5.3 BIOLOGICAL RESOURCES

INTRODUCTION

This section evaluates impacts to biological and aquatic resources that would occur as a result of the Project. Types of resources affected include habitat, aquatic resources, and special-status species. Unless otherwise noted, information in this section is drawn from the *Biological Resources Report* prepared by H. T. Harvey & Associates (see **Appendix E** of this Draft EIR), which included desktop reviews and field surveys to identify biological resources on the Project site and within the larger biological study area (BSA).

Scoping Issues Addressed

The following organizations submitted comments regarding biological and aquatic resources on the Project site during the public scoping period: United States Fish and Wildlife Service (USFWS), California Native Plant Society (CNPS) East Bay Chapter, East Bay Regional Park District, Alameda County, and Save Mount Diablo. These comments generally related to the following:

- Potential impacts on protected plant species, plant communities, wildlife species, habitat, and wetlands resulting from Project construction, long-term operation, and growth inducement, including associated avoidance, minimization, and mitigation measures
- Survey methodology for assessing existing biological conditions
- Wildlife corridors
- Potential wetlands and vernal pools in the Project site, and direct or indirect impacts to the broader watershed that support protected species and habitats
- Consistency with the East Alameda County Conservation Strategy (EACCS), including application of relevant mitigation and minimization measures
- Impacts to federally protected species and their habitat, including calliope silverspot butterfly (*Speyeria callippe callippe*), California red-legged frog (*Rana draytonii)*, California tiger salamander (*Ambystoma californiense*), Congdon's tarplant (*Centromadia parryi ssp. congdonit*), and San Joaquin spearscale (*Extriplex joaquinana*)

USFWS expressed concerns that future development along the proposed road extension would degrade listed species habitat. Because this habitat quality loss is an indirect effect of the roadway construction, the City of Dublin (Dublin) will mitigate accordingly for this indirect effect, as discussed below under Impacts and Mitigation Measures.

REGULATORY SETTING

Federal

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects listed wildlife species from harm or "take" which is broadly defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Take can also include habitat modification or degradation that directly results in death or injury to a listed wildlife species. An activity can be defined as "take" even if it is unintentional or accidental. Listed plant species are provided less protection than listed wildlife species. Listed plant species are legally protected from take under FESA if they occur on federal lands or if the project requires a federal action, such as a Clean Water Act (CWA) Section 404 fill permit from the United States Army Corps of Engineers (USACE).

The USFWS and the National Marine Fisheries Service (NMFS) have jurisdiction over federally listed, threatened and endangered species under the FESA. These agencies also maintain lists of proposed and candidate species. Species on these lists are not legally protected under the FESA, but may become listed in the near future and are often included in agency review of a project.

Clean Water Act

Under Section 404 of the CWA, the USACE regulates the discharge of fill material into Waters of the U.S, including wetlands and other waters. The USACE define wetlands in 33 Code of Federal Regulations (CFR) Part 323.2 as "an area that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." The boundaries of wetlands that fall under USACE jurisdiction are delineated using an approach that relies on identification of three parameters: hydrophytic vegetation, hydric soils, and wetland hydrology indicators.

In aquatic habitat, the USACE jurisdiction extends to the ordinary high water mark (OHWM), which is defined in 33 CFR Part 328.3 as "the line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation or the presence of litter and debris."

Federal Migratory Bird Treaty Act

The Federal Migratory Bird Treaty Act (MBTA), 16 United States Code (U.S.C.) § 703, prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Most native bird species are covered by this Act. In addition, Title 50 CFR Part 10 protects nesting birds.

Executive Order 11990 – Protection of Wetlands

Executive Order 11990, dated May 24, 1977, "Protection of Wetlands", establishes a national policy to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands by (1) acquiring, managing, and disposing of federal lands and facilities, (2) providing federally undertaken, financed, or assisted construction and improvements, and (3) conducting federal activities and programs impacting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

State

California Endangered Species Act

The California Endangered Species Act (CESA), California Fish and Game Code, Chapter 1.5, Section 2050-2116, prohibits the take of any plant proposed for listing as rare and any plant or animal listed as rare, threatened, or endangered. In accordance with the CESA, the California Department of Fish and Wildlife (CDFW) has jurisdiction over state-listed species (Fish and Game Code Section 2070). The CDFW regulates activities that may result in 'take'[1] of individuals listed under the CESA. Although habitat degradation or modification is not expressly included in the definition of 'take' under the Fish and Game Code, the CDFW has interpreted take to include the killing of a member of a species which is the proximate result of habitat modification.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act (Porter Cologne Act), the State Water Resources Control Board has the ultimate authority over state water rights and water quality policy. The Porter-Cologne Act broadly defines Waters of the State as "any surface water or groundwater, including saline waters, within the boundaries of the state." The Porter-Cologne Act also establishes nine Regional Water Quality Control Boards (RWQCBs) to oversee water quality on a day-to-day basis. Pursuant to Section 401 of the Federal CWA, projects that are regulated by the USACE must obtain water quality certification from the RWQCB. This certification ensures that a project would uphold state water quality standards.

The RWQCB may impose mitigation requirements even if the USACE does not, and it should be noted that California's jurisdiction to regulate its water resources is much broader than that of the federal government. The State Water Board works in coordination with RWQCBs to preserve, protect, enhance, and restore water quality. Each RWQCB makes decisions related to water quality for its region, and have the authority to approve, with or without conditions, or deny projects that could impact waters of the State under the CWA Section 401 and Porter-Cologne.

California Fish and Game Code

Pursuant to Fish and Game Code, Section 1603, CDFW regulates any project that will "substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river,

[1] In this context, 'take' is defined as hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.

stream, or lake designated by the department, or use any material from the streambeds." Section 1602 of the Fish and Game Code requires CDFW notification for proposed activities that may modify a river, stream, or lake. If CDFW determines that proposed activities may substantially adversely impact fish and wildlife resources, a Lake and Streambed Alteration Agreement (LSAA) must be prepared, which sets reasonable conditions necessary to protect fish and wildlife, and must comply with CEQA. CDFW reviews the proposed actions and, if necessary, prepares a LSAA that includes measures to protect affected fish and wildlife resources.

The LSAA notification requirement applies to any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. The CDFW typically considers a river, stream, or lake to include its riparian vegetation, but it may also extend to its floodplain. Riparian is defined as vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself.

The California Fish and Game Code provides regulations pertaining to protection of certain wildlife species. It protects native birds, including their nests and eggs, from all forms of take. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "take" by the CDFW. Raptors (i.e., eagles, hawks, and owls) and their nests are specifically protected, as are bats and other non-game mammals are protected by Fish and Game Code, Section 4150, which states that all non-game mammals. Activities resulting in the death of non-game mammals, such as the disturbance of a maternity colony of bats resulting in the death of young may be considered "take" by the CDFW.

State NPDES Requirements

Projects in California must comply with state requirements to control the discharge of stormwater pollutants under the National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit[2], the Statewide Construction General Permit[3], and the San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit.[4] These permit conditions under both of these permits requires that the applicant utilize various measures to control construction-phase and post-construction water quality impacts. Refer to **Section 5.8, Hydrology and Water Quality**, for a discussion of the NPDES requirements.

Local

City of Dublin

City of Dublin Heritage Tree Ordinance

Dublin defines heritage trees as any oak, bay, cypress, maple, redwood, buckeye and sycamore tree having a trunk or main stem of 24 inches or more in diameter measured at 4 feet 6 inches above natural grade. Additionally, any tree preserved as part of an approved development plan, zoning permit, use permit, site development review, or subdivision map is protected as a heritage tree as is

[2] State Water Board Order No. 2014-0077-DWQ
[3] State Water Board Order No. 2009-0009-DWQ
[4] State Water Board Order No. R2-2009-0074

any tree planted as a replacement for an unlawfully removed tree. Heritage trees may not be removed unless a tree removal permit is granted or the removal is approved as part of other approved development permits. If a development site contains heritage trees that are to be preserved under approved development plan, these trees must be protected during site development. A tree protection plan must be approved prior to commencement of work unless Dublin's Community Development Director has specifically waived this requirement.

Alameda County

East Alameda County Conservation Strategy

The EACCS serves as a coordinated approach to conservation in the eastern portion of Alameda County (County), including the cities of Dublin and Livermore.[5] The City of Dublin adopted the EACCS as guidance for public infrastructure and capital improvement projects and uses the document to provide input on managing biological resources and conservation priorities during public project-level planning and environmental permitting. The Project site is located within Conservation Zone 4[6] of the EACCS study area, and includes suitable habitat for several EACCS focal land cover types, plant species, and wildlife species (**Table 5.3-1**). Impacts to these species must be avoided, minimized, and mitigated through implementation of measures listed in the EACCS.

Table 5.3-1 EACCS Focal Habitat and Species Applicable to the Project

Land Cover Types	Plant Species	Wildlife Species
Seasonal Wetlands	Livermore Tarplant	California Red-Legged Frog
California Annual Grasslands	Congdon's Tarplant	California Tiger Salamander
Mixed Riparian Woodland	San Joaquin Spearscale	San Joaquin Kit Fox
	Palmate-Bracted	Tricolored Blackbird
		Western Burrowing Owl
		Golden Eagle
		American Badger

Source: H. T. Harvey & Associates, 2018

Alameda County Tree Ordinance

The County protects trees within the County right-of-way that are at least 10 feet tall and 2-inches diameter at breast height (DBH)[7] on the main stem. Removal of such trees requires an encroachment permit from the County. Typically, such a permit requires replacement of the ordinance tree, if feasible.

[5] East Alameda County Conservation Strategy Steering Committee. 2010. *East Alameda County Conservation Strategy.* Available: http://www.eastalco-conservation.org/documents.html. Accessed: November 5, 2018.
[6] EACCS 'Zone 4' areas provide spatially explicit data on where natural communities occur, how many acres are currently protected, and how many should be protected for the natural community to persist.
[7] Diameter at breast height is the standard for measuring trees, and refers to the tree diameter measured at 4.5 feet above the ground.

City of Livermore

City of Livermore Tree Preservation Ordinance

Livermore's Tree Preservation Ordinance establishes the policies, regulations, and standards for the protection of trees on any parcel of land within Livermore. It is Livermore's policy to require the preservation of protected trees, unless a reasonable and conforming use of a property justifies the removal, relocation, and/or encroachment into the protected zone of such tree. In accordance with the Tree Preservation Ordinance, no person shall remove or encroach into the protected zone of any protected tree or trees upon a property within Livermore unless a tree permit has been issued pursuant to the Section 12.20 of the Livermore Municipal Code.

EXISTING CONDITIONS

The 141.4-acre BSA consists of primarily undeveloped grazing ranchland and open space, with intermittent residences and outbuildings. The Project site is surrounded by generally urban uses to the east, south, and west, while the north is relatively undeveloped. I-580 is located immediately south of the BSA, while Fallon Road and Doolan Road represent the western and eastern BSA boundaries. Land uses in the immediate BSA vicinity include residential, industrial, open space, and commercial uses in Dublin, undeveloped land and agricultural uses in the County; and business and commercial uses in Livermore. The BSA is shown on **Figure 5.3-1**.

Improvements to the agricultural lands generally consist of private paved and unpaved roads used to access private property, fences, barns, corrals, wells, water tanks, single-family homes and various outbuildings. The topography of the BSA ranges from relatively flat in the southern portion near I-580, to gently rolling hills to the north. The topography slopes slightly northward, and Cottonwood Creek drains from north to west across the eastern half of the BSA.

Although existing land uses in the BSA are largely agricultural or rural-residential, the City of Dublin General Plan[8] and the EDSP[9] anticipate the development of residential, industrial, office, and commercial land uses in the BSA. The County's General Plan, East County Planning Area component, includes the Project as a roadway extension connecting eastern Dublin with Livermore across County land. Refer to **Chapter 3.0, Project Description**, for a discussion of these planning efforts.

Biologic Habitats within BSA

The BSA contains eight biotic habitats described below and shown on Figure 5.3-1: California annual grassland, seasonal wetland, perennial stream, ephemeral stream, perennial marsh, mixed riparian woodland, riparian grassland, and developed/landscaped habitat. Refer to **Appendix E** for a complete discussion of these biotic habitats.

[8] City of Dublin. 1985. General Plan. Community Development Department. Dublin, CA. Amended November, 2017.
[9] City of Dublin. 1994. East Dublin Specific. Community Development Department. Dublin, CA. Updated September 2016.

California Annual Grassland

The majority of the BSA consists of California annual grassland habitat. Much of this grassland is currently grazed by cattle and is dominated by a suite of non-native grasses and common weedy and non-native forbs.[10] While the majority of the grasslands in the BSA are composed of non-native, ruderal vegetation, some portions exhibit higher species diversity and frequency of native wildflowers, such as common gumplant (*Grindelia camporum*), Itherial's spear (*Triteleia laxa*), annual lupine (*Lupinus bicolor*), blue eyed grass (*Sisyrinchium bellum*), blow wives (*Achyrachaena mollis*), shining peppergrass (*Lepidium nitidum*), and small flowered fiddleneck (*Amsinkia menziesii*).

