

## 2.3 BIOLOGICAL ENVIRONMENT

### 2.3.1 NATURAL COMMUNITIES

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

The City of Vallejo Tree Ordinance (290 N.C., as amended) requires that certain trees on City property must be identified and permitted prior to removal. Tree removal permits are issued by the City's director of Public Works. Protected trees must meet the following criteria to be protected under this ordinance: (1) be located within in the City roadway right-of-way or planting easement; (2) of a variety the City has on a past or current "Approved Street Tree List".

### Affected Environment

The following analysis is based on the Natural Environment Study (NES) prepared for the project 2012 (Department, 2012g).

The biological study area (BSA) for the project includes the physical footprint of the Build Alternative, including all areas where ground disturbance would occur under the Build Alternative (e.g., construction staging areas, demolition, earthmoving activities, etc.), areas of right-of-way to be obtained for the project, temporary access areas, and an area to the west of Fairgrounds Drive, between Coach Lane and Six Flags Discovery Kingdom Amusement Park. For the purposes of the California red-legged frog (CRLF) habitat assessment surveys, the survey area was extended beyond the BSA to meet the specific United States Fish and Wildlife Service (USFWS) or Department protocols (see **Subsection 2.3.2** and **Subsection 2.3.3** for further discussion of the affected environment for these specific resource areas). The BSA was defined to include the areas of direct and indirect potential effects that may occur when implementing the proposed Build Alternative.

Formal studies of biological resources within the BSA were conducted on the following listed survey dates:

- A habitat assessment for CRLF was conducted on December 10th, 2010.
- Eight protocol-level surveys for CRLF were conducted, including six breeding season surveys (four nighttime surveys/two daytime surveys) and two non-breeding season surveys (one nighttime survey/one daytime survey). Breeding season surveys were conducted on February 23, March 14, March 21 and March 31, 2011. Non-breeding season surveys were conducted on July 28, 2011.
- Field investigations were conducted on February 16-18th, 2011 to delineate water features, including wetlands and other Waters of the U.S.

- A reconnaissance survey to identify suitable habitat for special-status plants and to verify preliminary vegetation and land-cover classification was conducted on January 12, 2011. Two natural communities within the BSA provide suitable habitat for State-listed rare plants, and therefore a protocol-level survey was conducted on September 9, 2011, to determine the presence or absence of those State-listed species.
- A tree survey was conducted over a period of four site visits between September 28, 2011 and October 12, 2011.

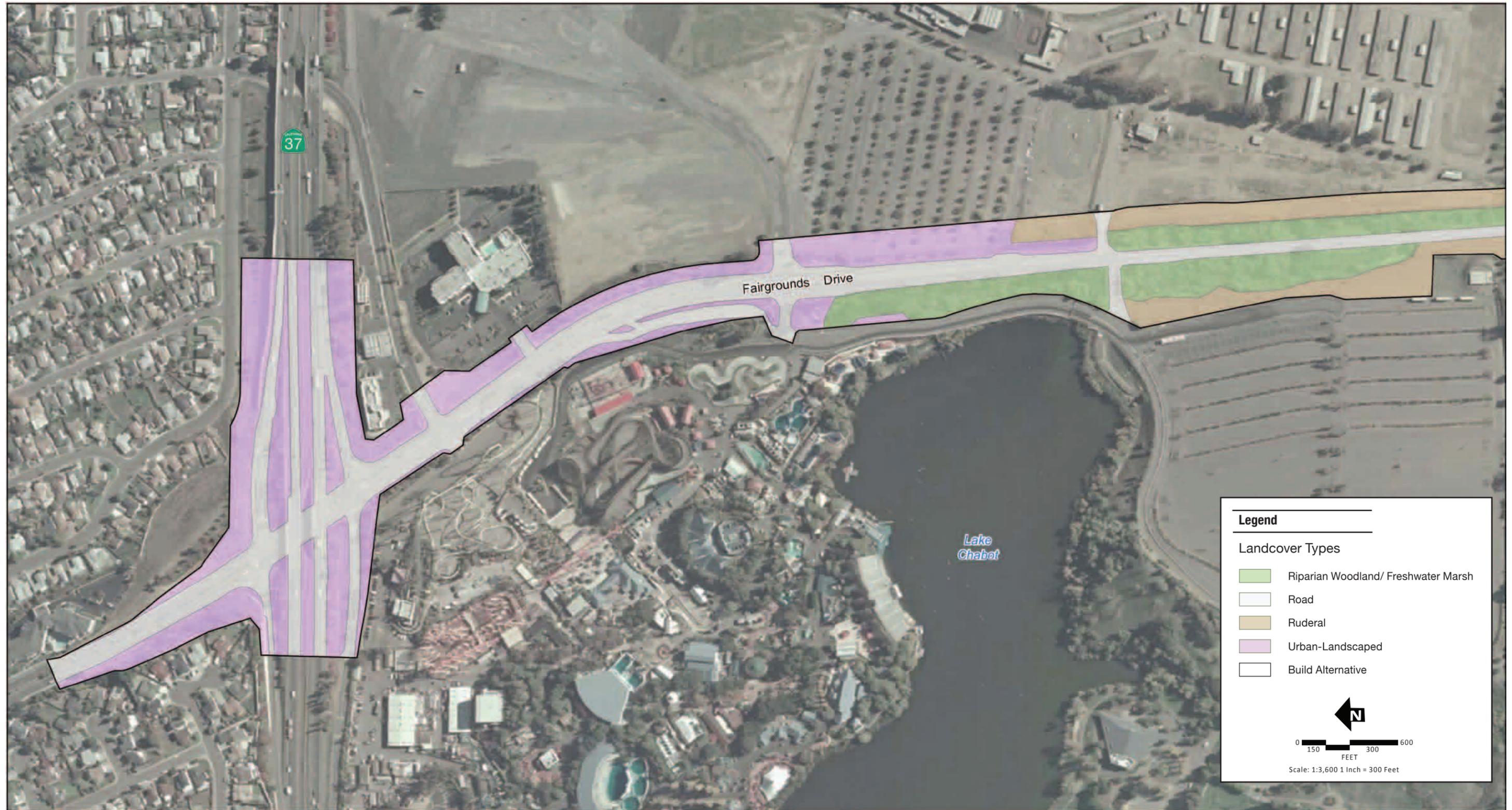
An Essential Fish Habitat evaluation was not required for the Build Alternative because the dam that creates Lake Chabot prevents species of fish managed for commercial or recreational uses from accessing Rindler Creek.

