAPC are more carefully scrutinized during the consultation process. As defined in the Pacific Groundfish FMP, San Francisco Bay, including the project area, is within estuary HAPC. Submerged aquatic vegetation including eelgrass (*Zostera* sp.), occurs within 300 meters of the construction footprint, and is also designated as HAPC.

NMFS has evaluated the proposed project for potential adverse effects to EFH pursuant to Section 305(b)(2) of the MSA. Under the EFH implementing regulations [50 C.F.R. 600.810(a)], the term “adverse effect” is defined as any impact that reduces quality and/or quantity of EFH and may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce quantity and/or quality of EFH. Based on information provided in the EFH assessment and developed during consultation, potential adverse effects to EFH and HAPC from project activities include: (1) temporary increases in turbidity; (2) temporary elevated levels of underwater sound; (3) residual contaminant exposure, including metals and organics; and (4) temporary and permanent alterations to hydrodynamic regimes and physical habitat (Hanson *et al.* 2003).

NMFS anticipates the proposed realignment of the Refugio Creek channel and the installation/removal of coffer dams will result in short-term degradation and/or loss of EFH through increased turbidity from disturbed sediments within the action area. Fish may suffer reduced feeding ability (Benfield and Minello 1996) and be prone to fish gill injury (Nightingale and Simenstad 2001) if exposed to excessive high levels of turbidity. The associated turbidity plumes of suspended particulates into San Pablo Bay may reduce light penetration and lower the rate of photosynthesis for subaquatic vegetation including nearby eelgrass (Dennison 1987) and

the primary productivity of an aquatic area if suspended for extended periods of times (Cloern 1987). Best management plans to be implemented by the applicant, including coffer dams, silt curtains, and dredging restrictions, will limit increases in turbidity, however, turbidity will temporarily increase when coffer dams are removed and tidal action returns to the areas of disturbed sediments.

Pile driving proposed for the project will occur in dewatered areas of the construction site and levels of sound in adjacent waters are not expected to exceed NMFS' single strike or cumulative threshold for fish injury. However, low frequency sound transmitted through the ground to adjacent waters may cause fish to leave the area temporarily.

Approximately 0.72 acres of open-water estuarine EFH in Refugio Creek will be subject to construction activities and temporarily inaccessible to fish while the Creek is dewatered for restoration. The benthic invertebrate community will also be impacted. Rates of benthic recovery range from several months to several years for estuarine muds (McCauley *et al.* 1976, Oliver *et al.* 1977, Currie and Parry 1996, Tuck *et al.* 1998, Watling *et al.* 2001). Thus, forage resources for fish that feed on the benthos may be substantially reduced during the 2 to 3 years of construction before recovery is achieved. However, this loss and disturbance of benthic habitat is temporary and will likely be offset by the permanent beneficial effects from restoration efforts in the creek.

The project proposes to characterize the soil chemistry of the excavation areas within Refugio Creek and San Pablo Bay prior to construction. If high levels of contaminants are identified in the soil characterization process, the sediments will be assessed for bioavailability and/or toxicity. If results indicate potential adverse impacts to aquatic organisms, a remediation plan will be developed prior to construction. This measure is expected to avoid long-term impacts that may be associated with residual chemical concentrations from newly exposed sediment. This measure is also expected to address any dredging residuals that are generated when contaminated sediments are suspended during excavation and re-deposited on the surface of the project area. Dredging residuals contribute to long-term risk at the site, including bioaccumulative risk, if they are sufficiently thick and extensive (USACE *et al.* 2009). Any residual toxic metals and organic contaminants absorbed or adsorbed to fine-grained particulates in the surface layer of sediment may become available to organisms either in the water column or through food chain processes.