Seasonal Wetlands

Large wetland patches scattered in the western portion of the BSA comprise the seasonal wetland complex. The seasonal wetlands occur in low-lying areas and the largest patch is directly connected to the perennial marsh habitat that runs parallel to Fallon Road (**Figure 5.3-1**). Native forbs and grasses dominate the seasonal wetland vegetation. Several species of non-native grasses are common in the more limited seasonal wetlands scattered along ephemeral drainages across the BSA. Seasonal wetlands can provide habitat for a unique array of special-status and common wildlife species that rely specifically on the particular features they provide. However, because the seasonal wetlands in the BSA are regularly disturbed by grazing cattle that compress soils and inhibit use by wetland-associated invertebrate and amphibian species that might take refuge in the moist soils, the habitat provided by these features is functionally similar to the adjacent grasslands and perennial marsh from the perspective of wildlife use.

Perennial Streams

The Project site includes Cottonwood Creek and three unnamed streams, which are all perennial streams and comprise the perennial stream habitat in the BSA. These four perennial streams are in the western portion of the BSA and shown on **Figure 5.3-1**. They generally convey water year-round, and either do not contain vegetation due to ponding and flows or contain vegetation that is consistent with the adjacent perennial marsh areas (described below). Although perennial streams in the County can provide habitat for a variety of fish and wildlife species, perennial stream habitat in the BSA provides limited habitat for fish and aquatic wildlife species for the reasons discussed below.

[10] Forbs are herbaceous flowering plants.

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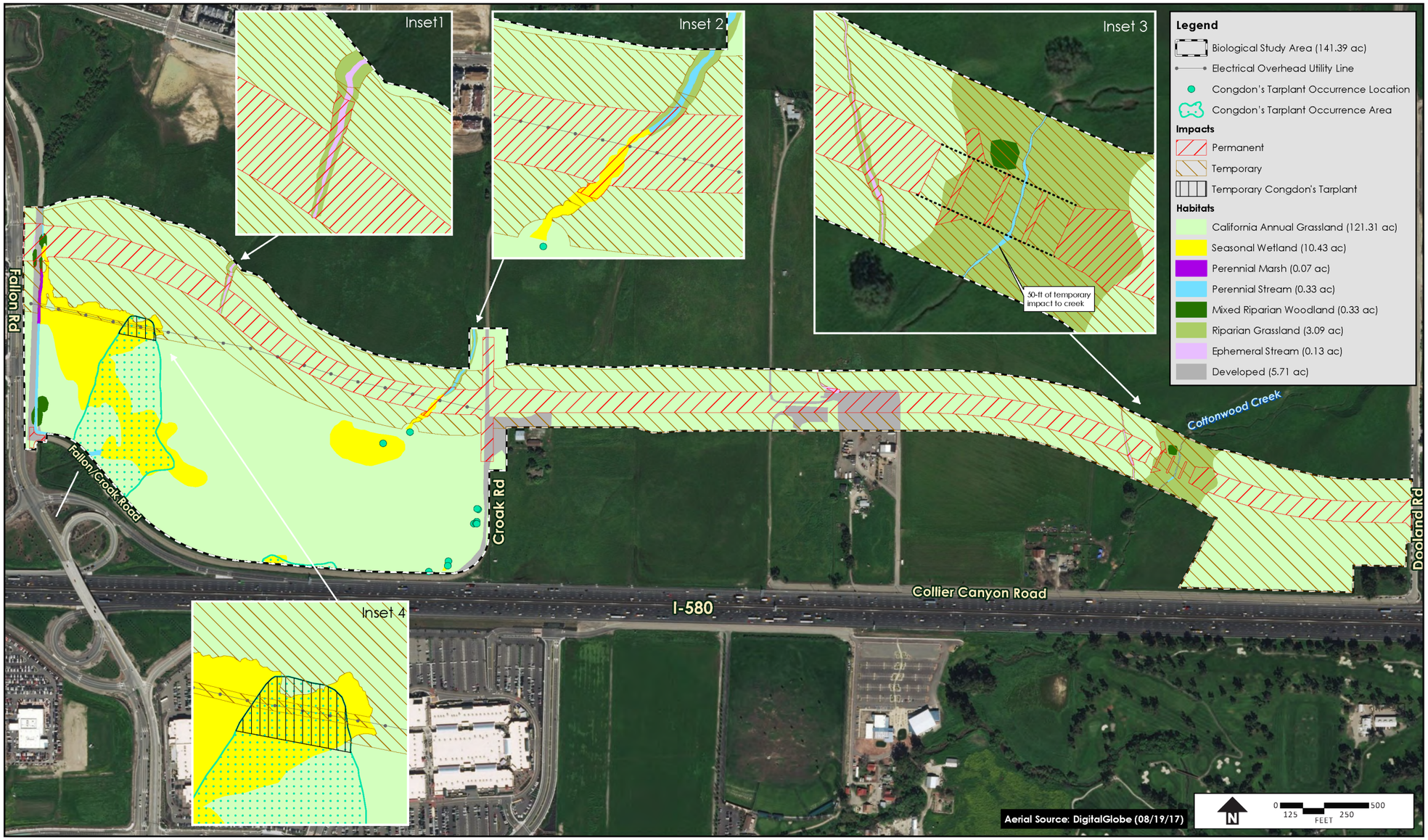

Habitat within the Biological Study Area **Figure 5.3-1**

Source: H.T. Harvey and Associates, 2018

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Cottonwood Creek

Cottonwood Creek is a perennial stream with a connection to groundwater and flows overland through the eastern portion of the BSA. The portion of Cottonwood Creek through the BSA is shallow, steeply incised, unshaded, and contains little to no in-stream vegetation, which limits its value for fish and aquatic wildlife. Numerous erosional features were apparent during surveys. No fish were observed within Cottonwood Creek during reconnaissance surveys, and the creek's shallow waters and lack of large pools make it unsuitable for most fish species. Small fish adapted to warm waters, such as the native California roach (*Hesperoleucus symmetricus*) and non-native mosquitofish (*Gambusia affinis*), may occur in limited numbers within the creek.

Unnamed Tributaries

The Project site also contains three unnamed tributaries:

- A small perennial stream located along the western portion of Croak Road. A portion of this stream has been culverted and capped with concrete for roughly 350 linear feet. Substantial flows of water emanated from a culvert outlet in both 2017 and 2018 where the stream daylights, and a portion of this stream spills into the northern portion of the wetland complex immediately east of Fallon Road. This aboveground, wetted streambed supports perennial marsh vegetation (described below) and flows southward, parallel to western Croak Road.
- To the west of the eastern portion of Croak Road, a small perennial stream emerges from the hills and flows into a seasonal wetland swale as the topography becomes less steep.
- The southwest corner of the BSA includes a perennial stream that drains into the southern portion of the large wetland complex. The stream crosses to the west under Fallon Road and runs outside the BSA parallel to I-580 before discharging to a culvert under the highway and entering a flood control channel. This channel then drains to Arroyo Las Positas to the south.

The unnamed tributaries in the western portions of the Project site along Fallon/Croak Road are shallow, generally holding no more than a few inches water. Nevertheless, in-stream vegetation along this tributary provides habitat for common amphibians and reptiles, as well as small numbers of non-native mosquitofish. Aquatic reptiles, such as the common garter snake (*Thamnophis sirtalis*) and western pond turtle (*Actinemys marmorata*), may forage and disperse along this stream. Common amphibians such as the native Sierran chorus frog (*Pseudacris sierrae*), as well as the non-native bullfrog (*Lithobates catesbeianus*), were observed in shallow pools and may utilize these streams for breeding and dispersal.

Ephemeral Streams

Three ephemeral streams occur in the BSA. These streams convey water during and immediately following rain events and dry out during the summer months. The majority of ephemeral stream banks found on the Project site are vegetated with plants found in the surrounding California

annual grasslands. The ephemeral nature of these drainages precludes the presence of fish. Similarly, aquatic wildlife species are not expected to occur regularly within these drainages, but may utilize this habitat for dispersal when water is present. Wildlife using adjacent habitats is expected to forage and take shelter in the vegetation within the drainage. However, due to the limited extent of this habitat type within the BSA, it is not expected to support wildlife species not found in the adjacent, more extensive, habitat types (i.e., California annual grassland and seasonal wetland).

Perennial Marsh

The perennial marsh habitat in the BSA is confined to a narrow roadside channel within the OHWM of the perennial stream along Fallon/Croak Road. The marsh supports strongly hydrophytic[11], emergent[12] plants. The marsh contains surface water, which was evident during all survey dates, and is vegetated with native rushes, including Mexican rush (*Juncus mexicanus*), iris-leaved rush (*Juncus xiphioides*), and hard-stemmed bulrush (*Schoenoplectus acutus*). Along the fence line, dominant vegetation included hard-stemmed bulrush along with other California natives (alkali bulrush [*Bolboschoenus maritimus*], water parsnip [*Berula erecta*]), and non-natives (creeping buttercup [*Ranunculus repens*], water speedwell [V*eronica anagallis-aquatica*]). None of these species are rare or otherwise special-status.

As the perennial marsh habitat is confined to a narrow roadside channel, many wildlife species that inhabit more extensive marshes, such as the Virginia rail (*Rallus limicola*), are not expected to be present. Nevertheless, the presence of water in the marsh and existing vegetation support a diverse and abundant invertebrate fauna, which provides ample foraging opportunities for insectivores. Aerial insectivores such as the cliff swallow (*Petrochelidon pyrrhonota*), violet-green swallow (*Tachycineta thalassina*), and free-tailed bat (*Tadarida brasiliensis*) frequently forage over marsh habitats.

Mixed Riparian Woodland

Mixed riparian woodlands in the BSA are composed of stands of mature trees rooted in the banks of perennial streams. Tree species include red willow (*Salix laevigata*) and valley oak (*Quercus lobata*). Valley oaks in and near the BSA that occur along Cottonwood Creek are very large (up to 4.8 feet diameter at breast height). Riparian habitat is typically of high value to wildlife and birds, with water and streamside vegetation supporting a diverse and abundant fauna. However, the extremely limited extent of riparian woodland within the BSA greatly limits its value for wildlife.

Riparian Grassland

Riparian grasslands occur within the top of the bank of Cottonwood Creek and the unnamed perennial stream to the west of Croak Road, totaling about 3 acres. The understory of mixed riparian woodlands integrates with the surrounding habitats, and the areas of riparian grassland

[11] Hydrophytic plans grow wholly or partly submerged in water
[12] Emergent plants are rooted in the lake bottom, but their leaves and stems extend out of the water

lacking tree cover support similar species to the surrounding California annual grassland, with species such as soft chess (*Bromus hordeaceus*) and Italian ryegrass (*Lolium multiflorum*).

Developed/Landscaped

Developed/landscaped habitat is present in the BSA as hardscaped areas along Fallon Road and Croak Road in the western portion of the Project site. Additional hardscaped areas such as parking, storage, and sheds and landscaped areas occur around buildings, fences, parking areas, and a landscaping company in the remaining eastern portion of the Project site.

Small patches of non-native horticultural plant species are scattered around the buildings in the developed/landscaped parts of the BSA. Several patches of ornamental trees, primarily eucalyptus (*Eucalyptus sp.*), occur near fence lines and buildings. Wildlife that occurs in developed/landscaped portions of the site includes species that are typically accustomed to urban environments and high levels of disturbance from human activities.

Special-Status Plants

The *Biological Resources Report* identified 81 special-status plant species previously known to occur within the Project region, and eliminated 59 plant species as unlikely to occur within the BSA based on the following criteria:

- Absence of suitable habitat types
- Lack of specific habitat or soil requirements
- Elevational range of the species being outside of the elevation range in the BSA, which is approximately 380 feet to 410 feet above sea level
- The species is presumed to be extirpated from the Project vicinity, which includes a 5-mile radius around the BSA.

Of these 22 special-status plant species with some potential to occur in the BSA, three species could be present in the BSA because prior surveys in the vicinity confirmed their presence. These three species - Congdon's tarplant (*Centromadia parryi ssp. congdonii*), San Joaquin spearscale (*Extriplex joaquiniana*), and prostrate vernal pool navarretia (*Navarretia prostrata*) – are discussed in **Table 5.3-2**. The remaining 19 species are eliminated from consideration due to a lack of suitable habitat within the BSA or negative survey results following surveys in 2002, 2017, and 2018. Refer to **Appendix E** of this Draft Environmental Impact Report (EIR) for a complete discussion of plant species considered absent from the BSA.

Special-Status Wildlife

A number of special-status animal species are known to occur in eastern Alameda County but considered absent from the BSA because of a lack of suitable habitat or because the site is outside of the known range of the species. **Table 5.3-2** includes the listed and proposed species, natural

communities, and critical habitat of wildlife considered present in the BSA. Refer to **Appendix E** of this Draft EIR for a complete discussion of wildlife species known to occur in eastern Alameda County but considered absent from the BSA.

Wildlife Corridors

This section draws from Section 2.4.4 of the EACCS (Habitat Connectivity and Wildlife Linkages), which explains the importance of habitat connectivity and wildlife linkages and summarizes potential wildlife linkages that may exist in eastern Alameda County.

Urban sprawl, roads, conversion of wildlands, and other anthropogenic influences are fragmenting habitat throughout California. Habitat fragmentation is one of the greatest threats to biodiversity because it impedes or prevents the exchange of individuals and genetic material among populations of wildlife and plants, thereby reducing genetic diversity. Genetic diversity is important in a population because it increases the chances that individuals can survive catastrophic events such as fire, disease, drought, or invasion by nonnative species. Moreover, entire populations may disappear by chance or from a catastrophic event. Habitat fragmentation may prevent suitable habitat from being recolonized from healthy populations after such an event. For larger species of mammals, long-distance movement and dispersal is an important aspect of their basic biology and is critical for their long-term survival. Habitat connectivity and wildlife linkages are particularly important in the current setting of climate change; species need to disperse to find suitable habitat they can tolerate, which is fluctuating due to shifting climate patterns. Maintaining and preserving wildlife corridors is critical to the persistence and survival of many species.