**Table 2.3.1-1** lists the natural communities present within the BSA (see **Figure 2-33a** and **2-33b**). Principal characteristics and general locations of these communities are described in this subsection. The vegetation types identified within the BSA support a variety of wildlife species, including mammals, birds, amphibians, reptiles, and fishes. Marsh habitats can provide habitat for fish nurseries, amphibians, aquatic reptiles, wading birds, waterfowl, and song birds. Riparian woodland can provide foraging, roosting, and nesting habitat for a variety of birds and provide cover and refuge sites for small mammals, amphibians, and reptiles. Detailed descriptions of each habitat and vegetation mapping are described in greater detail in the NES.

Table 2.3.1-1 Area of Vegetation and Land-Cover Classification Within the BSA and Estimated Areas of Impact

Land-Cover Type	Permanent Impact (Acres)	Temporary Impact (Acres)	Total	No Impact (Acres)	Total Within BSA
Freshwater Marsh	0.020	0.093	0.113	1.250	1.363
Perennial Stream	0.000	0.515	0.515	0.250	0.765
Riparian Woodland	0.000	1.423	1.423	2.599	4.022
Road	0.000	0.000	0.000	29.269	29.269
Ruderal	1.902	0.498	2.400	3.096	5.496
Seasonal Wetland	0.017	0.013	0.030	0.060	0.090
Urban Landscaped	9.805	11.062	20.867	12.678	33.545
Total Acreage	11.744	13.604	25.348	49.202	74.550

Source: Department, 2012g.



Landcover Types **Figure** 2-33a

*Figure 2-33a Landcover Types (back)*



Landcover Types **Figure** 2-33b

*Figure 2-33b Landcover Types (back)*

### Riparian Woodland

The 4.022 acres of riparian woodland community within the BSA includes the tree and shrub-dominated land cover found within the Rindler Creek corridor, which extends along the east and west sides of Fairgrounds Drive. The riparian woodland of the Rindler Creek corridor is composed of a dense growth of native and introduced evergreen and deciduous trees and shrubs, with an herbaceous understory. The dominant plants are large, deciduous willow shrubs that are native species, including Goodding's black willow (*Salix gooddingii*) and arroyo willow (*Salix lasiolepis*). Other native trees and shrubs are scattered throughout the area and include coast live oak (*Quercus agrifolia*), an evergreen tree; black cottonwood (*Populus balsamifera ssp. trichocarpa*), a deciduous tree; and blue elderberry (*Sambucus mexicana*), a deciduous shrub. Introduced trees and shrubs present in lesser abundance include: Italian buckthorn (*Rhamnus alaternus*), cherry plum (*Prunus cerasifera*), silver wattle (*Acacia dealbata*), river red gum (*Eucalyptus sideroxylon*), glossy privet (*Ligustrum lucidum*), and pines (*Pinus spp.*). These non-native species appear to have migrated from nearby landscaping. Also present in the shrub layer are dense thickets of the non-native invasive Himalayan blackberry (*Rubus discolor*). The herbaceous understory includes native and non-native grasses and annual herbs, including: saltgrass (*Distichlis spicata*), wire rush (*Juncus patens*), teasel (*Dipsacus fullonum*), common groundsel (*Senecio vulgaris*), field marigold (*Calendula arvensis*), fiddle dock (*Rumex pulcher*) and poison hemlock (*Conium maculatum*).

Riparian woodland habitat can support a variety of wildlife species including mammals, birds, reptiles, and amphibians. Riparian habitats can also provide important migration corridors for wildlife. Common wildlife that is expected to occur within the riparian woodland habitat of the BSA includes Northern raccoon (*Procyon lotor*), Virginia opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), American crow (*Corvus brachyrhynchos*), lesser goldfinch (*Carduelis psaltria*), western scrub jay (*Aphelocoma californica*), a variety of sparrows and towhees (*Emberizidae*), and Pacific tree frog (*Pseudacris regilla*). Cooper's hawk (*Accipiter cooperii*), California red-legged frog (*Rana draytonii*), foothill yellow-legged frog (*Rana boylei*), and western pond turtle (*Emys marmorata*) all have potential to occur within the Rindler Creek corridor. Non-native predatory species, such as fish and crayfish, were also found to inhabit Rindler Creek.

### Freshwater Marsh

Freshwater marsh is considered a natural community of special concern. Freshwater marsh habitat can provide habitat for fish, amphibians, aquatic reptiles, waterfowl, song birds, and wading birds. Common wildlife that could be expected to occur in the freshwater marsh habitat of the BSA includes passerine birds and Pacific chorus frog (*Pseudacris regilla*). California red-legged frog, foothill yellow-legged frog, and western pond turtle all have potential to occur in freshwater marsh habitat.