The proposed development and restoration will result in alteration to hydrodynamic regimes and physical habitat. Concentrated and increased flow of stormwater and sediment at outfall points from increased area of impermeable surfaces, proposed drainage upgrades, and realignment of Refugio Creek may create erosion and scouring of the receiving creek, nearby unarmored shorelines, and adjacent creek beds and mudflat areas. Stormwater draining into estuarine waters can also introduce pollutants detrimental to estuarine and marine habitats. Realignment of Refugio Creek to include floodplains, and re-direct outflow to San Pablo Bay will increase capacity of the area for run-off. In addition, storm water management and water quality compliance with the San Francisco Bay Regional Water Quality Control Board standards included in the project should reduce particulate pollutant discharges and reduce the scouring potential associated with higher velocity flows. Despite this, a new area of mudflat may initially

be subject to scour with the realignment of the creek mouth. This area of scour may be offset by build-up of mudflats in the location of the former creek mouth. The realignment and floodplain restoration of Refugio Creek will add length and habitat area and enhance the ecological function of the creek. Therefore, an overall improvement and net gain of EFH is expected in Refugio Creek.

As described in the above effects analysis, NMFS has determined that the proposed project may adversely affect EFH and HAPC for various federally-managed fish species within the Pacific Groundfish, Pacific Salmon and Coastal Pelagic FMPs. Pursuant to section 305 (b)(4)(a) of the MSA, NMFS offers the following EFH Conservation Recommendation to avoid, minimize or otherwise offset other anticipated adverse effects to EFH:

1. to avoid and minimize impacts to nearby eelgrass from turbidity during and after coffer dam removal, NMFS recommends that silt curtains be situated to prevent turbidity and suspended sediments from migrating into surrounding tidal areas and into eelgrass beds. A turbidity management plan should be submitted to NMFS for review and approval 60 days prior to construction. Cofferdam removal should not commence until the turbidity management plan has been reviewed and approved by NMFS.

Please be advised that regulations (50 CFR 600.920(k)) to implement the EFH provisions of the MSA require your office to provide a written response to this letter within 30 days of its receipt and prior to the final action. A preliminary response is acceptable if final response cannot be completed within 30 days. Your final response must include a description of how the EFH Conservation Recommendation will be implemented and any other measures that will be required to avoid, mitigate, or offset the adverse impacts of the activity. If your response is inconsistent with our EFH Conservation Recommendation, you must provide an explanation for not implementing this recommendation at least 10 days prior to final approval of the action.

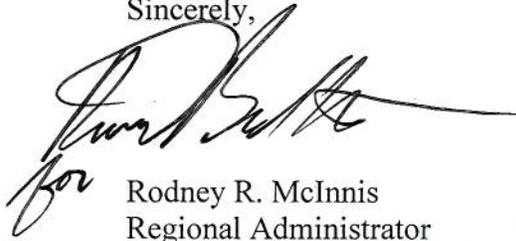
This concludes EFH consultation for the proposed Hercules Intermodal Transit Center project in the City of Hercules, Contra Costa County, California. Pursuant to 50 CFR 600.920(l) of the EFH regulations, the FTA must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendation.

#### **Fish and Wildlife Coordination Act**

The purpose of the FWCA is to ensure that wildlife conservation receives equal consideration, and is coordinated with other aspects of water resources development [16 U.S.C. 661]. The FWCA establishes a consultation requirement for federal departments and agencies that undertake any action that proposes to modify any stream or other body of water for any purpose, including navigation and drainage [16 U.S.C 662(a)]. Consistent with this consultation requirement, NMFS provides recommendations and comments to federal action agencies for the purpose of conserving fish and wildlife resources. With implementation of the EFH conservation recommendation, NMFS has no further comments to provide.

If you have any questions about these comments related to EFH, please contact Maureen Goff at (707) 575-6067 or [maureen.goff@noaa.gov](mailto:maureen.goff@noaa.gov). If your comments relate to ESA, please contact Daniel Logan at (707) 575-6053 or [dan.logan@noaa.gov](mailto:dan.logan@noaa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Rodney R. McInnis". The signature is written in a cursive style with a long horizontal flourish extending to the right. Below the signature, the word "for" is written in a smaller, cursive script.

Rodney R. McInnis  
Regional Administrator

cc: Bryant Chesney, NMFS, Long Beach, California  
Paul Page, FTA, San Francisco, CA  
Kathryn Hart, SFRWQCB, Oakland, CA  
Ming Yeung, BCDC, San Francisco, CA  
Suzanne Gilmore, CDFG, Yountville, CA  
Stephanie Jentsch, USFWS, Sacramento, CA  
Copy to File #151422SWR2011SR00111

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