Wildlife linkages are defined as habitat areas that may allow for the long-distance movement of wildlife from one area to another. Linkages can be anything from narrow strips of habitat that function as a tunnel or conduit (i.e., only permit movement but not breeding or foraging) to a large area of intact habitat that is used for movement or dispersal and other life functions. Some species require linkages for periodic migrations among different habitat types used for breeding, birthing, feeding, or roosting. Wildlife movement from one important habitat area to another may vary from daily to seasonal migration depending on the species. The second need for a linkage is the permanent immigration or emigration of individuals among habitat patches, allowing for gene flow[13] and recolonization after local extinction.

[13] Gene flow refers to the movement of individuals, and/or the genetic material they carry, from one population to another.

Table 5.3-2 Special-status Plants and Wildlife Considered Present in the BSA

Wildlife Species	Status[1]	General Habitat Description	Habitat within BSA
Special-status Plants			
Prostrate vernal pool navarretia (*Navarretia prostrata*)	CNPS Rank 1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland, vernal pools; 5 – 3,970 feet above mean sea level (AMSL)	The California Natural Diversity Database (CNDDB) recorded a small population of prostrate vernal pool navarretia within a roughly bounded area within the western portion of the BSA. This area is non-specific, but appears to be centered on the central or southern portions of the seasonal wetland complex in the western portion of the BSA, which also represents the area of suitable habitat for the species. It was observed multiple times in 2001, 2008, and 2010, but was not detected in 2017 or 2018 possibly due to changing hydrologic conditions after 2010. The statewide population is composed of approximately 51 extant occurrences. Although not observed during the March 2017 and May 2018 surveys, it was observed on the site in several recent years and therefore it is assumed to be potentially present in the central and southern portions of the seasonal wetland complex as seedbank.[14]
Congdon's Tarplant (*Centromadia parryi ssp. congdonii*)	CNPS Rank 1B.1	Valley and foothill Grassland in depressions, swales floodplains with alkaline soils; usually disturbed areas; 0 – 755 feet AMSL	The species was observed during the 2018 focused plant surveys of the BSA. The statewide population includes 91 occurrences, and of these, approximately one occurs within the southwestern portion of the BSA and 19 occur within the immediate vicinity. The CNDDB has recorded up to 114,000 individuals of Congdon's tarplant in the southwestern portion of the BSA between Fallon Road and Croak Road, and 77,000 individuals were estimated in 2018. Determined to be present.
San Joaquin spearscale (*Extriplex Joaquinana*)	CNPS Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland in alkaline soils; 0 – 2,740 feet AMSL	Suitable habitat and suitable alkaline soils occur on site. Although not observed during the 2017 and 2018 site surveys, it was observed in the BSA in 2002. It produces a long-lived seed bank, which germinates in response to soil disturbances and can exist in weedy grasslands dominated by exotic species. The statewide population is composed of approximately111 extant occurrences; of these, 11 are or were within the immediate vicinity of the BSA. The CNDDB has recorded several occurrences near the BSA, some of which have likely been extirpated by recent development. Assumed to be potentially present as seedbank within the alkaline-affected seasonal wetlands in the southwestern portion of the BSA.

[14] In this context, a seed bank is the natural storage of seeds, often dormant, within the on-site soils.

Wildlife Species	Status[1]	General Habitat Description	Habitat within BSA
Special-status Wildlife			
California tiger salamander (*Ambystoma californiense*)	FT, SE	Vernal or temporary pools in annual grasslands or open woodlands.	Based on prior surveys of the BSA and on CNDDB records, this species is known to occur within the immediate vicinity of the BSA. A site assessment and focused surveys for breeding tiger salamanders, conducted from 2001 through 2003, detected several adult tiger salamanders immediately north of to the BSA. Numerous additional records of tiger salamanders occur within ponds, intermittent streams and their tributaries in the vicinity of the BSA, including breeding records in ponds in close proximity to the site. While suitable breeding ponds are absent from the BSA, perennial and ephemeral stream, perennial marsh, and seasonal wetland habitats on-site may provide suitable dispersal and foraging habitat for the species, while California annual grasslands in the BSA support California ground squirrel and pocket gopher colonies whose burrows can provide suitable refugia for California tiger salamander. The species is therefore determined to be present.
California red-legged frog (*Rana draytonii)*	FT, CSSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	A site assessment and a focused survey for breeding California red-legged frogs, conducted in 2001 in the western portion of the Project site, failed to detect any California red-legged frogs, although the quarry pond to the north of the BSA was considered to provide suitable breeding habitat. Additional surveys conducted in 2003 detected an adult California red-legged frog at the head of an unnamed drainage within the immediate vicinity of the BSA. Suitable breeding habitat for red-legged frogs is absent from the BSA. However, perennial and ephemeral stream, perennial marsh, seasonal wetland, and California annual grassland habitats on site provide suitable foraging, dispersal and refugial habitat for red-legged frogs. Thus, the species is determined to be present. The northern portion of the BSA has been designated as critical habitat by the USFWS.
Tricolored blackbird (*Agelaius tricolor)*	ST	Nests in extensive emergent vegetation and fields.	Foraging habitat for this species occurs in the perennial marsh, seasonal wetlands, and California annual grassland habitats on the eastern portion of the Project site. Dense stands of emergent vegetation and mustard (*Brassica* sp.) between Fallon/Croak Road and the I-580 off ramp provide marginally suitable habitat for a nesting colony of tricolored blackbirds. Furthermore, the species has been recorded in the BSA and was known to breed in the vicinity. Thus, there is some potential, albeit low, for a breeding colony of tricolored blackbirds to become established in perennial marsh habitat in the southwestern portion of the Project site.

Wildlife Species	Status[1]	General Habitat Description	Habitat within BSA
San Joaquin kit fox (*Vulpes macrotis mutica)*	FE, ST	Extensive open grasslands or grasslands with scattered shrubby vegetation.	EACCS habitat modeling places the BSA within the extreme northwestern edge of the current range of the species. Extensive surveys of the BSA in the 1990s and early 2000s failed to detect any kit fox or evidence of their presence and all available data indicate that the current range of the San Joaquin kit fox does not extend as far south/west as the Dublin Boulevard area. Only a single kit fox has been recorded in the area, approximately 5 miles northeast of the BSA along Morgan Territory Road. Because California annual grasslands in the BSA offer ostensibly suitable foraging and denning habitat for kit foxes, and because an individual has been detected to the northeast, we cannot rule out the possibility that individual kit foxes may occur on-site. If the species were to be present, it would likely occur only as a rare and irregular transient. Given the existing high levels of human disturbance and lack of recent records anywhere in the vicinity, in spite of the presence of ostensibly suitable habitat, this species is considered absent from the site.
Western pond turtle (*Emys marmorata)*	CSSC	Occurs in and around a wide variety of perennial or nearly perennial aquatic habitats including canals, stock ponds, lakes, streams, and rivers. Nests in uplands, typically in close proximity to aquatic habitat.	Aquatic habitat for the western pond turtle occurs within the reaches of Cottonwood Creek, in the unnamed tributary along Fallon/Croak Road, and in ponded water at culverts along Croak Road. Although western pond turtles have been observed within Cottonwood Creek north of the BSA, this area of the creek provides only marginally suitable foraging habitat for the species. Within the BSA, Cottonwood Creek is shallow, steep banked, and lacks suitable basking sites and food resources; thus western pond turtles are not expected to occur regularly in the reaches within the BSA. Similarly, the shallow waters of the unnamed tributaries along Fallon/Croak Road provide only marginally suitable foraging habitat for the species. Nevertheless, the pond turtles may utilize perennial and ephemeral stream habitats in the BSA for dispersal or to move between suitable aquatic, foraging, and upland[15] breeding habitats. Annual grasslands throughout the BSA, but in particular near Cottonwood Creek and the other perennial streams, provide suitable nesting habitat for the species. Thus western pond turtles may occur within the BSA, primarily as transients in aquatic and marsh habitat, but potentially as breeders in upland habitat.

[15] Upland areas refer to ground elevated above the lowlands along rivers or between hills.

Wildlife Species	Status[1]	General Habitat Description	Habitat within BSA
Burrowing owl (*Athene cunicularia)*	CSSC	Grasslands and ruderal habitats where ground squirrel or other burrows are present.	Burrowing owls and evidence of their presence (i.e., whitewash and/or pellets) were within the immediate vicinity of the BSA during focused surveys conducted in 2002. Burrowing owls have also been observed in grasslands within 2 miles of the BSA, primarily located on properties to the north. Burrows of California ground squirrels and active ground squirrel colonies were observed during the 2002 habitat assessment of the sites, and were also observed during the 2017 and 2018 surveys. Because suitable breeding and foraging habitat for burrowing owls is present throughout the BSA, particularly in the upland grasslands, burrowing owls may utilize California annual grasslands and portions of abandoned developed/landscaped habitats within the BSA.
Loggerhead shrike (*Lanius ludovicianus)*	CSSC	Nests in tall shrubs and dense trees; forages in grasslands, marshes, and ruderal habitats.	Suitable foraging habitat for loggerhead shrikes is available throughout the grassland habitat on site, and a loggerhead shrike was observed in the BSA during surveys in 2017 and 2018. Suitable nesting habitat is available within the BSA in isolated shrubs or trees, and up to two pairs of this species may nest in the BSA.
Yellow warbler (*Lanius ludovicianus)*	CSSC	Nests in riparian woodlands, especially dominated by cottonwood (*Populus* spp.), willow (*Salix* spp.), and alder (*Alnus* spp.).	No suitable riparian habitat occurs within the BSA. As migrants, yellow warblers may occur as occasional foragers on the BSA, but are not expected to nest on or adjacent to the BSA.
Grasshopper sparrow (*Ammodramus savannarum)*	CSSC	Breeds and forages in meadows, fallow fields, and pastures.	Suitable nesting and foraging habitat is present throughout grasslands in the BSA.
Pallid bat (*Antrozous pallidus)*	CSSC	Forages over many habitats; roosts in caves, rock outcrops, buildings, and hollow trees.	Suitable roosting and breeding habitat for individuals or a moderate number of pallid bats may be present in larger trees if cavities are present or abandoned buildings in the BSA. Abandoned buildings within the Project site could provide habitat for a medium sized roosting or maternity colony, although no evidence of large numbers of bats was observed during reconnaissance surveys in 2017.

Wildlife Species	Status[1]	General Habitat Description	Habitat within BSA
Townsend's big-eared bat (*Corynorhinus townsendii)*	CSSC	Roosts in caves and mine tunnels, and occasionally in deep crevices in trees such as redwoods or in abandoned buildings, in a variety of habitats.	Suitable roosting and breeding habitat for individuals or a moderate number of pallid bats may be present in larger trees if cavities are present or abandoned buildings in the BSA. Abandoned buildings within the Project site may provide habitat for individual roosting or breeding Townsend's big-eared bats. Therefore, they may occur in the BSA as occasional foragers.
American badger (*Taxidea taxus)*	CSSC	Burrows in grasslands and occasionally in infrequently disked agricultural areas.	Badgers are not known to occur within the BSA and none were observed during reconnaissance level surveys in 2017. However, badgers have been recorded in the surrounding vicinity. Suitable denning and foraging habitat for badgers is present in the grassland habitats, although badgers are unlikely to den on-site due to the surrounding high levels of human disturbance. Should badgers occur in the BSA, they would most likely represent dispersing or foraging individuals. Nevertheless, there is some potential for badgers to den in the BSA, albeit low.
White-tailed kite (*Elanus leucurus)*	SP	Nests in tall shrubs and trees, forages in grasslands, marshes, and ruderal habitats.	White-tailed kites are known to occur in the BSA and were observed during reconnaissance level surveys in 2017. Grassland habitat provides suitable foraging habitat for kites, and isolated trees on site may provide suitable nesting habitat for up to one pair of nesting white-tailed kites.
Golden eagle (*Aquila chrysaetos)*	SP	Breeds on cliffs or in large trees (rarely on electrical towers), forages in open areas.	No golden eagle nests are known from the BSA or vicinity and suitably large trees or structures that could support an eagle nest are largely absent from the BSA and surrounding area. In addition, the EACCS models the BSA as potential foraging habitat for the species, but does not model any potential nesting habitat in the vicinity. Thus, golden eagles may occur as occasional foragers on the BSA, but are not expected to nest on or adjacent to the BSA.

Source: H. T. Harvey & Associates, 2018

[1] Status: Federally Endangered (FE); Federally Threatened (FT); State Endangered (SE); State Threatened (ST); California Fully Protected Species (SP); California Species of Special Concern (CSSC).

All of the EACCS focal species (discussed above under Regulatory Setting), to some degree, rely on habitat linkages to maintain populations and their genetic integrity. Linkage requirements differ greatly from species to species. Specific characteristics of linkages, such as dimensions, location, and quality of habitat, can influence wildlife use. The EACCS identifies three wildlife linkage categories based on an assessment of the movement needs of the focal species:

- Grassland corridors
- Aquatic-upland connectivity
- Riparian/stream connectivity

Grassland Corridors

Grassland Corridors have several land cover types, such as California annual grasslands, which make up this corridor. Several wildlife species, such as the San Joaquin fox, American badger; and perhaps, in some instances, California red-legged frog; along with several other generalist wildlife species, use grassland corridors as linkages to their grassland habitats. The primary kit fox range in Alameda and Contra Costa Counties is in the Diablo Range along the eastern portion of the two counties. Alameda County also supports a relatively large population of nesting golden eagles, which use annual grasslands as their primary foraging habitat. They are sensitive to fragmentation of this habitat, and smaller patch sizes may lead to declines in prey populations.