Nine freshwater marsh features, totaling 1.363 acres, were mapped within the BSA with the majority occurring in association with Rindler Creek and the backwater channels of Lake Chabot. Freshwater marsh vegetation within the BSA consists of open, mainly unshaded areas within the Rindler Creek corridor that have year-round standing water or

saturated soils. The freshwater marshes were largely vegetated with perennial emergent species, such as bulrush, water knotweed, and cattail. A few additional species, such as bull thistle, fringed willowherb, and Himalayan blackberry were also present.

### **Ruderal Vegetation**

Ruderal is the term used to describe roadside vegetation composed of primarily upland weedy, non-native grasses and forbs. It is distinguished from landscaped areas because it is highly disturbed and dominated by invasive weedy species. Ruderal vegetation is present along roadsides, within graded vacant lots, and within areas of open ground on the edges of the Six Flags Discovery amusement park property within the BSA. Non-native herbaceous species of these areas include: bristly ox-tongue (*Picris echioides*), burclover (*Medicago polymorpha*), cheeseweed (*Malva parviflora*), common groundsel, red-stemmed filaree (*Erodium cicutarium*), stinkweed (*Dittrichia graveolens*), teasel, smooth cat's-ear (*Hypochaeris glabra*), summer mustard (*Hirschfeldia incana*), wild radish (*Raphanus sativus*), and common mustard (*Brassica rapa*). Non-native grasses include: Harding grass (*Phalaris aquatica*), and annual bluegrass (*Poa annua*).

Ruderal habitats are capable of supporting a number of bird species associated with urban environments, and which are known to be tolerant of disturbance by human activities. Common wildlife that could be expected to occur in ruderal habitat include raccoon, Virginia opossum, striped skunk, American crow, and western fence lizard (*Sceloporus occidentalis*).

### **Urban/Landscaped**

The urban/landscaped areas within the BSA include areas with residential housing, small businesses, motels, gas stations, and other urban development. The dominant trees of the landscaped areas include mainly non-native species such as pines (*Pinus* spp.), eucalyptus (*Eucalyptus* spp.), fan palms (*Washingtonia* spp.), acacias and wattles (*Acacia* spp.), alders (*Alnus* spp.), maples (*Acer* spp.), ornamental pears (*Acer* spp.), liquidambar (*Liquidambar styraciflua*), ashes (*Fraxinus* spp.), and many others. A large number of species of non-native shrubs, perennial herbs, annual herbs, and grasses, also are common components of urban landscaping. Similar to the ruderal habitat described above, common wildlife that could be expected to occur in urban areas include raccoon, Virginia opossum, striped skunk, and American crow. Feral or free-roaming pets, such as dogs and cats, are also common.

### **Sensitive Natural Communities**

According to the California Natural Diversity Database (CNDDDB) search of the United States Geological Survey (USGS) for 7.5-minute quadrangles Walnut Creek, Briones Valley, Richmond, Fairfield South, Cordelia, Benicia, Vine Hill, Cuttings Wharf, Mare Island, Mt. George, Fairfield North, and Napa. Two natural communities of special concern occur in the BSA: freshwater marsh and riparian woodland. The occurrence of these habitats is described above.

## Environmental Consequences

### **Build Alternative**

Two natural communities of special concern are identified within the BSA: freshwater marsh and riparian woodland. These communities consist of potentially jurisdictional Waters of the U.S., including wetlands (i.e., freshwater marsh), which are regulated by the United States Army Corp of Engineers (USACE), as well as waters of the State and riparian areas (i.e., Rindler Creek habitat) regulated by the Regional Water Quality Control Board (RWQCB) and the California Department of Fish and Game (CDFG). Adverse effects related to these two communities of special concern Waters of the U.S. are described in **Subsection 2.3.2** below, under wetlands and other Waters of the U.S.

### **Temporary Construction and Operational Impacts**

Impacts to riparian woodland community occur primarily in the area east of the current Fairgrounds Drive alignment, where Rindler Creek has an established riparian corridor. The riparian woodland along Rindler Creek includes approximately 151 trees that would be removed as part of the Build Alternative. This includes the removal of 32 native oak trees that are located within the landscaped areas along Fairgrounds Drive, and on private residential and commercial properties within the BSA.

### **No-Build Alternative**

The No-Build Alternative would make no physical or operational improvements to Fairgrounds Drive, Redwood Parkway, or the connecting freeways within the BSA, and would therefore avoid the effects to natural communities associated with the Build Alternative.

## Avoidance, Minimization, and/or Mitigation Measures

The Build Alternative proposes to include on-site replacement of the wetlands (including freshwater marsh) and riparian woodlands associated with realignment of Rindler Creek see discussion in **Chapter 1.0, Proposed Project**. Replanting of native oaks within similar habitat areas of the BSA would be accomplished during the revegetation phase of the realignment process. The mitigation for oak tree removal will include appropriate replacement as part of revegetation of the realignment of Rindler Creek. The amount of replacement will be determined in consultation with the CDFG and documented in a streambed alteration agreement. Compliance with the CDFG agreements would mitigate any adverse effects to native oaks.

In accordance with the City of Vallejo Tree Ordinance, the project contractor(s) would identify any trees within City rights-of-way that would require local permitting prior to removal.

## 2.3.2 WETLANDS AND OTHER WATERS

### Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act [CWA (33 U.S.C. 1344)] is the primary law regulating wetlands and surface waters. The CWA regulates the discharge of dredged or fill material into waters of the United States (U.S.), including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the U.S. Environmental Protection Agency (U.S. EPA).

USACE issues two types of 404 permits: Standard and General permits. Nationwide permits, a type of General permit, are issued to authorize a variety of minor project activities with no more than minimal effects. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 CFR Part 230), and whether permit approval is in the public interest. The 404 (b)(1) Guidelines were developed by the U.S. EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (Waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on Waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration (FHWA) and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Game (CDFG), the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB). In certain circumstances, the Coastal Commission (or Bay Conservation and Development

Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the **Subsection 2.2.2, Water Quality**, for additional details.