Aquatic-upland Connectivity

Several special-status reptiles and amphibians rely on both aquatic and upland habitats to complete their life cycle. These species use ponds, streams, and other aquatic habitats that are interspersed within the annual grassland/oak woodland/chaparral complex in eastern Alameda County. Connectivity between ponds and streams is important for species such as the California tiger salamander and California red-legged frog that can move between aquatic features. Parts of the EACCS study area, with a higher density of aquatic features, that are "connected" have a higher probability that individual red-legged frogs or tiger salamanders could interact with other members of the local populations. The exception to that rule occurs along the I- 580 corridor where the distance between aquatic resources is enough to provide reasonable connectivity to species, but the barrier that I-580 precludes that connectivity in most cases.

Riparian/stream Connectivity

At a landscape level, stream and riparian habitats connect the BSA and serve and the primary source of nutrient movement through natural systems. At the species level, the primary functions of stream and riparian habitats are for movement and cover. As discussed above and depicted in **Figure 5.3-1**, the Project site contains several perennial streams, perennial streams, and other riparian areas.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

The following significance criteria for biological resources were derived from the Environmental Checklist in CEQA Guidelines Appendix G. These significance criteria have been amended or supplemented, as appropriate, to address lead agency requirements and the full range of impacts related to the Project.

An impact of the Project would be considered significant and would require mitigation if it would meet one of the following criteria:

A. Have an adverse effect, either directly or through habitat modifications, on any species listed as endangered, threatened, or proposed or critical habitat for these species

B. Have a substantial adverse effect, either directly or through habitat modifications on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS

C. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS

D. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marshes, vernal pools, etc.) through direct removal, filling, hydrological interruption, or other means

E. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

F. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinances

G. Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Communities Conservation Plan (NCCP), or other approved local, regional, or state HCP

Methodology

As part of the *Biological Resources Report* preparation, qualified biologists established the BSA for the Project. The BSA encompasses all areas and features that may be temporarily or permanently impacted by the Project, as well as surrounding areas that may be indirectly impacted, or where important biological resources occur. Qualified biologists surveyed the BSA to describe biotic habitats within the construction and operational footprints. The survey also identified plants and animals found or likely to be found within the BSA, and included reconnaissance-level surveys in March 207 for wildlife species and their habitats. In May and June 2018, focused rare plant surveys were conducted on several different dates chosen to coincide with the blooming periods of rare plant species with some

potential to occur in the BSA. All surveys included inspections of the Cottonwood Creek channel, perennial and ephemeral drainages, as well as the Project site and surrounding areas as appropriate.

Qualified biologists mapped all biotic habitats within the BSA onto an aerial photograph of the Project site. Habitat acreages were calculated for all habitat types within the BSA using geographical information systems, on-site mapping, and interpretation of aerial photographs. Habitats may be considered sensitive if they are limited in distribution, are regulated, or provide habitat for a sensitive species in this region. Reconnaissance-level surveys, including a by-stem tree survey, were deemed adequate to assess the effects of the Project on biological resources for the purposes of this analysis.

Impact Analysis

No Impact Summary

There are no "no impact" determinations for this topic.

Impacts of the Project

A. Have an adverse effect, either directly or through habitat modifications, on any species listed as endangered, threatened, or proposed or critical habitat for these species

And

B. Have a substantial adverse effect, either directly or through habitat modifications on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS

The 141.4-acre BSA provides habitat that supports numerous special-status plant and wildlife species. Within this BSA, the construction footprint would encompass 81 acres for installation of the Project, including temporary grading and staging areas that would be restored after construction. Of the 81-acre construction footprint, 29 acres would be permanently converted to Project facilities, including the roadway, sidewalks, intersections, and land acquired for right-of-way. The habitat impact acreages calculated in this section are not additive between each species because, in many instances, several species utilize the same habitat area within the construction footprint. For example, although habitat impacts for the California red-legged frog and California tiger salamander are separated by species, both species utilize identical habitat areas on the Project site.

Special-Status Plants (Congdon's Tarplant, San Joaquin Spearscale, and Prostrate Vernal Pool Navarretia)

Impact BIO-1.1: Project construction would result in 0.45 acres of direct and indirect temporary impacts to Congdon's tarplant and its seedbanks, and seed banks of San Joaquin spearscale or prostrate vernal pool navarretia, if these are present within the construction footprint. **(Less than Significant with Mitigation)**

The *Biological Resources Report* determined three special-status plant species occur or have potential to occur in the BSA: Congdon's Tarplant, San Joaquin Spearscale, and Prostrate Vernal Pool Navarretia.

Focused rare plant surveys completed on June 29, 2018 confirmed the presence of Congdon's tarplant in the BSA. The survey observed approximately 77,000 plants distributed over 8.2 acres in the seasonal wetlands along the southern edge of the BSA. Smaller numbers occurred in scattered areas to the west of the main population. Focused surveys in 2017 and 2018 did not observe San Joaquin spearscale nor prostrate vernal pool navarretia, however, both species have a long-lived seed bank. Therefore, this analysis assumes both species may still be present within the BSA as seed banks.

Because San Joaquin spearscale and prostrate vernal pool navarretia are adapted to alkaline wetlands, it is very likely the seed banks do not extend into the construction footprint, as alkalinity lessens to the north. The maximum extent of the anticipated seed bank distribution of either species, based on habitat suitability, would be the northernmost extent of the Congdon's tarplant that was mapped on the site.

Project construction would result in 0.45 acres of direct and indirect temporary impacts to Congdon's tarplant and its seed banks (and seed banks of San Joaquin spearscale or prostrate vernal pool navarretia, if these occur in the construction footprint). Impacts would result from construction access needed to remove utility line and poles, which would then be located elsewhere outside of the Congdon's tarplant population. This could directly affect up to approximately 400 Congdon's tarplant individuals and indirectly affect up to 2,000 plants within 50 feet of the direct impact area, though it should be noted that annual plant populations fluctuate over time in response to climate and other factors, and the 77,000 plants estimated to occur on the site in 2018 was on the higher end of recorded population numbers for this occurrence. No permanent impacts are anticipated to occur to this species or to the seed banks of San Joaquin spearscale or prostrate vernal pool navarretia from the Project.

The Project could result in direct temporary impacts such as trampling or crushing of individual plants, or indirect impacts resulting from alteration of hydrology, dust coverage to foliage from nearby work activities, or a decrease in water quality within wetland areas supporting these species downslope of the Project site. The Project would implement General Construction Permit conditions for dust control, such as watering and control of stormwater/dust-control water on the site during construction. Following construction, water quality would be protected in downslope habitats through implementation of stormwater treatment features such as bioswales or other C.3-

approved measures allowed by the NPDES. However, the Project could still result in direct or indirect impacts to special-status plants. This represents a potentially significant impact, reduced to a less-than-significant impact through application of **Mitigation Measure BIO-1** through **BIO-3**. These measures include construction-period controls to avoid and minimize disturbance or damage to the species, including those in the EACCS, along with post-construction monitoring to evaluate species recovery.

Mitigation for Impact BIO-1.1

Mitigation Measure BIO-1: The following measures shall be implemented to avoid and minimize impacts to special-status plant species and to the other special-status plants that have seed banks that may overlap the construction footprint:

- To the extent feasible, Project construction will avoid all occupied habitat for Congdon's tarplant (which is also potential seed bank area for San Joaquin spearscale or prostrate vernal pool navarretia) plus a 50-foot buffer.
- The mapped areas of Congdon's tarplant will be clearly shown on all construction plans.
- To avoid special-status plants, a buffer of at least 50 feet will be clearly delineated from the active work areas through installation of environmental sensitive area fencing to prevent inadvertent access. The work area for utility line removal will be bound by environmental sensitive area fencing. A qualified plant ecologist shall oversee fencing placement.
- Work to remove the existing utility line for relocation within the Project site will proceed using the least impactful equipment necessary to minimize crushing, soil compaction, and erosion.

Mitigation Measure BIO-2: The general avoidance and minimization measures detailed in the EACCS and the associated Programmatic Biological Opinion (PBO) shall be implemented. Implementation of the General Minimization Measures listed in the PBO for the EACCS will further avoid impacts and are required for all EACCS-compliant projects. These avoidance and minimization measures include general measures that apply to all work, activity-specific measures designed to address anticipated effects of certain work activities or particular types of resources, and standard best management practices. Specifically, the Project would implement EACCS Measure GEN-1 through GEN-17, and PBO General Minimization Measure 1 through 19. These measures are listed in **Table 5.3-3**.

Table 5.3-3 EACCS Avoidance and Minimization Measures and General Measures

Applicable EACCS Avoidance and Minimization Measures	
EACCS Measure GEN-01	Employees and contractors performing construction activities will receive environmental sensitivity training. Training will include review of environmental laws and AMMs that must be followed by all personnel to reduce or avoid effects on covered species during construction activities.
EACCS Measure GEN-02	Environmental tailboard trainings will take place on an as-needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects on these species during construction activities. Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.
EACCS Measure GEN-03	Contracts with contractors, construction management firms, and subcontractors will obligate all contractors to comply with these AMMs.
EACCS Measure GEN-04	The following will not be allowed at or near work sites for covered activities: trash dumping, firearms, open fires (such as barbecues) not required by the activity, hunting, and pets (except for safety in remote locations).
EACCS Measure GEN-05	Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed areas to the extent practicable.
EACCS Measure GEN-06	Off-road vehicle travel will be minimized.
EACCS Measure GEN-07	Vehicles will not exceed a speed limit of 15 mi per hour on unpaved roads within natural land-cover types, or during off-road travel.
EACCS Measure GEN-08	Vehicles or equipment will not be refueled within 100 ft of a wetland, stream, or other waterway unless a bermed and lined refueling area is constructed.
EACCS Measure GEN-09	Vehicles shall be washed only at approved areas. No washing of vehicles shall occur at job sites.
EACCS Measure GEN-10	To discourage the introduction and establishment of invasive plant species, seed mixtures/straw used within natural vegetation will be either rice straw or weed-free straw.
EACCS Measure GEN-11	Pipes, culverts, and similar materials greater than 4 inches in diameter will be stored so as to prevent covered wildlife species from using these as temporary refuges, and these materials will be inspected each morning for the presence of animals prior to being moved.

Applicable EACCS Avoidance and Minimization Measures	
EACCS Measure GEN-12	Erosion control measures will be implemented to reduce sedimentation in wetland habitat occupied by covered animal and plant species when activities are the source of potential erosion problems. Plastic monofilament netting (erosion control matting) or similar material containing netting shall not be used at the Project. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
EACCS Measure GEN-13	Stockpiling of material will occur such that direct effects on covered species are avoided. Stockpiling of material in riparian areas will occur outside of the top of bank, and preferably outside of the outer riparian dripline and will not exceed 30 days.
EACCS Measure GEN-14	Grading will be restricted to the minimum area necessary.
EACCS Measure GEN-15	Prior to ground disturbing activities in sensitive habitats, Project construction boundaries and access areas will be flagged and temporarily fenced during construction to reduce the potential for vehicles and equipment to stray into adjacent habitats.
EACCS Measure GEN-16	Significant earth-moving activities will not be conducted in riparian areas within 24 hours of predicted storms or after major storms (defined as 1 inch of rain or more).
EACCS Measure GEN-17	Trenches will be backfilled as soon as possible. Open trenches will be searched each day prior to construction to ensure no covered species are trapped. Earthen escape ramps will be installed at intervals prescribed by a qualified biologist.
Applicable PBO General Minimization Measures	
PBO General Minimization Measure 1	At least 15 days prior to any ground disturbing activities, the applicant will submit to the USFWS for review and approval the qualifications of the proposed biological monitor(s). A qualified biological monitor means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the listed species.
PBO General Minimization Measure 2	A USFWS-approved biological monitor will remain on-site during all construction activities in or adjacent to habitat for listed species. The USFWS-approved biological monitor(s) will be given the authority to stop any work that may result in the take of listed species. If the USFWS-approved biological monitor(s) exercises this authority, the USFWS will be notified by telephone and electronic mail within one working day. The USFWS-approved biological monitor will be the contact for any employee or contractor who might inadvertently kill or injure a listed species or anyone who finds a dead, injured, or entrapped individual. The USFWS-approved biological monitor will possess a working wireless/mobile phone whose number will be provided to the USFWS.