### Affected Environment

The following analysis is based on the NES approved in April 2012 (Department, 2012g). Wetland delineations were conducted within the BSA by consultant biologists on February 16-18, 2011. The delineations were conducted in accordance with USACE guidance. Where portions of wetlands fell within the BSA, the wetland delineation study area boundaries were extended to include the entire water feature.

A field review of the preliminary wetland delineation was conducted with the USACE on December 8, 2011. The USACE concluded that 2.268 acres of water features in the BSA are potential Waters of the U.S., including wetlands. A map of those jurisdictional aquatic features has been submitted to the USACE for verification. **Table 2.3.2-1** summarizes the potential jurisdictional waters within the BSA, by feature.

Table 2.3.2-1 Summary of Potential Jurisdictional Wetlands and Other Waters within the BSA

Type of Feature	Potential Jurisdictional Acreage
Wetlands	
Freshwater Marsh	1.363
Riparian forest mosaic	0.145
Seep	0.023
Ephemeral channel	0.002
Seasonal wetland	0.090
Perennial Stream	0.765
<i>TOTAL</i>	<i>2.268</i>

Source: Department, 2012g.

The water features listed in **Table 2.3.2-1** above are further described below. Detailed mapping of the potential jurisdictional areas is included in the *Preliminary Wetland Delineation Report*.

### **Freshwater Marsh**

Nine potentially jurisdictional freshwater marsh features, totaling 1.363 acres, were mapped within the BSA. Most of these features are associated with the shallow water areas of Rindler Creek, and appear to remain perennially wet. At the time of survey, these features contained up to 2 feet of standing water. These freshwater marsh features are likely considered jurisdictional waters because they are adjacent to and/or have connectivity with Rindler Creek. Also see description above under **Subsection 2.3.1** for more information on the freshwater marsh.

### **Riparian Forest Mosaic**

Two potentially jurisdictional riparian forest mosaic features (totaling 0.145-acre) occur within the BSA. The habitat is patchy “mosaic,” with some areas dominated by herbaceous species common to the “freshwater marsh” and/or “seasonal wetland” types, and other areas dominated by trees more common of “forest.” Both features are located in low-lying areas between Fairgrounds Drive and Six Flags Discovery Kingdom. These wetlands had saturated soils, and/or up to six inches of standing water at time of survey. These features are adjacent and/or connected to Rindler Creek. Therefore, these riparian forest mosaic wetlands likely qualify as jurisdictional Waters of the U.S.

### **Seasonal Wetlands**

Nine jurisdictional seasonal wetland features are present in the BSA (totaling 0.090-acre). Most of the seasonal wetland features within the BSA (6 of 9) appear to be man-made. Four seasonal wetlands are located in shallow depressions of the Solano County Fairgrounds “lawn”. Two seasonal wetlands occur in low-lying depressions in the landscaping on the east side of I-80. Three of the seasonal wetland features may be naturally created, and are adjacent and/or connected to Rindler Creek.

### **Seep**

One potentially jurisdictional seep feature occurs within the BSA (totaling 0.023-acre). This seep is located in an area of managed vegetation at the base of the Six Flags Discovery Kingdom property. The water in this area appeared to originate from a leaking irrigation valve; some rainwater was also present at the time of survey.

### **Perennial Stream**

Three jurisdictional perennial stream segments (totaling 0.765-acre) were mapped within the BSA. These segments are all portions of Rindler Creek. At the time of survey, Rindler Creek was approximately 20 feet wide in most segments, but wider in short segments (up to 45 feet wide). The creek was more than 5 feet deep in the center.

### **Ephemeral Channels**

One jurisdictional ephemeral channel feature is mapped within the BSA. This channel consists of a short (approximately 18 feet long and 4 feet wide, 0.002-acre) unvegetated erosion channel, where a seasonal wetland overflows into Rindler Creek. At the time of

the survey, this feature contained approximately 1 inch of water. This channel is likely considered jurisdictional because of its connection to Rindler Creek.

## Environmental Consequences

### Build Alternative

#### *Temporary Construction Effects*

As described in **Chapter 1.0, Proposed Project**, a water diversion channel would be installed to maintain flow in the unaffected portions of Rindler Creek during construction. The freshwater marsh that is downstream of the proposed diversion channel is essentially at the same elevation as Lake Chabot, and thus the backflow from the lake provides a hydrologic connection that would remain unaffected by the construction activities. This would allow the freshwater marsh community to remain hydrated during the construction activities.

Water quality during construction would be protected by best management practices (BMPs) that would be developed and included in the Storm Water Pollution Prevention Plan (SWPPP) that would be prepared and approved prior to construction (see **Subsection 2.2.2, Water Quality**, for further details regarding this plan).

#### *Operational Effects*

Build Alternative impacts to Waters of the U.S., CDFG streambeds, and riparian habitat would primarily be related to the fill needed to create roadbed for the proposed widening of Fairgrounds Drive. In the area of Rindler Creek and Lake Chabot, the proposed widening of Fairgrounds Drive would occur to the east of the existing roadway, which would avoid direct effects to the freshwater marsh features/seasonal wetlands immediately adjacent to the west side of Fairgrounds Drive.

As part of the Build Alternative, the existing portion of Rindler Creek north of Coach Lane would be realigned to be immediately east of the widened roadway. The realigned Rindler Creek would be of the same size as the existing creek and revegetated to maintain by hydrological and biological function. The impacted jurisdictional water features to the east of Fairgrounds Drive (totaling approximately 0.621 acres) would be restored on-site at a 1:1 replacement ratio. Impacts to the jurisdictional water features and freshwater marsh communities associated with Rindler Creek would thereby be avoided through the complete on-site replacement of the affected creek segment. The procurement of on-site restoration for impacts to these areas would be permitted and verified by the appropriate regulatory oversight agencies prior to construction. The on-site restoration of Rindler Creek is anticipated to provide satisfactory mitigation for impacts to riparian habitat, including the removal of 151 trees. Restoration on-site will also ensure that functions, such as water flow through the BSA, will continue unchanged.

**Table 2.3.2-2** summarizes the impacts to other potential jurisdictional waters within the BSA (not associated with impacts related to the realignment of Rindler Creek).

Table 2.3.2-2 Impacts to Potential Jurisdictional Wetlands outside of Proposed Rindler Creek Realignment

Type of Feature	Potential Jurisdictional Acreage
Wetlands	
Freshwater Marsh	0.020
Riparian forest mosaic	0
Seep	0
Ephemeral channel	0.002
Seasonal wetland	0.017
<i>TOTAL</i>	<i>0.039</i>

Source: Department, 2012g.

Impacts to potential jurisdictional water features outside of the Rindler Creek realignment area (0.039 acres) would not be restored on site as part of the Build Alternative, and are subject to the provisions of **Mitigation Measure BIO-1** below.

#### **No-Build Alternative**

The No-Build Alternative would make no physical or operational improvements to Fairgrounds Drive, Redwood Parkway or the connecting freeways within the BSA. Implementation of the currently planned and funded transportation projects outside the BSA but within the project region would be subject to the same potential presence of jurisdictional waters as the Build Alternative, since they would occur in the same general region. These projects would be required to comply with the USACE, RWQCB, and CDFG requirements regarding protected Waters of the U.S., should those features be identified within areas that would be directly or indirectly affected. The potential presence of jurisdictional waters in areas outside of the BSA would be determined under separate environmental review.

#### **Avoidance, Minimization, and/or Mitigation Measures**

To avoid and minimize effects to the water quality of the surrounding wetlands and Waters of the U.S., the Build Alternative includes a number of general measures that are considered part of the project design (see **Chapter 1.0, Proposed Project**, of this EIR/EA). The following measures would be implemented prior to and during construction activities, and would be included as part of the special provisions of the construction bid package.

- Water quality would be protected by BMPs to be described in the Storm Water Pollution Prevention Plan (SWPPP) to be prepared prior to construction of the Build Alternative (see **Subsection 2.2.2, Water Quality**).
- All grindings and asphaltic-concrete waste would be stored within previously disturbed areas absent of habitat and at a minimum of 150 feet from any aquatic habitat, culvert, or drainage feature.

- All areas that are temporarily affected during construction or where removed roadway is restored would be revegetated with an assemblage of native grass, shrub, and tree species.

### **Mitigation Measure BIO-1: Compensatory Mitigation for Jurisdictional Water Features**

Any impacts jurisdictional water features that cannot be recreated on-site as part of the relocation of Rindler Creek shall be subject to formalized mitigation requirements of the regulatory agencies. A conceptual restoration and mitigation plan shall be prepared prior to permit applications to regulatory agencies. The on-site restoration of Waters of the U.S. combined with the implementation of other components of the conceptual restoration and mitigation plan will ensure no net loss of functions and values of Waters of the U.S.

The off-site mitigation ratio proposed for Waters of the U.S., including wetlands, under jurisdiction of the USACE, is 3:1 acres of mitigation per acre of permanent impact. Temporary impacts are proposed for mitigation at 1:1 acres of mitigation to impact.

Compensatory mitigation requirements among agencies are not cumulative. Mitigation acreage can be used to satisfy the requirements of multiple agencies, just as a single acre of impact to an existing resource may result in multiple requirements by agencies with varying jurisdictions. In summary, a single acre of wetland mitigation may satisfy both State and Federal agency mitigation requirements, if the characteristics of the wetland meet the definitions of each agency.

An estimate of the mitigation requirement is presented in **Table 2.3.2-3**.

Table 2.3.2-3 Proposed Wetland Mitigation for Estimated Impacts to USACE Jurisdictional Areas

Impacts	Impact		Mitigation (acres)	
	Permanent Impact	Temporary Impact	3:1 ratio (Off Site)	1:1 ratio (On Site)
Rindler Creek Realignment	0	0.621	-	0.621
All Other Build Alternative Improvements	0.039	0	0.117	-
<i>TOTAL</i>	<i>0.039</i>	<i>0.621</i>	<i>0.117</i>	<i>0.621</i>

Source: Department, 2012g.

### 2.3.3 PLANT SPECIES

#### Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) share regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see the Threatened and Endangered Species, **Subsection 2.3.5, Threatened and Endangered Species**, in this document for detailed information regarding these species.

This section of the document discusses all the other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and non-listed California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at 16 USC Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

#### Affected Environment

The following analysis is based on the NES prepared for the project in 2012 (Department, 2012g).

The identification of special-status plant species with potential to occur in the region was based on a search of the USFWS Species List Database, the CNDDDB, and the California Native Plant Society’s (CNPS) Inventory of Rare and Endangered Plants for 7.5-minute quadrangles Walnut Creek, Briones Valley, Richmond, Fairfield South, Cordelia, Benicia, Vine Hill, Cuttings Wharf, Mare Island, Mt. George, Fairfield North, and Napa.

The database searches identified 11 special-status plant species that could potentially occur in the region; however, no Federally-listed plant species has the potential to occur within the BSA. As part of the NES, a botanical survey was conducted in 2011 to identify the presence of special-status plants within the BSA. No special-status plants were identified. **Table 2.3.3-1** provides a summary of the special-status plant species which were considered to have a potential to occur within the suitable habitat of the BSA, and which were the focal species of the plant surveys.