Applicable EACCS Avoidance and Minimization Measures	
PBO General Minimization Measure 3	Prior to construction, a construction employee education program will be conducted in reference to potential listed species on site. At minimum, the program will consist of a brief presentation by persons knowledgeable in endangered species biology and legislative protection (USFWS-approved biologist) to explain concerns to contractors, their employees, and agency personnel involved in the project. The program will include: a description of the species and their habitat needs; any reports of occurrences in the Project area; an explanation of the status of each listed species and their protection under the Act; and a list of measures being taken to reduce effects on the species during construction and implementation. Fact sheets conveying this information and an educational brochure containing color photographs of all listed species in the work area(s) will be prepared for distribution to the above-mentioned people and anyone else who may enter the project area. A list of employees who attend the training sessions will be maintained by the applicant to be made available for review by the USFWS upon request. Contractor training will be incorporated into construction contracts and will be a component of weekly project meetings.
PBO General Minimization Measure 4	Pre-construction surveys for listed species will be performed immediately prior to groundbreaking activities. Surveys will be conducted by USFWS-approved biologists. If at any point, construction activities cease for more than five consecutive days, additional pre-construction surveys will be conducted prior to the resumption of these actions.
PBO General Minimization Measure 5	To prevent the accidental entrapment of listed species during construction, all excavated holes or trenches deeper than 6 inches will be covered at the end of each work day with plywood or similar materials. Foundation trenches or larger excavations that cannot easily be covered will be ramped at the end of the work day to allow trapped animals an escape method. Prior to the filling of such holes, these areas will be thoroughly inspected for listed species by USFWS-approved biologists. In the event of a trapped animal is observed, construction will cease until the individual has been relocated to an appropriate location.
PBO General Minimization Measure 6	Translocation will be approved on a project specific basis. The applicant will prepare a listed species translocation plan for the Project to be reviewed and approved by the USFWS prior to Project implementation. The plan will include trapping and translocation methods, translocation site, and post translocation monitoring.
PBO General Minimization Measure 7	Only USFWS-approved biologists will conduct surveys and move listed species.
PBO General Minimization Measure 8	All trash and debris within the work area will be placed in containers with secure lids before the end of each workday in order to reduce the likelihood of predators being attracted to the site by discarded food wrappers and other rubbish that may be left on-site. Containers will be emptied as necessary to prevent trash overflow onto the site and all rubbish will be disposed of at an appropriate off-site location.
PBO General Minimization Measure 9	All vegetation which obscures the observation of wildlife movement within the affected areas containing or immediately adjacent to aquatic habitats will be completely removed by hand just prior to the initiation of grading to remove cover that might be used by listed species. The USFWS-approved biologist will survey these areas immediately prior to vegetation removal to find, capture, and relocate any observed listed species, as approved by the USFWS

Applicable EACCS Avoidance and Minimization Measures	
PBO General Minimization Measure 10	All construction activities must cease one half hour before sunset and should not begin prior to one half hour after sunrise. There will be no nighttime construction.
PBO General Minimization Measure 11	Grading and construction will be limited to the dry season, typically May-October.
PBO General Minimization Measure 12	BMPs will be used to minimize erosion and effects on water quality and effects on aquatic habitat. If necessary, a Stormwater Pollution Prevention Plan (SWPPP) will be prepared.
PBO General Minimization Measure 13	The applicant will ensure a readily available copy of this PBO is maintained by the construction foreman/manager on the Project site whenever earthmoving and/or construction is taking place. The name and telephone number of the construction foreman/manager will be provided to the USFWS prior to groundbreaking.
PBO General Minimization Measure 14	The construction area shall be delineated with high visibility temporary fencing at least 4 ft in height, flagging, or other barrier to prevent encroachment of construction personnel and equipment outside of the construction area. Such fencing shall be inspected and maintained daily until completion of the Project. The fencing will be removed only when all construction equipment is removed from the site.
PBO General Minimization Measure 15	Silt fencing or wildlife exclusion fencing will be used to prevent listed species from entering the project area. Exclusion fencing will be at least 3 ft high and the lower 6 inches of the fence will be buried in the ground to prevent animals from crawling under. The remaining 2.5 ft will be left above ground to serve as a barrier for animals moving on the ground surface. The fence will be pulled taut at each support to prevent folds or snags. Fencing shall be installed and maintained in good condition during all construction activities. Such fencing shall be inspected and maintained daily until completion of the Project. The fencing will be removed only when all construction equipment is removed from the site.
PBO General Minimization Measure 16	A USFWS-approved biologist shall ensure that the spread or introduction of invasive exotic plant species shall be avoided to the maximum extent possible. When practicable, invasive exotic plants in the Project areas shall be removed.
PBO General Minimization Measure 17	Project sites shall be revegetated with an appropriate assemblage of native riparian wetland and upland vegetation suitable for the area. A species list and restoration and monitoring plan shall be included with the Project proposal for review and approval by the USFWS and the USACE. Such a plan must include, but not be limited to, location of the restoration, species to be used, restoration techniques, time of year the work will be done, identifiable success criteria for completion, and remedial actions if the success criteria are not achieved.

Applicable EACCS Avoidance and Minimization Measures	
PBO General Minimization Measure 18	If a work site is to be temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 5 millimeters. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
PBO General Minimization Measure 19	A USFWS-approved biologist shall permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs [Lithobates catesbeianus], crayfish [Pacifastacus leniusculus and Procambarus clarkii], and centrarchid fishes, to the maximum extent possible. The applicant shall have the responsibility to ensure that their activities are in compliance with the California Fish and Game Code.

Mitigation Measure BIO-3: To track recovery of temporarily impacted special-status plant populations, the actual area of impacts will be mapped and monitored for at least three years by a qualified plant ecologist. Prior to Project construction, an area to the south, outside the construction footprint and of a similar size and similar density of Congdon's tarplant to the area to be impacted, will be identified and used as a reference area. Objectives during the monitoring will include removing any weed populations that may have become introduced due to disturbance, and to encourage grazing that benefits Congdon's tarplant. By year three, if the Congdon's tarplant density within the impacted area is not at least 50 percent of the reference area, or if there is more than 5 percent cover of Cal-Invasive Plant Council (IPC) high or moderate ecological impact invasive plants within the recovery area (not including non-native grasses), the portion of the population impacted by the Project will be considered permanently impacted and the Project will then be required to mitigate for the impacts as per the EACCS, which would require preservation in perpetuity and management per EACCS guidelines of a similar-sized area and number of plants at a 5:1 ratio (number of new plant individuals:number of impacted plant individuals).

California Red-legged Frog

Impact BIO-1.2: The Project could result in the direct loss and indirect disturbance of California red-legged frogs and their habitat. **(Less than Significant with Mitigation)**

Construction: Temporary Direct Impacts

Construction access and staging areas could temporarily impact 37.12 acres of potential California red-legged frog habitat, including 22.52 acres of California red-legged frog critical habitat. These areas could be subject to grading but would not be paved or otherwise permanently altered, and could provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction.

The Project could impact individual California red-legged frogs as a result of:

- Direct mortality during construction as a result of trampling by construction personnel or equipment
- Increased mortality due to roadkill caused by the construction and vehicular use in and around the vicinity of the Project
- Direct mortality from the collapse of underground burrows, resulting from soil compaction
- Direct mortality or loss of suitable habitat resulting from the loss of dispersal habitat and refugia.

No known or potential California red-legged frog breeding habitat would be directly or indirectly impacted by Project construction, as no breeding habitat is present in or downslope from the BSA. Nevertheless, in the event that California red-legged frog individuals were to attempt breeding in pools in the BSA, construction could also potentially impact these species through mortality of eggs or larvae if dewatering of pools was not avoided.

Operation: Permanent Direct Impacts

Approximately 22.70 acres of potential California red-legged frog foraging, dispersal and upland refugial habitat would be permanently lost due to the construction of pavement and other hardscape in areas that currently provide natural habitat that may be used by the California red-legged frog. Of this permanent impact area, approximately 11.44 acres is considered California red-legged frog critical habitat.

Operation: Permanent Indirect Impacts

Up to 133.47 acres of potential California red-legged frog foraging, dispersal, and upland refugial habitat south of the Project may be indirectly but permanently impacted as a result of being disconnected from existing breeding sites north of the Project. Although the habitat in these areas would continue to be ostensibly suitable for use by California red-legged frogs following Project implementation, individual frogs associated with breeding habitat north of the Project site would no longer be able to use the habitat between the Project site and I-580. This represents an effective loss of habitat. In the unincorporated County portion of the Project, the use of a free-span bridge over Cottonwood Creek would allow California red-legged frogs to continue to move back and forth under the new road from their aquatic habitat to the north.

Given the above, the Project could impact California red-legged frog. However, implementation of **Mitigation Measures BIO-2**, **BIO-4**, **BIO-5**, and **BIO-6** would reduce impacts to a less-than-significant level. These measures would avoid and minimize impacts to the species through pre-construction survey, an on-site monitor at critical points during construction to ensure the species is not present or harmed, and other construction safety measures to avoid harm. Additionally, the mitigation measures provide compensatory mitigation for habitat loss, consistent with the EACCS, to ensure suitable habitat continues to be available for this species.

Mitigation for Impact BIO-1.2

Mitigation Measure BIO-4: The Project will incorporate the following species-specific avoidance and minimization prescribed by the EACCS Measure AMPH-2:

- A qualified biologist will conduct pre-construction surveys prior to activities. If individuals are found, work will not begin until they are moved out of the construction zone to a USFWS/CDFW approved relocation site.
- A USFWS/CDFW-approved biologist shall be present for initial ground disturbing activities.

- If the work site is within the typical dispersal distance of potential breeding habitat, barrier fencing will be constructed around the worksite to prevent amphibians from entering the work area. Contact USFWS/CDFW for latest research on this distance for species of interest. Barrier fencing will be removed within 72 hours of completion of work. The Project site is known to be within dispersal distance of potential breeding habitat for California red-legged frog and California tiger salamander, and therefore barrier fencing consisting of silt fence and orange construction zone fencing will be installed on the northern and southern boundaries of the Project site where construction activities border grassland habitat. The barrier fencing will be at least 3 feet high and the lower 6 inches of the fence will be buried in the ground to prevent animals from crawling under. The remaining 2.5 feet will be left above ground to serve as a barrier for animals moving on the ground surface.
- No monofilament plastic will be used for erosion control.
- Construction personnel will inspect open trenches in the morning and evening for trapped amphibians.
- A qualified biologist possessing a valid FESA Section 10(a)(1)(A) permit or USFWS-approved under an active biological opinion, will be contracted to trap and to move amphibians to nearby suitable habitat if amphibians are found inside a fenced area. No trapping, such as the use of upland traplines for California red-legged frogs or California tiger salamanders, is proposed for this Project. However, a biologist approved by the USFWS under the Project's Biological Opinion and by the CDFW under the Project's Incidental Take Permit will survey for and relocate any individuals found within the impact area. The applicant will prepare a relocation plan for the Project to be reviewed and approved by the USFWS and CDFW prior to the onset of construction.
- Work within suitable habitat will be avoided from 15 October (or the first measurable fall rain of 1 inch or greater) to 1 May.

Mitigation Measure BIO-5: Compensatory mitigation for the permanent direct and indirect loss of California red-legged frog and California tiger salamander habitat would be required in accordance with the measures outlined in Tables 3-7 and 3-8 of the EACCS. Mitigation will take the form of purchase of mitigation credits from a mitigation bank or Project-specific mitigation, or other mitigation plan as approved by the USFWS and CDFW in the Project's permits. The ratio of mitigation to impact varies with the location of the proposed mitigation, and would be 2.5:1 at minimum, but may be as high as 4:1 (acreage of new habitat:acreage of impacted habitat).

California Tiger Salamander

Impact BIO-1.3: Project construction could result in the direct loss and indirect disturbance of California tiger salamanders and their habitat. **(Less than Significant with Mitigation)**

Potential impacts to California tiger salamander are identical to those described above under Impact BIO-1.2 for California red-legged frog. The habitat areas identified under Impact BIO-1.2 are also suitable habitat for California tiger salamander, and therefore the temporary direct impacts, permanent direct impacts, and permanent indirect impacts are equivalent for both species.

Given the above, the Project could impact California tiger salamander. However, **Mitigation Measures BIO-2**, **BIO-4**, and **BIO-5** (discussed above) would reduce impacts to a less-than-significant level. These measures would avoid and minimize impacts to the species through pre-construction survey, an on-site monitor at critical points during construction to ensure the species is not present or harmed, and other construction safety measures to avoid harm. Additionally, the mitigation measures provide compensatory mitigation for habitat loss, consistent with the EACCS, to ensure suitable habitat continues to be available for this species.

Mitigation for Impact BIO-1.3

Mitigation Measures BIO-2, BIO-4, and **BIO-5** (discussed above)

Tricolored Blackbird

Impact BIO-1.4: The Project would result in permanent and temporary impacts to foraging habitat for tricolored blackbird. **(Less than Significant with Mitigation)**

The Project would result in the permanent loss of 22.70 acres of potential tricolored blackbird foraging habitat due to the construction of pavement and other hardscape. The Project would also result in temporary impacts to 54.25 acres of potential tricolored blackbird foraging habitat that would be used for construction access, staging areas, and grading activities. Although the Project would result in permanent and temporary impacts to foraging habitat for this species, such foraging habitat is regionally abundant and does not limit tricolored blackbird distribution or populations. Therefore, no compensatory mitigation for habitat impacts is necessary.

Tricolored blackbird is not expected to nest in the BSA under current conditions. However, because the hydrology on site appears to have undergone several changes in recent years, there is some potential for dense stands of cattails to regenerate within the construction footprint. If nesting habitat were to improve prior to Project initiation, there is some potential for the loss of suitable tricolored blackbird nesting habitat, loss of active nests, and/or disturbance of active nests, possibly causing the abandonment of eggs or young, as a result of construction activity. This represents a potentially significant impact, reduced to a less-than-significant level through the implementation of **Mitigation Measure BIO-5** and **BIO-6**. These measures ensure adequate compensatory mitigation for habitat loss or degradation, along with pre-construction surveys and seasonal construction protocols to minimize disturbance and harm.