Table 2.3.3-1 Special-status Plants Considered to have Potential to Occur within Suitable Habitat of the BSA

Common Name	Scientific Name	Conservation Status (Fed/CA/California Rare Plant Rank)
Pappose tarplant	<i>Centromadia parryi</i> ssp.parryi	- / - / 1B.2
Bolander's water hemlock	<i>Cicuta maculata</i> var.bolanderi	- / - / 2.1
Diablo helianthella	<i>Helianthella castanea</i>	- / - / - 1B.2
Hayfield tarplant	<i>Hemizonia congesta</i> ssp.congesta	- / - / 1B.2
Loma Prieta hoita	<i>Hoita strobilina</i>	- / - / 1B.1
Northern California black walnut	<i>Juglans hindsii</i>	- / - / 1B.1
Delta tule pea	<i>Lathyrus jepsonii</i> var.jepsonii	- / - / 1B.2
Mason's lilaeopsis	<i>Lilaeopsis masonii</i>	- / CR / 1B.1
Marin knotweed	<i>Polygonum marinense</i>	- / - / 3.1
Suisun Marsh aster	<i>Symphotrichum lentum</i> (=Aster lentus)	- / - / 1B.1
Saline clover	<i>Trifolium hydrophilum</i>	- / - / 1B.2

Source: Department, 2012g.

Notes: For the California Rare Plant Rank—Rank 1B.1: Plants that are rare, threatened, or endangered in California and elsewhere; these plants are seriously threatened in California. Rank 1B.2: Plants that are rare, threatened, or endangered in California and elsewhere; these plants are fairly threatened in California. Rank 2.1: Plants that are rare, threatened, or endangered in California, but more common elsewhere; these plants are seriously threatened in California. Rank 3.1: Plants about which we need more information, but are seriously threatened in California.

## Environmental Consequences

### Build Alternative

Since there are no known special-status plant species occurrences within the BSA, there would be no adverse effects from the proposed Build Alternative.

### No-Build Alternative

The No-Build Alternative would make no physical or operational improvements to Fairgrounds Drive, Redwood Parkway or the connecting freeways within the BSA. Implementation of the currently planned and funded transportation projects outside the BSA but within the project region would be subject to the same potential presence of special-status plant species as the Build Alternative, since they would occur in the same general region. These projects would be required to comply with the USFWS and CDFG requirements regarding protected plant species, should those species be identified within areas that would be directly or indirectly affected. The potential presence of special status plant species in areas outside of the BSA would be determined under separate environmental review.

## Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures are needed.

### 2.3.4 ANIMAL SPECIES

#### Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Game (CDFG) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in **Subsection 2.3.5** below. All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 – 1603 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code

The BSA is not located within an area protected by a habitat conservation plan.

#### Affected Environment

The identification of special status animal species with potential to occur in the region was based on a search of the USFWS Species List Database and the CNDDDB for the thirteen USGS quadrangles surrounding the BSA, as well as field reconnaissance surveys, habitat assessments, and the wetland delineation survey completed for the project. The results of these efforts are further discussed in the appropriate sections below, and are documented in the NES.

The database searches identified 69 special-status wildlife species that could potentially occur in the vicinity of the BSA. Table 3 of the NES lists each of these species and describes whether or not the species could occur in the BSA. Of these 69 species, 4 are considered to have a moderate to high potential for occurring within the BSA, 1 species for which a protocol-level survey was conducted with negative findings, and 1 species confirmed present during the field surveys. These include:

- **Monarch butterfly** (*Danaus plexippus*), a species tracked in the CNDDDB.
- **California red-legged frog** (*Rana draytonii*), a Federally threatened species and a California Species of Special Concern.
- **Western pond turtle** (*Emys marmorata*), a California Species of Special Concern.
- **Cooper's hawk** (*Accipiter cooperii*), a species tracked in the CNDDDB.
- **White-tailed kite** (*Elanus leucurus*), a California Fully Protected Species.
- **Saltmarsh common yellowthroat** (*Geothlypis trichas sinuosa*), a California Species of Special Concern.

California red-legged frog is listed as a Federally threatened species and is described in **Subsection 2.3.5**, Threatened and Endangered Species. The remaining four special-status species are described below.

### **Monarch Butterfly**

Monarch butterflies migrate long distances from summer to winter roosting grounds and produce four generations of butterflies along their route. During the spring and summer, this species can be found in open fields and meadows with milkweed, the larval host plant. During winter monarchs can be found on the coast of southern California and at high altitudes in central Mexico. Monarchs gather at their winter locations generally starting in November and roost in clusters in the trees. In spring, monarchs will reproduce and their offspring will make the return trip to the north. This species prefers dense, wind-protected tree groves, such as eucalyptus, Monterey pine and/or Monterey cypress found near the coast from northern Mendocino, California to Baja California, Mexico.

No active monarch butterfly roosts were observed during reconnaissance or protocol-level surveys for California red-legged frog, rare plants or during the tree survey.

No occurrences of milkweed were observed during the rare-plant survey, which indicates that there is no suitable larval food source on-site, and that reproduction of monarch butterflies would not occur in the BSA.

### **Western Pond Turtle**

Western pond turtles require still or slow-moving temporary and permanent waters such as ponds, freshwater marshes and pools in perennial streams. They favor habitats with large amounts of emergent logs or boulders, where they aggregate to bask in the sun. Individuals may remain active all year and sometimes move overland for distances of more than 300 feet to find a suitable nesting areas site. These turtles generally lay their eggs in open areas that are on dry slopes with soils rich in silt and clay, and the laying period is from April to July.

Western pond turtle observations were recorded at the mouth of Rindler Creek during the field surveys for California red-legged frog, and were reportedly present within the Rindler Creek channel, on the east side of Fairgrounds Drive, near the headwall for the culverts that direct water to flow beneath the roadway toward Lake Chabot. For the most part, the freshwater ponds, streams, and irrigation ditches within and adjacent to several of the

proposed Build Alternative improvements provide suitable habitat for this species, and are presumed occupied due to the observation in Rindler Creek.

### **Cooper's Hawk**

Cooper's hawk is a medium sized hawk of forests and meadows, but has adapted its lifestyle to become a common species in the San Francisco Bay Area's suburban, and urban zones. The species builds nests of sticks placed in mature landscaping trees, particularly sycamore, and hunts for house sparrows and other small passerines in residential yards and other small open spaces in the neighborhoods of the Bay Area. The East Bay has one of the highest recorded densities of this species.

There were no stick nests observed within the BSA during field surveys conducted for this project. However, the tree survey identified numerous trees that would be suitable for Cooper's hawk nesting habitat.

### **White-tailed Kite**

White-tailed kites inhabit open lowland valleys and low, rolling foothills. They forage in grasslands, marshes, riparian edges, and cultivated fields where prey species (mainly voles and other small mammals) are relatively abundant. White-tailed kites typically nest on the tops of trees in close proximity to good foraging locations. The CNDDDB does not contain any nesting records less than 5 miles from the BSA, but this may be due to under-reporting for this fairly common species of raptor.

Natural and landscaped annual grasslands are located along the I-80 and SR-37 corridors, and may provide ideal foraging habitat for white-tailed kite. The BSA contains trees large enough to support a nest of the white-tailed kite, and the grasslands in the area would provide suitable foraging habitat for a pair of breeding kites.

No observations of white-tailed kites were recorded in the BSA during the field surveys conducted for the project.

### **Saltmarsh Common Yellowthroat**

The saltmarsh common yellowthroat occurs solely around the nine counties surrounding the San Francisco Bay. The species can inhabit a range of habitats from saltmarsh, wooded marsh, freshwater marsh and even into uplands, but is never far from water. The species can utilize small patches of habitat, including overgrown ditches and swales.

The freshwater marsh and riparian woodland land-cover types within the BSA are considered to be suitable habitat for this species.

There were no observations of saltmarsh common yellowthroat during the field surveys conducted for the project.

## **Environmental Consequences**

### **Build Alternative**

No impacts to monarch butterflies are expected, as they are unlikely to establish a roost in the BSA. In the unlikely event that a roost is discovered, the trees in which the roost occurs may be removed.

The realignment of Rindler Creek may result in impacts to individual western pond turtles that may be present within the creek during earthmoving operations to backfill the current channel. If earthmoving occurs during the reproductive period, eggs that have been laid along banks within the BSA could be damaged or destroyed.

Tree removal for the Build Alternative may reduce the number of potential nesting trees for Cooper's hawk, white-tailed kites, and saltmarsh common yellowthroat. A temporary reduction in available nesting habitat may occur during the realignment of the Rindler Creek channel. The alignment of the channel would experience a period of low vegetation cover until after the plant establishment period. After the vegetation of the riparian corridor and associated freshwater marsh has returned to similar densities, there is unlikely to be any remaining impact to the sensitive bird species likely to be present in the BSA.

### **No-Build Alternative**

The No-Build Alternative would make no physical or operational improvements to Fairgrounds Drive, Redwood Parkway or the connecting freeways within the BSA. Implementation of the currently planned and funded transportation projects outside the BSA but within the project region would be subject to the same potential presence of special-status animal species as the Build Alternative, since they would occur in the same general region. These projects would be required to comply with the USFWS and CDFG requirements regarding protected animal species, should those species be identified within areas that would be directly or indirectly affected. The potential presence of special status animal species in areas outside of the BSA would be determined under separate environmental review.

### **Avoidance, Minimization, and/or Mitigation Measures**

To avoid and minimize effects to the special-status animal species and their associated habitats, the Build Alternative includes a number of general measures that are considered part of the project design (see **Chapter 1.0**). The following measures would be implemented prior to and during construction activities, and would be included as part of the special provisions of the construction bid package.

- The limits of the construction zones would be delineated with high visibility temporary fencing at least 4 feet in height, flagging, or other barrier to prevent encroachment of construction personnel and equipment outside the construction footprint. The fencing would be removed only when all construction equipment is removed from the site. No project activities would occur outside the delineated Build Alternative construction area.
- Except when necessary for construction, driver or pedestrian safety, lighting of the construction areas by artificial lighting during night-time hours would be minimized to the maximum extent practicable.
- To eliminate an attraction to wildlife, all food-related trash items such as wrappers, cans, bottles, and food scraps would be disposed of in closed containers and removed daily from the construction areas.

- To avoid injury or death of wildlife, no firearms would be allowed in the construction areas except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials.
- To prevent harassment, injury or mortality of wildlife, no pets will be permitted in the construction areas.
- Nesting bird surveys would be conducted prior to clearing and grubbing activities that occur during the bird nesting season, which shall be specified as February 1 to August 31. When active bird nests are recorded, a buffer area would be established in which no project-related activities that may result in disturbance will be allowed. A qualified biologist would be consulted in order to establish a suitable buffer that is considered adequate to protect the nest from disturbance of project-related activities.
- In conjunction with nesting bird surveys, which will be conducted prior to tree removal or clearing and grubbing activities that occur between February 1 to August 31, biologists will record observations of roosting monarch butterflies. It is highly unlikely that roosts would occur in the area, but in the event that a roost is located, qualified biologist would be consulted in order to establish a suitable buffer that is considered adequate to protect the nest from disturbance of project-related activities.
- A biological monitor would be present during dewatering and backfill of Rindler Creek to capture and relocate western pond turtles. Western pond turtles that are captured shall be released outside the BSA in the lower segment of Rindler Creek. The capture and relocation of turtles would reduce the potential mortality of individuals that may be present. Relocation within the same creek is unlikely to result in mortality, because the turtles are typically mobile within the channel, and are generally robust.