Mitigation for Impact BIO-1.4

Mitigation Measure BIO-6: If dense stands of cattails regenerate within the proposed construction footprint prior to Project construction, the Project shall implement the following measures to avoid impacts to tricolored blackbird nesting colonies:

- If work is initiated within the nesting season (i.e., February 1 to August 31), then a preconstruction survey for an active nesting colony of tricolored blackbirds shall be conducted within all perennial marsh and seasonal wetland habitats on and within 250 feet of the construction footprint.
- (EACCS Measure BIRD-3): If an active nest colony is identified within 250 feet of the construction footprint, work within 250 feet of the colony will be conducted outside of the nesting season (March 15 to September 1).

Western Pond Turtle

Impact BIO-1.5: Project construction may result in mortality to individual western pond turtles and their eggs. **(Less than Significant with Mitigation)**

The Project has a low probability to impact individual western pond turtles. If western pond turtles are present within the construction footprint when construction occurs, there is some potential for turtles or eggs to be crushed by personnel or equipment. However, **Mitigation Measures BIO-2** and **BIO-4** and compliance with standard NPDES and CDFW permit conditions would reduce impacts to a less-than-significant level. These measures would avoid and minimize impacts to the species through pre-construction survey, an on-site monitor at critical points during construction to ensure the species is not present or harmed, and other construction safety measures to avoid harm.

Mitigation for Impact BIO-1.5

Mitigation Measures BIO-2 and **BIO-4** (discussed above)

San Joaquin Kit Fox

Impact BIO-1.6: Project construction may result in mortality to individual San Joaquin kit foxes, should they be present within the construction footprint. **(Less than Significant with Mitigation)**

Because California annual grasslands in the BSA offer ostensibly suitable San Joaquin kit fox foraging habitat, and because there is a recorded occurrence of San Joaquin kit fox near the Project site, individual kit foxes could appear within the construction footprint. If present, San Joaquin kit foxes would likely occur only as rare and irregular transients, and are not expected to den on-site due to existing high levels of human disturbance. If an individual San Joaquin kit fox were to be present in the site when construction occurs, there is some potential for mortality from a vehicle or equipment strike. This represents a potentially significant impact, reduced to a less-than-significant

level through implementation of **Mitigation Measures BIO-2** and **BIO-7**. These measures require implementation of EACCS measures and BMPs, along with a pre-construction survey, construction exclusion zones, and evaluation of potential dens by a qualified biologist to ensure the species is not harmed.

Mitigation for Impact BIO-1.6

Mitigation Measure BIO-7: A qualified biologist shall conduct a preconstruction survey for San Joaquin kit fox and their dens prior to the start of construction activities. In the event that the species is detected during the preconstruction survey, avoidance of impacts to occupied kit fox dens will be implemented per the *Standardized Recommendations for Protection of The San Joaquin Kit Fox Prior To Or During Ground Disturbance* (USFWS 1999) and EACCS Measure MAMM-1 (outlined below):

- If potential dens are present, their disturbance and destruction will be avoided.
- If potential dens are located within the construction footprint and cannot be avoided during construction, a qualified biologist will determine if the dens are occupied or were recently occupied using methodology coordinated with the USFWS and CDFW. If unoccupied, the qualified biologist will collapse these dens by hand in accordance with USFWS procedures (USFWS 1999).
- Exclusion zones will be implemented following USFWS procedures (USFWS 1999) or the latest USFWS procedures available at the time. The radius of these zones will follow current standards or the following standards listed in the PBO for the EACCS:
    - Potential Den – A total of 4-5 flagged stakes will be placed 50 feet from the den entrance to identify the den location;
    - Known Den – Orange construction barrier fencing will be installed between the construction work area and the known den site at a minimum distance of 100 feet from the den. The fencing will be maintained until all construction-related disturbances have been terminated. At that time, all fencing will be removed to avoid attracting subsequent attention to the den;
    - Natal or Pupping Den – The USFWS will be contacted immediately if a natal or pupping den is discovered at or within 200 feet from the boundary of the construction area.
- Pipes will be capped and trenches will contain exit ramps to avoid direct mortality while construction areas are active.

Burrowing Owl

Impact BIO-1.7: Project construction could result in the direct loss and indirect disturbance of burrowing owls and their habitat. **(Less than Significant with Mitigation)**

The BSA contains suitable burrowing owl breeding and foraging habitat, particularly in the upland areas, California annual grasslands, and portions of abandoned developed/landscaped habitats. The Project could permanently impact 22.70 acres of potential burrowing owl habitat due to the installation of pavement and other hardscape. Project construction could temporarily impact 54.25 acres of potential burrowing owl habitat due to construction vehicles accessing the area, construction staging, and grading. Areas used for construction access and staging during construction would be subject to grading but would not be paved or otherwise permanently altered. These areas are expected to provide habitat of similar quality to existing conditions shortly (i.e., in less than one year) after the completion of construction. Although there are no recent burrowing owl breeding records for the Project site, the construction footprint could serve as breeding habitat for these species, and these areas may be permanently or temporarily impacted as described above. If present, the number of burrowing owls that could potentially occur in the construction footprint is low due to the lack of burrows observed on the majority of the BSA. However, individuals could be present in burrows within and nearby the construction footprint. The Project could impact individual burrowing owls as a result of the following:

- Direct mortality during construction as a result of collision with by construction vehicles or equipment
- Increased mortality due to roadkill caused by the construction and vehicular use in and around the vicinity of the Project
- Direct mortality from the collapse of underground burrows, resulting from soil compaction
- Direct mortality or loss of suitable habitat resulting from the loss of breeding, foraging, or dispersal habitat
- Loss of eggs (in the case of burrowing owls) or young (in the case of either species) as a result of abandonment of occupied nests/dens due to construction-related disturbance

The Project could result in significant impacts to burrowing owl, reduced to a less-than-significant impact through implementation of **Mitigation Measures BIO-2**, **BIO-5**, **BIO-8**, and **BIO-9**. These measures require implementation of EACCS measures and BMPs, along with a pre-construction survey, construction exclusion zones, and seasonal work windows for areas near any active nests to ensure the species is not harmed. Additionally, these measures include compensatory mitigation for habitat loss, consistent with the EACCS, to ensure suitable habitat continues to be available for this species.

Mitigation for Impact BIO-1.7

Mitigation Measures BIO-2 and **BIO-5** (discussed above)

Mitigation Measure BIO-8: A qualified biologist shall conduct preconstruction surveys for nesting burrowing owls prior to construction. As feasible, all suitable habitat within 0.5 mile of the Project site shall be surveyed for nesting burrowing owls. The survey should be conducted during the burrowing owl's nesting season, defined by the EACCS as March 15 to September 1. This survey shall consist of two or more site visits, with the biologist examining all potential burrows within 0.5 mile, as access permits, for signs of nesting burrowing owls (i.e., owls, pellets, feathers, and/or whitewash). Should these surveys identify burrowing owls on or near the BSA, avoidance of disturbance to the burrow will be conducted per EACCS Measure BIRD-2, outlined below:

- If an active burrowing owl nest is identified near a proposed work area, work will be conducted outside of the nesting season (March 15 to September 1).
- If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a qualified biologist will establish a no-activity zone. The no activity zone will be large enough to avoid nest abandonment and will at minimum be 250-foot radius from the nest.
- If burrowing owls are present within the construction footprint during the non-breeding period, a qualified biologist will establish a no-activity zone of at least 150 feet.
- If an effective no-activity zone cannot be established in either case, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, and the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls.

Mitigation Measure BIO-9: The EACCS identifies burrowing owl nesting habitat as suitable habitat within 0.5 mile of a documented nest occurrence during the previous 3 years, and it recommends compensatory mitigation in the event of any impacts to such habitat. In the event that burrowing owls are found to be nesting on or within 0.5 mile of the Project site during preconstruction surveys, or if owls need to be evicted from burrows (which can only occur when they are not actively nesting) to implement the Project, compensatory mitigation will be necessary to mitigate for impacts on occupied burrowing owl habitat. If the California red-legged frog/California tiger salamander habitat mitigation provides suitable habitat for burrowing owls as well, then no additional mitigation for impacts to burrowing owls would be necessary. Otherwise, additional habitat mitigation will be necessary, in the form of purchase of mitigation credits from a mitigation bank or Project-

specific mitigation in an area that supports such habitat. The EACCS prescribes mitigation ratios of 3:1 to 3.5:1 (acreage of new habitat:acreage of impacted habitat), depending on the location of the mitigation site.

American Badger

Impact BIO-1.8: The Project could result in the direct loss and indirect disturbance of American badgers and their habitat, should they be present within the construction footprint. **(Less than Significant with Mitigation)**

The BSA contains suitable American badger denning and foraging habitat, particularly in the grassland habitats. Should badgers be present within the BSA, they would most likely represent dispersing or foraging individuals; badgers are unlikely to den on-site due to the surrounding high levels of human disturbance. Therefore, the Project could result in the direct loss and indirect disturbance of American badgers and their habitat. Impacts to American badger individuals and habitat would be identical to the impacts outlined for the burrowing owl above. Therefore, the Project could result in significant impacts to American badger, reduced to a less-than-significant level with implementation of **Mitigation Measures BIO-2** and **BIO-10**. These measures require implementation of EACCS measures and BMPs along with a pre-construction survey to ensure the species is not harmed.

Mitigation for Impact BIO-1.8

Mitigation Measure BIO-2 (discussed above)

Mitigation Measure BIO-10: A qualified biologist shall conduct preconstruction surveys for denning American badgers prior to construction. As feasible, all suitable habitat within 0.5 mile of the Project site shall be surveyed for American badgers. The survey will be conducted for the area in which the qualified biologist can access. This survey can be conducted concurrently with the burrowing owl survey outlined in **Mitigation Measure BIO-8**. This survey shall consist of two or more site visits, with the biologist examining all potential burrows within 0.5 mile, as access permits, for American badger dens. Should these surveys identify American badgers on or near the BSA, avoidance of disturbance to the den will be conducted per EACCS Measure MAMM-1 outlined in **Mitigation Measure BIO-7.**

Common and Special-status Bats

Impact BIO-1.9: Project construction would result in the loss of foraging habitat and prey habitat for bats, and could temporarily alter foraging patterns in the immediate vicinity. Additionally, Project construction could indirectly result in mortality of bats and their young, if present within the construction footprint. **(Less than Significant with Mitigation)**

Impacts on natural habitats described above would result in the loss of some common and special-status bat foraging habitat, loss of areas that provide habitat for special-status bat prey, and temporary impacts on foraging individuals through the alteration of foraging patterns. Altered foraging patterns could include avoidance of work areas because of increased noise and activity levels during Project activities, among other changes in behavior. However, because the Project would not result in substantial changes to the availability of foraging habitat in the vicinity, the Project is not expected to have a substantial long-term impact on foraging habitat or prey availability.

The Project would result in the removal of a small amount of potential roosting sites for bats, such as small stands of mixed riparian woodland habitat or small abandoned buildings such as sheds. Construction activities near potential roosting habitat could flush a small number of roosting bats during daylight hours, which could increase the potential for predation by predatory birds. However, the Project is expected to result in impacts to few such bats, if any. If common species of bats are displaced, sufficient alternative night-roosting habitat is present in the construction footprint. Therefore, displacement during construction would not result in substantial loss of individuals from local and regional populations.

Project-related disturbance in close proximity to a maternity roost could potentially cause females to abandon their young. Loss of a small to moderate sized maternity roost of common bats would not result in a substantial impact on these species as a whole. The loss of even a small maternity roost of pallid bats or Townsend's big-eared bats could result in population-level impacts to these species given their regional rarity. This represents a potentially significant impact, reduced to a less-than-significant impact with implementation of **Mitigation Measures BIO-2, BIO-11,** and **BIO-12.** These measures require implementation of EACCS measures and BMPs, a pre-construction survey, construction exclusion zones, seasonal work windows for areas near any active roosts, and protocols for removing roost to ensure bats are not harmed. Additionally, these measures include protocols for the replacement of roost structures in the event that a maternity roost is lost as a result of the Project.

Mitigation for Impact BIO-1.9

> **Mitigation Measure BIO-2** (discussed above)
>
> **Mitigation Measure BIO-11:** A qualified bat biologist will conduct a pre-construction/pre-demolition survey for roosting bats within 15 days prior to the commencement of construction activities within 400 feet of trees or buildings providing potential roosting habitat. The survey will focus on detecting bats that may be day-roosting in trees within or immediately adjacent to (i.e., within 100 feet of) the impact areas. If suitable roost sites are

found and a visual survey is not adequate to determine presence or absence of bats, acoustical equipment will be used to determine occupancy. If no evidence of bat roosts is found, any buildings or trees that contain potential roosting sites and are proposed for removal will be removed within 15 days following completion of the survey.

If a day roost is found during the maternity season (1 April until the young are flying, typically by 31 August) within 400 feet of the impact areas, a qualified bat biologist (in consultation with the CDFW) will determine the width of a buffer that will be established around the roost. No construction-related activity shall occur within the buffer during the maternity season. Typical buffers recommended between intense construction activity and pallid bat roosts are: 90 feet for motor vehicles and foot traffic, 120 feet for heavy equipment, 150 feet for trenching, 250 feet for idling equipment or generators, 250 feet for shielded lighting, and 400 feet for unshielded lighting. No tree or structure containing a maternity roost will be removed or otherwise physically disturbed during the maternity season.