### 2.3.5 THREATENED AND ENDANGERED SPECIES

This section addresses species listed or eligible for listing as threatened or endangered. The USFWS list of federally-listed species for the study area is provided in **Appendix E**.

#### Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 USC Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration, are required to consult with the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA Fisheries) to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an Incidental Take statement.

Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The California Department of Fish and Game (CDFG) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits “take” of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Another Federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 19083, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

## Affected Environment

As previously discussed in **Subsection 2.3.4, Animal Species**, based on the USFWS and CNDDDB database review, the CRLF was determined to have a moderate to high potential for occurring within the BSA. CRLF is listed as a Federally threatened species and designated as a California Species of Special Concern. The BSA is located within the historical and current potential range of this species; however, it is not within designated CRLF critical habitat. Historically, CRLF populations were found from Shasta County to Baja California, along both the Coast Range and the western slopes of the Sierra Nevada. The current range is greatly reduced, with a few highly localized populations in the Sierra Nevada, and most remaining populations occurring along the California coastline from Marin County to Ventura County.

CRLF primarily occurs in perennial or ephemeral ponds, pools, and streams where water remains long enough (14-28 weeks) for breeding and metamorphosis of young. Specific breeding sites include streams, creeks, ponds, marshes, sag ponds, deep pools, backwater areas, dune ponds, lagoons, and estuaries.

During wet seasons, frogs can move long distances between habitats, traversing upland areas or ephemeral drainages. Dispersal distances are typically less than 0.3 mile. Seeps and springs in open grasslands can function as foraging habitat or refugia for migrating frogs.

Following USFWS guidance, the site assessment included all potential CRLF habitats within the 1 mile radius of the proposed Build Alternative improvements. These areas were visited, photographed, and assessed for the potential presence of this species. Based upon the results of the site assessment, it was determined that there is potential for this species to occur within the BSA. To verify species presence, protocol surveys were implemented. This included six breeding season surveys (four nighttime surveys/two daytime surveys) and two non-breeding season surveys (one nighttime survey/one daytime survey). Breeding season surveys were conducted on February 23, March 14, March 21 and March 31, 2011. Non-breeding season surveys were conducted on July 28, 2011. California red-legged frogs were not observed during the surveys.

Based on the negative results of the CRLF protocol surveys, this species is considered to be absent within the BSA.

## Environmental Consequences

### **Build Alternative**

The Build Alternative has no expected effects to California red-legged frogs because the protocol-level surveys found negative results, and the species is considered to be absent from within the BSA.

Impacts to wetlands, as identified in **Subsection 2.3.2, Wetlands and Other Waters**, could affect areas considered to be suitable habitat for the CRLF. The design of the Build Alternative would minimize potential impacts to suitable habitat for the CRLF by confining roadway expansion along Fairgrounds Drive to a single side of the existing alignment. Jurisdictional wetlands, which are also considered suitable habitat for the CRLF, will be recreated onsite to the degree feasible, and mitigation credits will be purchased offsite to mitigate for remaining acreage of wetlands.

### **No-Build Alternative**

The No-Build Alternative would make no physical or operational improvements to Fairgrounds Drive, Redwood Parkway or the connecting freeways within the BSA. Implementation of the currently planned and funded transportation projects outside the BSA but within the project region would be subject to the same potential presence of special-status animal species as the Build Alternative, since they would occur in the same general region. These projects would be required to comply with the USFWS and CDFG requirements regarding protected animal species, should those species be identified within areas that would be directly or indirectly affected. The potential presence of special status animal species in areas outside of the BSA would be determined under separate environmental review.

## Avoidance, Minimization, and/or Mitigation Measures

Implementation of the mitigation measures identified in **Subsection 2.3.2, Wetlands and Other Waters**, regarding the replacement of jurisdictional wetlands, would avoid impacts to suitable habitat for the CRLF.

## 2.3.6 INVASIVE SPECIES

### Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

### Affected Environment

As described in **Subsection 2.3.1, Natural Communities**, the BSA is already colonized by numerous invasive species of plant and wildlife.

### Environmental Consequences

#### **Build Alternative**

The Build Alternative is expected to have a minimal effect on the distribution of invasive species within the BSA. The area is already colonized by numerous invasive species of plant and wildlife, and the proposed improvements are not expected to result in the colonization of additional species. None of the species on the California list of noxious weeds is currently used by the Department for erosion control or landscaping.

In order to promote native species within the BSA, the riparian corridor of the proposed realignment of Rindler Creek would be revegetated with native plant species.

In order to reduce the occurrence of non-native wildlife, red-eared slider (a nonnative species of turtle) that may be captured incidental to proposed relocation of the native Western pond turtle, would not be released.

#### **No-Build Alternative**

The No-Build Alternative would make no physical or operational improvements to Fairgrounds Drive, Redwood Parkway or the connecting freeways within the BSA. Construction activities associated with the currently planned and funded transportation projects outside the BSA but within the project region would have the same potential to introduce or spread noxious weeds (non-native, invasive plants) into currently uninfested areas within or adjacent to the BSA. However, the same avoidance measures prescribed by the Department and E.O. 13112 would be applicable to these projects; thereby reducing potential impacts related to invasive species.

### Avoidance, Minimization, and/or Mitigation Measures

In compliance with the Executive Order on Invasive Species, EO 13112, and subsequent guidance from the Federal Highway Administration, the landscaping and erosion control included in the Build Alternative will not use species listed as noxious weeds.