Outside the maternity season, a day roost may be removed after individual bats are safely evicted under the direction of a qualified bat biologist. Eviction will occur between 1 September and 31 March, but will not occur during long periods of inclement or cold weather (as determined by the bat biologist) when prey are not available or bats are in torpor. If feasible, one-way doors will be used to evict bats. If use of a one-way door is not feasible, or the exact location of the roost entrance is not known, the roosts that need to be removed shall first be disturbed by the bat biologist. Such disturbance will occur at dusk to allow bats to escape during the darker hours. These buildings or trees shall then be removed the following day. All of these activities will be performed under the supervision of the bat biologist.

Mitigation Measure BIO-12: Compensatory mitigation for impacts on active bat roosts would not be warranted unless a maternity roost of pallid bats or Townsend's big-eared bats will be lost. In this instance, the provision of one or more alternate roost structures would be appropriate to reduce impacts on special-status bat species. If a pallid bat or Townsend's big-eared bat day roost is located within a tree or building to be removed, an alternative bat roost structure will be provided by the City of Dublin and its partners. The design and placement of this structure will be determined by a bat biologist, in consultation with the CDFW, based on the location of the original roost and the habitat conditions in the vicinity. The roost structure will be built to specifications as determined by a bat biologist and CDFW, or it may be purchased from an appropriate vendor. The structure will be placed as close to the impacted roost site as feasible. This bat structure will be erected at least one month prior to removal of the original roost structure. A bat biologist will monitor this structure during the breeding season for up to two years following completion of the Project, or until it is found to be occupied by bats (whichever occurs first), to provide information for future projects regarding the effectiveness of such structures in minimizing impacts to bats.

Special-status Nesting Birds

Impact BIO-1.10: Project construction could result in take of a special-status individual bird, egg, or nest, should an individual be foraging or nesting within the construction footprint during construction. **(Less than Significant with Mitigation)**

Suitable habitat is present for the white-tailed kite, loggerhead shrike, and grasshopper sparrow in many areas surrounding the BSA, particularly in the hills north of the BSA. The construction footprint represents a very small fraction of the total breeding habitat available to these species. Furthermore, no more than one or two nests of any of these species are likely to be impacted, as described in **Table 5.3-1**. Therefore, the Project is not expected to substantially reduce these species' populations or habitats and any Project impacts would be minimal.

The golden eagle and the yellow warbler are expected to occur only as occasional foraging birds during the nonbreeding season and are not expected to nest in the BSA. Impacts on the non-developed habitats in the BSA would result in the loss of some foraging habitat and prey production areas as well as a temporary impact on foraging individuals through the alteration of foraging patterns. However, because the Project would not result in substantial changes to the availability of foraging habitat in the area, the Project is not expected to have a substantial long-term impact on foraging habitat or prey availability for golden eagle or yellow warbler.

However, the Project could result in direct take of a special-status individual bird, egg, or nest, should an individual be foraging or nesting within the construction footprint during construction. This represents a potentially significant impact, reduced to a less-than-significant level with application of **Mitigation Measures BIO-2** and **BIO-13**. These measures require implementation of EACCS measures and BMPs, pre-construction surveys, work exclusion areas to protect active nests, and seasonal work windows to avoid harm to nesting birds.

Mitigation for Impact BIO-1.10

Mitigation Measure BIO-2 (discussed above)

Mitigation Measure BIO-13: Project implementation shall include the following measures to comply with the MBTA and California Fish and Game Code and avoid death or injury of special-status birds or their active nests, eggs, or young.

- *Avoidance of the Nesting Bird Season.* If feasible, Project activities will be scheduled to avoid the avian nesting season. If such activities are scheduled to take place outside the nesting season, all impacts on nesting birds, including raptors, protected under the MBTA and California Fish and Game Code, would be avoided. The nesting season for most birds in Alameda County typically extends from February 1 through August 31, although in most years, a majority of birds have finished nesting by August 1.
- *Vegetation Removal during the Non-Nesting Season.* If Project activities will not be initiated until after the start of the nesting season, potential nesting substrate (e.g., bushes, trees, grasses, and other vegetation) that is scheduled to be removed may be

removed prior to the start of the nesting season (e.g., prior to 1 February) to reduce the potential for initiation of nests. If it is not feasible to schedule vegetation removal during the nonbreeding season, or where vegetation cannot be removed (e.g., in areas immediately adjacent to the site), then pre-construction surveys for nesting birds will be conducted as described below. Sensitive and/or regulated wetland vegetation would not be removed prior to construction, if feasible.

- *Pre-construction/Pre-disturbance Surveys for Nesting Birds.* If it is not possible to schedule Project activities between September 1 and February 1, then a qualified biologist will conduct pre-construction surveys for nesting birds to ensure that no nests will be disturbed during Project implementation. These surveys will be conducted no more than one week prior to the initiation of Project activities. During this survey, a qualified biologist will inspect all potential nesting habitats (e.g., trees, shrubs, grasslands, and structures) within 300 feet of impact areas for raptor nests and within 100 feet of impact areas for nests of non-raptors. Surveys for burrowing owls and nesting golden eagles will extend out to 0.5 mile from the Project site (to the extent that such areas are accessible).

- *Buffers around Active Nests.* If an active nest (i.e., a nest with eggs or young, or any completed raptor nest attended by adults) is found sufficiently close to the construction footprint to be disturbed by these activities, the biologist, in consultation with CDFW, will determine the extent of a disturbance-free buffer zone to be established around the nest to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during Project implementation. Typical buffers are 0.25 mile (or 0.5-mile line-of-sight) for golden eagles, 250 feet for burrowing owls, 300 feet for other raptors, and 50-100 feet for non-raptors. Because the majority of the site is already subject to disturbance by vehicles and pedestrians, activities that will be prohibited from occurring within the buffer zone around a nest will be determined on a case-by-case basis by a qualified biologist. In general, activities prohibited within such a buffer while a nest is active will be limited to new construction-related activities (i.e., activities that were not ongoing when the nest was constructed) involving significantly greater noise, human presence, or vibrations than were present prior to nest initiation.

- *Nest Deterrence.* If necessary to avoid impacts to active nests, nest starts may be removed on a regular basis (e.g., every second or third day), starting in late January or early February to prevent active nests from becoming established.

Migratory Birds

Impact BIO-1.11: Project construction could result in impacts to migratory bird species, their eggs, or nests, should an individual be foraging or nesting within the construction footprint during construction. **(Less than Significant with Mitigation)**

The MBTA and California Fish and Game Code protect migratory birds, including their eggs, nests, and young. Several species of birds protected under the MBTA and the California Fish and Game

Code may nest within or adjacent to the BSA. These include the red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), mourning dove (*Zenaida macroura)*, Say's phoebe (*Sayornis saya*), song sparrow (*Melospiza melodia*), black phoebe (*Sayornis nigricans*), Bewick's wren (*Thryomanes bewickii*), Anna's hummingbird (*Calypte anna*), red-tailed hawk (*Buteo jamaicensis*), and house finch (*Haemorhous mexicanus*). The Project would impact a relatively small amount of potential nesting habitat for migratory birds and would have no measurable impact on regional populations of these species because the impacted habitat represents such a small proportion of regionally available habitat. The Project could potentially impact migratory bird species protected by the MBTA and California Fish and Game Code should an individual be foraging or nesting within the construction footprint site during construction. This represents a potentially significant impact, reduced to a less-than-significant level with application of **Mitigation Measures BIO-2** and **BIO-13**, described above. These measures require implementation of EACCS measures and BMPs, pre-construction surveys, work exclusion areas to protect active nests, and seasonal work windows to avoid harm to migratory birds.

Mitigation for Impact BIO-1.11

Mitigation Measures BIO-2 and **BIO-13** (discussed above)

C. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS

Impact BIO-2: The Project may adversely affect riparian habitat and other sensitive natural communities within the construction footprint, through temporary disturbance during construction and permanent loss of natural areas through conversion to a multi-modal roadway. **(Less than Significant with Mitigation)**

The Project would permanently impact to 0.70 acres of riparian grassland through culverting of streams, construction of the Cottonwood Creek bridge abutments and piers, and grading associated with bridge supports. Project construction would temporary impact 2.15 acres of riparian grassland due to construction access and work within top of bank of the ephemeral and perennial streams. Culverting and installation of structures would cause the Project-related loss of small amounts of this habitat type, while grading would simply permanently alter topography within these areas. Access has the potential to remove vegetation, cause compaction or erosion of soils, and may also include temporary grading that is later restored to pre-Project contours.

Project work would result in 0.11 acres of direct permanent impacts to riparian woodland habitat due to construction of the roadway and removal of approximately 8 red willow trees, and 0.05 acres of temporary impacts related to potential trimming of a large valley oak tree in the Cottonwood Creek corridor to construct the bridge. Riparian woodland trees along Cottonwood Creek were carefully avoided in the bridge design.

The Project would comply with the NPDES and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters, which would prevent stream downcutting, riparian bank erosion, or other downstream impacts. All impacts to riparian

habitats have been designed to be the minimum necessary. Work areas in riparian areas would be restricted to areas immediately adjacent to permanent impact locations. Access within the outer banks of Cottonwood Creek would be minimized and would not utilize long access paths from top-of-bank to the floodplain below.

However, the Project could still impact riparian habitat. This represents a potentially significant impact, reduced to a less-than-significant level with implementation of **Mitigation Measures BIO-5** and **BIO-14** through **BIO-16.** These measures include compensatory mitigation for habitat loss, consistent with the EACCS, to ensure suitable habitat continues to be available for protected species. The mitigation provides construction controls to delineate and avoid riparian areas, requires implementation of EACCS avoidance and minimization measures in riparian areas, and requires a tree protection zone for the valley oak tree north of the proposed bridge, along with other construction measures to protect riparian areas. Finally, in-kind mitigation for loss of riparian areas will be required consistent with the EACCS.

Mitigation for Impact BIO-2

Mitigation Measures BIO-5 (discussed above)

Mitigation Measure BIO-14: Project implementation shall include the following measures to reduce riparian habitat impacts:

- All riparian areas and riparian trees to be preserved will be clearly depicted on final Project plans. Areas to be avoided shall be indicated and protected at the site using orange sensitive area fencing to ensure inadvertent impacts do not occur.
- No equipment will be staged or refueled in the riparian areas along Cottonwood Creek.
- All appropriate AMMs listed in the EACCS that would apply to and protect these riparian habitats will be enacted.

Mitigation Measure BIO-15: The valley oak tree to be avoided during implementation of the Project will be protected with a tree protection zone, developed under the consultation of a qualified, International Society of Arborists-certified arborist. This tree protection zone may be larger than the drip line of the tree, as determined by the qualified arborist, and will be delineated with orange construction fencing. No fill placement, equipment access, or materials stockpiling may occur within the tree protection zone, unless approved by the qualified arborist (for example for crown trimming, if needed).

Mitigation Measure BIO-16: The permanent loss of riparian habitat types shall be mitigated as described in the EACCS. Mitigation will be provided via preservation, enhancement, and management as per EACCS guidelines. Because all riparian habitats in the construction footprint provide habitat for focal species, the mitigation ratio for the impacts will be at least 2.5:1 (acreage of new habitat: acreage of impacted habitat). Because the wetland and stream habitats all provide dispersal and foraging habitat for California red-

legged frog and California tiger salamander, the final mitigation ratio must be as high as the determined EACCS requirements for focal species. Mitigation ratios will vary based on the location and quality of the mitigation lands, which have not been selected yet. Mitigation must be in-kind for mixed riparian woodland impacts but riparian grassland impacts may be mitigated with either grassy or wooded riparian habitat.

Temporary impacts to riparian habitat shall be restored in place at a 1:1 ratio through re-establishment of original contours along banks, decompaction of compacted soils where necessary, and seeding with a native seed mix developed by a qualified restoration ecologist and containing species such as alkali barley (*Hordeum depressum*), meadow barley (*Hordeum brachyantherum),* purple needlegrass (*Stipa purpurea*), and/or other native grass and forb species that occur in the Project vicinity. Temporary impact areas will be monitored for 2 years and the criteria for success will be 75 percent vegetation cover or more compared to pre-Project conditions and no more than 5 percent cover of Cal-IPC-rated moderate and high impact weed species (excluding Cal-IPC-rated annual grasses).

D. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to marshes, vernal pools, etc.) through direct removal, filling, hydrological interruption, or other means

Impact BIO-3: The Project may adversely affect protected wetlands through temporary placement of construction equipment, construction access, grading, placement of Project fill material, and permanent roadway improvements. **(Less than Significant with Mitigation)**

Wetland delineation surveys conducted during April and May of 2018 identified four habitats within the BSA that may be protected under Section 404 of the CWA: seasonal wetlands, perennial marsh, perennial streams, and ephemeral streams. **Table 5.3-4** summarizes impacts that would occur to these habitats as a result of the Project, outlined below:

- The Project would result in direct permanent effects to 0.10 acres and 749 linear feet of stream habitats through culverting of five streams that intersect the proposed road alignment, and placement of fill through grading and road construction.
- The Project would result in direct temporary impacts to 0.03 acres of stream habitats due to construction access, movement of equipment and personnel, and a temporary crossing of Cottonwood Creek.[16]

[16] The Cottonwood Creek crossing may be clearspan across the low flow channel, or it may be constructed with temporary fill such as rock placed within the OHWMs to create a temporarily culverted access road. Indirect impacts could include interruption or alteration of hydrology to waters downstream of the Project improvements, or reduction in water quality of downstream waters.

- The Project would result in 0.12 acres of direct permanent impacts to seasonal wetlands (including 249 linear feet of in-channel seasonal wetlands) as a result of pavement or road construction.
- The Project would result in 0.33 acres of direct temporary impacts to perennial marsh (<0.01 acres) and seasonal wetlands (0.33 acres) due to grading and construction access.

Table 5.3-4 Project Impacts to Section 404 Aquatic Resources

Habitat Category	Temporary Impact (acres)	Permanent Impact (acres)	Total Impact (acres)
Perennial stream	0.01	0.02	0.03
Ephemeral stream	0.02	0.08	0.10
Perennial marsh	<0.01	0	<0.01
Seasonal wetland	0.33	0.12	0.45

Source: H. T. Harvey & Associates, 2018

The Project design incorporates measures to avoid impacts to Section 404 aquatic resources. For example, the Project has been carefully designed to not interrupt hydrology to wetlands and streams to the south of the proposed road through appropriately sized and placed culverts, and a clearspan bridge over Cottonwood Creek that avoids placement of bridge supports within the OHWMs of the creek. In addition, the culvert conveying the perennial stream along the east side of the western portion of Croak Road has been carefully designed as a native channel bottom, wide box culvert to allow water to flow out into the field wetland complex, as it does today.

All impacts to wetlands and waters have been designed to be the minimum necessary. Work areas in wetlands and streams would be restricted to areas immediately adjacent to permanent impact locations. However, significant impacts to Section 404 resources could still occur. **Mitigation Measures BIO-5**, **BIO-17, BIO-18** would reduce this impact to a less-than-significant level. These measures include compensatory mitigation for habitat loss, consistent with the EACCS, to ensure suitable habitat continues to be available for protected species. In addition to compensatory mitigation for permanent habitat loss, on-site restoration of temporary impact areas is required. The mitigation provides construction controls to delineate and avoid wetlands, requires implementation of EACCS avoidance and minimization measures in wetland areas, and provides seasonal work windows.

Mitigation for Impact BIO-3

Mitigation Measure BIO-5 (described above)

Mitigation Measure BIO-17: The following measures shall be implemented to reduce aquatic resource impacts:

- All wetlands and streams shall be clearly depicted on final Project plans. Areas to be avoided shall be indicated and protected at the site using orange sensitive area fencing to ensure inadvertent impacts do not occur.
- Final grading plans shall be developed that minimize grading-related fill and cut in wetlands and streams to the maximum extent feasible to achieve Project goals and improvements.
- Work within streams and wetlands would be restricted to the dry season from April 15 to October 15 (or as directed by regulatory permitting agency) to protect water quality.
- All appropriate AMMs listed in the EACCS that would apply to and protect these aquatic habitats will be enacted.
- No bioswales or other stormwater infrastructure, or non-critical Project elements such as landscaping, will be placed in wetlands or streams.
- All temporary fills placed in the Cottonwood Creek low-flow channel for construction access will be clean fills (such as clean rock) of a size that can be fully removed from the low-flow channel and the channel then restored to its former topography.
- The Project applicant will implement best management practices (BMPs) as recommended or required by the State or RWQCB to protect water quality. These measures will include, but are not limited to the following:
    - No debris, soil, silt, sand, bark, slash, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material will be allowed to enter into or be placed where it may be washed by rainfall or runoff into waters of the US/State or aquatic habitat.
    - No equipment will be operated in the live stream channel.
    - Equipment staging and parking areas shall occur within established access areas in upland habitat above the top of bank.
    - Machinery or vehicle refueling, washing, and maintenance shall occur at least 60 feet from the top-of-bank. Equipment shall be regularly maintained to prevent fluid leaks. Any leaks shall be captured in containers until the equipment is moved to a repair location. A spill prevention and response plan will be prepared prior to construction and will be implemented immediately for cleanup of fluid or hazardous materials spills.

- Standard erosion control and slope stabilization measures will be required for work performed in any area where erosion could lead to sedimentation of a waterbody.
- The Project will comply with the MRP and General Construction permit to prevent increases in peak flow, erosion, or reduction in water quality for downslope waters.

Mitigation Measure BIO-18: The permanent loss of waters and wetlands shall be mitigated per the EACCS. Mitigation will be provided via preservation, enhancement, and management as per EACCS guidelines. This may be purchased as bank credits or managed as a Project-specific mitigation site. Because all wetland and stream habitats in the Project site provide habitat for focal species, the mitigation ratio for the impacts will be at least 2.5:1 (acreage of new habitat:acreage of impacted habitat). Because the wetland and stream habitats all provide dispersal and foraging habitat for California red-legged frog and California tiger salamander, the final mitigation ratio must be as high as the determined EACCS requirements for focal species. The required mitigation ratio will vary based on the location and quality of the mitigation lands, which have not been selected yet. Additionally, compensatory mitigation for wetlands and waters must be provided in-kind (wetlands for wetlands and streams for streams).

Temporary impacts to these waters and wetlands will be restored in place at a 1:1 ratio through re-establishment of original contours in stream channels and wetlands, decompaction of compacted soils where necessary, and seeding with a native wetland seed mix developed by a qualified restoration ecologist containing species such as alkali barley and Mexican rush. Temporary impact areas will be monitored for 2 years and the criteria for success will be 75 percent vegetation cover or more compared to pre-Project conditions and no more than 5 percent cover of Cal-IPC-rated moderate and high impact weed species (excluding Cal-IPC-rated annual grasses).

E. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites

Impact BIO-4: The Project may interfere with species migration through segmentation of habitat within the BSA and disruption of nesting birds during Project construction. **(Less than Significant with Mitigation)**

The EACCS identifies three wildlife linkage categories within eastern Alameda County: grassland corridors, aquatic-upland connectivity, riparian/stream connectivity. As discussed below, the BSA supports habitat that falls within these wildlife linkage categories. In general, existing constraints such as the urban developments to the east and west and the I-580 corridor to the south of the Project site currently impede wildlife movement.

The Project site is within a cul-de-sac of upland grassland habitat between development to the west and east and I-580 to the south. This habitat is thus not considered a movement corridor for wildlife between more suitable habitats outside of the BSA

Grassland Corridors

The majority (121.31 acres) of the BSA consists of California annual grassland habitat (**Figure 5.3-1**), which could contribute to regional grassland corridors. Nearby physical constraints currently create barriers that impede wildlife movement in the Project vicinity, such as urbanized development in Dublin and Livermore, and the I-580 alignment south of the Project site. However, the Project would bisect and fragment currently contiguous annual grassland habitat in the BSA by isolating habitat between the Project site and the I-580 alignment. This represents a significant indirect impact, reduced to a less-than-significant level with implementation of **Mitigation Measure BIO-5**. This measure requires future compensatory mitigation based on habitat quality prior to Project implementation.

Construction disturbance during the avian breeding season (February 1 through August 31, for most species) could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests. This represents a significant indirect impact, reduced to a less-than-significant level with implementation of **Mitigation Measure BIO-13**. This measure requires pre-construction surveys, work exclusion areas to protect active nests, and seasonal work windows to avoid harm to nesting birds.

Aquatic-upland Connectivity

The Project site contains aquatic features with California tiger salamander and California red-legged frog habitat. While suitable breeding ponds are absent from the BSA, perennial and ephemeral stream, perennial marsh, and seasonal wetland habitats on-site may provide suitable dispersal and foraging habitat for the species, while California annual grasslands in the BSA support California ground squirrel and pocket gopher colonies whose burrows can provide suitable refugia for California tiger salamander. Thus, the Project would bisect existing aquatic-upland connectivity areas in BSA by isolating habitat between the Project site and the existing I-580 alignment. This represents a potentially significant indirect impact. To avoid this impact, Dublin will provide compensatory mitigation for both direct (construction-footprint) and indirect (south of the new roadway) California red-legged frog and California tiger salamander habitat loss, using the EACCS mitigation scoresheet so that California red-legged frog and California tiger salamander mitigation will be provided appropriately, as described in **Mitigation Measure BIO-5** above. This will ensure that suitable habitat remains available for these species. In the unincorporated County portion of the Project, the use of a free-span bridge over Cottonwood Creek would allow California red-legged frogs and California tiger salamanders to continue to move back and forth under the new road, thus avoiding indirect habitat loss in the County portion of the BSA. Therefore, with implementation of **Mitigation Measure BIO-5**, this impact is reduced to a less-than-significant level.

Mitigation for Impact BIO-4

Mitigation Measures BIO-5 and **BIO-13** (described above)

Less than Significant Impacts

Riparian/Stream Connectivity

As discussed above and depicted in Figure 5.3-1, the construction footprint contains several perennial streams, perennial streams, and other riparian areas. Project implementation would not significantly affect riparian connectivity, because the use of a free-span bridge over Cottonwood Creek and culverts at all other drainages would allow California red-legged frogs and California tiger salamanders to continue to move back and forth under the new road. This impact would be **less than significant**.

F. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinances.

And

G. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan.

Impact BIO-5: Without proper mitigation implementing the East Alameda County Conservation Strategy, the Project could conflict with the goals, objectives, and mitigation criteria contained in that strategy. **(Less than Significant with Mitigation)**

All non-developed portions of the BSA are considered to provide habitat for one or more EACCS focal species. Potential impacts to habitat and protected species would be reduced to a less-than-significant level through implementation of the mitigation measures listed above. All mitigation measures proposed in this section are derived directly from or consistent with the General Minimization Measures listed in the Programmatic Biological Opinion (PBO) for the EACCS. With implementation of mitigation measures stated in this chapter, including **Mitigation Measures BIO-2** through **BIO-10, BIO-14, BIO-16, BIO-17,** and **BIO-18**, this impact would be less than significant. These mitigation measures apply EACCS measures, BMPs, and mitigation ratios to the Project to ensure Project mitigation is consistent with the EACCS.

Mitigation for Impact BIO-5

Mitigation Measures BIO-2 through **BIO-10, BIO-14**, **BIO-16**, **BIO-17**, and **BIO-18** (described above)

Less than Significant Impacts

Alameda County and City of Dublin Tree Ordinance

As discussed above, the County's Tree Ordinance requires that projects involving the removal of trees at least 10 feet tall and 2-inches DBH on the main stem obtain an encroachment permit from Alameda County. An ordinance-sized valley oak tree is present on unincorporated County lands, but would be preserved and therefore no encroachment permit would be necessary.

The City of Dublin Heritage Tree Ordinance outlines requirements for tree removal of any heritage tree. Approximately 8 red willow trees would be removed within the City limits. A eucalyptus (*Eucalyptus sp*.) tree may also be removed. However, these trees are not considered heritage tree species under the ordinance and are smaller than the 24-inch size requirement. Therefore, the Project would not need a tree removal permit.

For the above stated reasons, the Project would comply with all local policies or ordinances protecting biological resource. This impact would be **less than significant**.

City of Livermore Tree Preservation Ordinance

No trees occur in the small portion of the Project site that falls within Livermore. Therefore, Livermore's Tree Preservation Ordinance does not apply.

Other Habitat Conservation Plans

The BSA is not located within an area covered by an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Therefore, the Project would not conflict with any such documents. While the EACCS is a region-wide plan for conservation of sensitive species and their habitats, it is not a formal Habitat Conservation Plan and does not provide take coverage. Nevertheless, the Project will comply with the measures and requirements of the EACCS.

CUMULATIVE IMPACTS

Cumulative impacts arise due to the linking of impacts from past, present, and foreseeable future projects in the region. Other projects in the area include past and planned residential, commercial, and infrastructure development projects that could adversely affect these species and restoration projects that would benefit these species (see **Chapter 4.0, Introduction to Environmental Analysis**). Future development activities in the Dublin, the County, and Livermore, and elsewhere around the BSA would impact the same types of habitats and species that would be affected by the Project. Therefore, the Project, in combination with other past, present, and foreseeable future projects, could cumulatively impact sensitive habitats and special-status species in the area.

However, as discussed in this section, conservation measures would be implemented to avoid, minimize, and mitigate impacts on these resources. Projects in the region that impact resources similar to those impacted by the Project would be subject to CEQA regulations, EACCS requirements (in eastern Alameda County and public projects in Dublin), and regulatory permits for impacts to

protected species and habitats. Such projects must mitigate their impacts on sensitive habitats and special-status species per the requirements of USFWS, CDFW, and/or the EACCS as applicable, ensuring future projects provide adequate mitigation in a regional framework intended to prevent deleterious cumulative impacts to species and their habitats.

As discussed above, the EACCS is designed to address and avoid cumulative impacts on biological resources in the BSA and larger eastern Alameda County area. The Project would implement required EACCS mitigation at ratios specified in the EACCS. Project compliance with the EACCS combined with the controls described above which would apply to future projects ensures a cumulative impact would not occur. The Project would not have a cumulatively considerable contribution to cumulative effects on biological resources.

REFERENCES

City of Dublin. 1985. City of Dublin General Plan. Community Development Department. Dublin, CA. Amended November, 2017.

City of Dublin. 1994. East Dublin Specific Plan. Community Development Department. Dublin, CA. Updated September 2016.

East Alameda County Conservation Strategy Steering Committee. 2010. East Alameda County Conservation Strategy. Available: http://www.eastalco-conservation.org/documents.html. Accessed: November 5, 2018.